A LAND AND WATER RESOURCE MANAGEMENT PLAN FOR KENOSHA COUNTY: 2017-2026

Kenosha County Land & Water Conservation

Prepared by the

Kenosha County Department of Public Works and Development Services
Division of Planning & Development

February 2016

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EXECUTIVE SUMMARY

In 1997, Chapter 92 of the *Wisconsin Statutes* was amended to require, and give authority for, counties to develop their own land and water resource management plans (LWRMP). The LWRMP is a State-mandated long-range planning document intended to guide the activities of the County's Land and Water Conservation Division (LWCD), in its efforts to protect and improve land and water resources. The initial Kenosha County LWRMP was adopted by the County Board in 2001. A revised and updated version of the plan was approved in 2007. This second revision of the LWRMP has been prepared following the requirements of Chapters ATCP 50 and NR 151 of the *Wisconsin Admin. Code*, The development of this plan is intended to serve as a 10-year workplan which will:

- Specifically address the implementation of State nonpoint source pollution performance standards developed by the Wisconsin Departments of Natural Resources (WDNR) and the Department of Agriculture, Trade and Consumer Protection (DATCP);
- Identify local land and water resources concerns, issues, and priorities;
- Establish goals and objectives in response to the identified concerns and issues;
- Develop a comprehensive program integrating existing and proposed resource management programs plans, and funding sources designed to achieve the established goals and objectives;
- Establish partnerships between agencies, municipalities, and other organizations;
- Incorporate an informational and educational strategy in response to the identified concerns and issues; and
- Identify a method to evaluate and monitor progress.

The Kenosha County Land and Water Resource Management Plan incorporates inventory findings, including land use, natural resource data, soil erosion levels, and water quality data. Additionally, the plan addresses the principal land and water resource concerns and issues that were identified by the Kenosha County Land and Water Resource Management Plan Citizen Advisory Committee (CAC). The principal issues and concerns that were identified by the Advisory Committee include the following:

- Cropland erosion from excess sedimentation into lakes and streams;
- Flooding and stormwater management issues;
- Urbanization and wetland losses;
- Invasive species control;
- Waterfront development and shoreline erosion; and
- Lack of natural resource and environmental information to schools and County residents.

The Kenosha County Land and Water Resource Management Plan revision contains the following five chapters:

Chapter 1 – INTRODUCTION AND PLAN DEVELOPMENT PROCESS
Chapter 2 – KENOSHA COUNTY OVERVIEW
Chapter 3 – AGRICULTURAL AND NATURAL RESOURCE ASSESSMENT
Chapter 4 – RELATED PLANS, REGULATIONS, NATURAL RESOURCE PROGRAMS AND CONSERVATION APPROACHES
Chapter 5 – GOALS, OBJECTIVES, IMPLEMENTATION, MONITORING/EVALUATION, AND ESTIMATED COSTS

PUBLIC PARTICIPATION

The plan was developed under the guidance of a Citizen Advisory Committee that was comprised of individuals that had natural resource, nonpoint source, agricultural, or environmental backgrounds. The Committee included agency personnel from the Wisconsin Department of Natural Resources (WDNR), the USDA Natural Resources Conservation Service (NRCS), the Farm Service Agency (FSA), and Southeastern Wisconsin Regional Planning Commission (SEWRPC); local farmers, educators, lake representatives, county land and water conservation staff; municipal and county government personnel. The Committee reviewed each chapter of the plan in draft form and provided comments and recommendations, which were then addressed in the final plan. This plan was approved by the Advisory Committee on September 17, 2015; the Kenosha County Land and Water Conservation Committee on September 30, 2015; the Kenosha County Planning, Development & Extension Education Committee on October 14, 2012 approved by the Wisconsin Land and Water Conservation Board on February 2, 2016, with final approval by the Kenosha County Board of Supervisors on February 16, 2016.

KENOSHA COUNTY OVERVIEW

Kenosha County Overview in Chapter 2 identifies, describes, and documents demographic trends and existing infrastructure that affects land use and agricultural development in Kenosha County. The size, composition and spatial distribution of the population and its access to services have a profound influence on the quantity and quality of the natural resource base, including agricultural resources of Kenosha County. Chapter 2 summarizes these important elements below:

- Population
- Municipal Expansion
- Housing
- Utilities And Community Facilities
- Community Facilities And Services
- Communications
- Energy
- Water Supply
- Waste Management
- Transportation

The most sustainable land use patterns are served by efficient public facilities and services that meet the social, economic, physical, ecological, and quality-of-life needs of Kenosha County. This vision includes relatively compact urban service areas providing basic urban services and facilities; a safe efficient transportation system; a strong agricultural resource base closely connected to resource-rich open spaces; a clean, sustainable water resource, and abundant public and private recreational opportunities all while retaining the County's cultural heritage and rural character, founded in agriculture.

AGRICULTURAL AND NATURAL RESOURCE ASSESSMENT

Chapter 3 - Agricultural And Natural Resource Assessment provides inventory information on existing agricultural and natural resources in Kenosha County. Information regarding soil types, existing farmland, farming operations, nonmetallic mining resources, topography and geology, surface and groundwater water resources, forest resources, natural areas and critical species habitat sites, and environmental corridors are included in this chapter.

RELATED PLANS, REGULATIONS, NATURAL RESOURCE PROGRAMS AND CONSERVATION APPROACHES

The southeastern region of Wisconsin, Kenosha County and its communities has a rich history of planning. Numerous plans have been developed at the regional level including a regional land use plan, transportation system plan, natural areas plan, regional water supply and a water quality management plans. Plans developed at the County level include a Comprehensive Plan, Farmland Preservation Plan, County Park and Open Space Plan, All-Hazard Mitigation Plan, Land and Water Resources Management Plan, and Comprehensive Watershed and Basin Plans. These existing plans and programs provide the guidelines for natural resource management in Kenosha County.

Chapter 4 also describes conservation funding programs used to preserve agricultural and natural resources that are available to county and local governments, including federal, state, county, and local programs. Included are sources of grant funds for the acquisition, preservation, and development of park and open space sites and information regarding current practices, programs, and methods used to preserve agricultural and natural resources.

Programs that focus on agricultural and natural resources include the Wisconsin Farmland Preservation Program, Working Lands - Purchase of Agriculture Conservation Easements Program, Soil and Water Resource Management Program, Conservation Reserve Program, Conservation Reserve Enhancement Program, Environmental Quality Incentives Program, and the Wetland Reserve Program. Federal and State programs are also available to help County and local governments and nonprofit conservation organizations to acquire park and open space lands, and to help to provide recreational facilities, including bicycle and pedestrian facilities.

GOALS, OBJECTIVES, IMPLEMENTATION, MONITORING/EVALUATION, AND ESTIMATED COSTS

The CAC developed the five goals established on the first page of this summary. No goal is a priority over another goal. In Chapter 5, Table 14 (pages 82-96), lays out the workplan goals and objectives. The activities listed in bold under the planned actions are measurable and planned goals to be accomplished by the Land and Water Conservation Division. The other planned actions include activities to assist and support the goals and workplan. A summary of the 5-year workplan, goals and objectives include the following;

The first major goal includes the protection and perseveration of the County's land and water resources. This includes utilizing the Farmland Preservation Program to protect prime farmland. Working with local agency partners to enhance and protect other environmental resources through easements, improvements through planning efforts, promoting riparian buffers, and the protection of surface and ground water. This goal also includes the protection of forests and woodlands, the proper management of shorelands and floodplains, and the appropriate reclamation of non-metallic mining sites.

The next goal is to increase resource protection by reducing non-point source pollution. The Agricultural Performance Standards, Farmland Preservation Program, Nutrient Management Plan Development, Animal Waste Management Ordinance, and Livestock Facility Siting are all effective methods of completing this task. The priority farm strategy will target farms in soil and water quality management areas, farms with livestock, and farmers participating in the Soil and Water Resources (SWRM) program. Our GIS tracking system, along with a compliance inventory

and monitoring system will help guide our office through this process. We will also utilize SWRM, EQIP, WHIP, WRP, CRP, TRM, CSP, and any other State and Federal grant funds to assist in accomplishing this goal. Establishing partnerships between local municipalities and the Kenosha County LWCD, to accomplish phosphorus compliance, by implementing Nutrient Trading and/or Adaptive Management strategies will improve water quality throughout the County.

Implementing the non-agricultural performance standards to reduce non-point source water pollution is the third major goal. Implementation activities for this goal include: shoreland erosion control, stormwater management planning, construction site erosion control, and illicit discharge monitoring. Also, the MS4 permit requirements will be implemented through the Land and Water Conservation Division.

Another major goal is to increase the information, education and awareness of activities to promote the conservation of natural resources, the environment, and the State Performance Standards. This includes proving public outreach to developers, engineers, landscapers, local officials, lake associations, schools, farmers and the general public. We will continue to provide quarterly “Ties to the Land” and “Compass Point” newsletters, an annual “Rural Landowner Workshop”, and assist with other training and seminar opportunities. Also, the LWCD will continue to provide information and education through one-on-one contacts, phone calls, lake packets, and handouts related to all of the goals listed in this summary.

The final goal, for this workplan, is the management and control of invasive and non-native species. This includes youth activities, workshops, clean boats/clean waters volunteer programs and the encouragement, support, and implementation of new and existing aquatic plant management plans.

PROGRESS MONITORING AND EVALUATION

The monitoring and evaluation of program efforts is important to ensure the effectiveness of the planned activities described in Chapter 5 of this plan. The Kenosha County Land and Water Conservation Division currently employs a variety of methods to monitor and evaluate the progress of program efforts. These methods include; a GIS database, advisory committees, annual progress reports, and water quality monitoring. Monitoring program effectiveness will be carried out through analyses and quantification of soil erosion, sediment and pollutant loading, priority farm compliance, tracking the level of protection of environmentally sensitive lands and analysis of water quality data. Chapter 5 of this report describes some of these efforts in more detail and how they will be used to monitor and evaluate the success in implementing planned activities.

Consistent and thorough evaluation and monitoring of conservation efforts is essential to ensure the effectiveness of the Kenosha County Land and Water Resource Management Plan. An annual progress report will be the primary method used to evaluate progress of implementing the planned activities outlined in Chapter 5 of this report. The progress report will consist of a summary of the annual outcomes and accomplishments of planned activities outlined in the workplan. This summary may include, but is not limited to: completed information and education activities, landowners contacted, best management practices designed and installed, conservation and nutrient management plans written or revised, cost-share agreements developed, erosion control plans reviewed, compliance monitoring and status, and other planned program results. These annual progress reports will be compiled and forwarded to the DATCP and the WDNR. The results of the monitoring and evaluations conducted over the long-range term of this plan (2017-2026), will be used to improve the next land and water resource management plan.

ESTIMATED COSTS

Since this plan does not have the authority to establish County budget items, the estimated costs provided below are solely intended to satisfy state LWRM planning requirements and do not in any way represent anticipated Kenosha County budgets. It is also assumed that no additional staff resources will be made available to implement this plan beyond what is currently allocated to land and water conservation programs in the County. The cost estimates contained in Table 15 in Chapter 5 of this report are based on average annual costs to maintain existing program efforts and staffing levels.

It is reasonable to assume that existing staff will be able to provide a significant portion of the time required for implementation of this plan. If additional manpower is needed, it will be obtained through cooperative ventures with local universities, colleges, and volunteer groups; consultants, and limited-term or seasonal staff increases.

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CHAPTER 1

INTRODUCTION AND PLAN DEVELOPMENT PROCESS

INTRODUCTION

In 1997, the State Legislature, through Wisconsin Act 27, amended Chapter 92 of the *Wisconsin Statutes*, requiring that all counties develop a land and water resource management (LWRM) plan. The intent of this charge is to foster and support a locally led process which is intended to address each individual county's unique natural resources; identify particular problems associated with the resource base; and establish a plan to help protect and restore those resources. The purpose of the Kenosha County land and water resource management planning effort is to develop a plan to be used as a guide for Kenosha County in carrying out its natural resource-related programs. The plan development process is intended to encourage innovative programming and leadership and to build local support. The plan identifies the natural resources and the current condition of those resources, the limitations of those resources, and sets forth a strategy that addresses the natural resource issues and problems. This plan also provides a means to educate the public about these issues and problems and include them in the steps necessary to protect the natural resource base.

The initial 5-year Kenosha County Land and Water Resource Management Plan was approved in October 2000 through December 2004. Chapter 92 of the *Statutes* requires that LWRM Plans must be updated every five years for counties to be able to receive conservation staff funding and cost-share grant monies. In September 2003 Kenosha County requested and received a 3-year extension of its existing LWRM Plan from the Wisconsin Land and Water Conservation Board until December 2007. The first revision of the original plan was approved for 5-years in October 2007. This was the Community Assistance Planning Report No. 255 (2nd Edition) *A Land and Water Resource Management Plan for Kenosha County: 2008-2012.* In December 2012 Kenosha County was awarded a 2-year extension that was expanded in March 2014 an additional 2-years until December 2016.

This current plan update will be the 2nd revision to be drafted and written by Kenosha County LWCD staff and will utilize the previous plans as baseline information. The requirements of the Wis. Stats., 92.06, and additional guidelines have been established by the Wisconsin Department of Agriculture, Trade and Consumer Protection and the Wisconsin Land and Water Conservation Board. Kenosha County LWCD Staff has reviewed this LWRM plan based on the criteria required in s. ATCP 50.12, *Wis. Admin. Code,* and s. 92.10, *Statutes* and has determined that the plan meets the criteria for DATCP approval of this plan. This plan will serve as a program guide for local conservation efforts in Kenosha County.

PLAN DEVELOPMENT and PUBLIC PARTICIPATION

The Kenosha County Land and Water Resource Management Plan was developed through a collective effort of a number of agencies and organizations under the overall direction of the Kenosha County Land and Water Conservation Committee (LWCC). Similar to the original plan an important aspect of the development of the revised plan relied on the participation from both citizens of the County, as well as representatives from various intergovernmental agencies. The agencies that were involved include the Kenosha County Division of Planning and Development (P&D), the Southeastern Wisconsin Regional Planning Commission (SEWRPC), the Wisconsin Department of Natural Resources (WDNR), the University of Wisconsin-Extension Service (UW-Ext), the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP), and the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) and the USDA Farm Services Agency (FSA). The plan was developed under the guidance of the Kenosha County Land and Water Resource Management Plan Citizen

Advisory Committee (CAC), which was created by the County specifically for plan development purposes and is, comprised of elected and appointed officials, agency personnel and citizens knowledgeable in land and water resource matters. The members of the Citizen Advisory Committee and their affiliation are listed in Table 1. In addition to the formation and active participation of the Advisory Committee, the plan development process included the following steps discussed below.

The 2nd revision to the Kenosha County Land and Water Resource Management Plan began in March of 2015 with the selection of members to serve on the Advisory Committee. The Advisory Committee meetings were held on August 5 and September 14, 2015. The Committee reviewed each chapter of the plan in draft form and provided comments and recommendations. The Committee was advised to focus on a 10-year period to analyze resource needs, forecast applicable trends, and identify existing as well as anticipated changes over the next ten years. This information was analyzed; assessments were made and incorporated in the final plan. On September 30, 2015, the County Land and Water Conservation Committee (LWCC) met to approve the plan; this meeting was open to the public for citizen comment and input. The approved plan was forwarded to the Kenosha County Planning, Development & Extension Education Committee (PDECC) on October 14, 2015. This PDECC meeting was announced twice in the *Kenosha News* prior to the meeting as a Class II public notice. The Wisconsin Land and Water Conservation Board adopted the LWRMP on February 2, 2016, with final approval by the Kenosha County Board of Supervisors on February 16, 2016.

EXISTING LAND AND WATER RESOURCE-RELATED PLANS

The Kenosha County Land and Water Resource Management Plan complements other planning and resource management efforts, linking local level planning with regional- and watershed-level plans. The plan therefore provides an integrated framework within which Kenosha County will conduct activities to protect and rehabilitate the land and water resource base of the County, and contribute to the environmentally sound management of these valuable resources in a coordinated and compatible manner with watershed wide needs and resource management programs.

One of the first steps to be undertaken in land and water resource management planning is the inventory and review of the recommendations of previously prepared reports and plans. A number of plans currently exist which focus on the natural resources of Kenosha County. These plans include programs which address the interconnectedness of the natural resources of Kenosha County with those of the related watersheds and the Southeastern Wisconsin Region, as well as the immediacy and importance of natural resources at the County and community level. The relevant information input into this current planning program was generally related to actions undertaken by the County or potentially to be undertaken by the County. Selected plans of particular value were drawn upon and included; local neighborhood and county-wide comprehensive land use plans, park and open space plans, water supply and water quality plans, lake and watershed management plans, and sewer service area plans prepared for individual communities.

PLAN CONTENT

The Kenosha County Land and Water Resource Management Plan was organized into five chapters. Following this initial introductory chapter, the second chapter presents an overview of Kenosha County's population and infrastructure. Chapter 3 provides a description of the natural resource base of Kenosha County. The fourth chapter summarizes the existing regulations, plans and programs relevant to Kenosha County. Chapter 5 describes the goals, objectives, workplan, proposed budget and implementation steps recommended to address the identified issues and problems and discusses future progress monitoring and evaluation strategies.

Table 1

KENOSHA COUNTY LAND AND WATER RESOURCE MANAGEMENT PLAN
CITIZEN ADVISORY COMMITTEE MEMBERS AND SUPPORTING STAFF

Name	Title or Affiliation
Committee Member	
Ron Johnson, Chairman	Kenosha County Supervisor,12th District, Kenosha County LWCC, Chairman
Kimberly Breunig	Kenosha County Supervisor-Vice Chair, 21st District, Kenosha County LWCC
Dave Daniels	Dairy Farmer, Town of Brighton, Member Kenosha County LWCC
Brandi Richter	District Conservationist, U.S.D.A. Natural Resources Conservation Service
Judy Jooss	Lakes Specialist, Member Kenosha County LWCC
Kimberly Iczkowski	Executive Director, U.S.D.A. Farm Services Agency
Mark Edquist	Farmer and Farm Bureau Board Member
Ben Benninghoff	Nonpoint Source Supervisor, Wisconsin Department of Natural Resources
Chuck Haubrich	Board Member, Kenosha/Kenosha Land Trust
Allison Thielen	Executive Director, Root/Pike Watershed Initiative
Randy Kerkman	Administrator, Village of Bristol
Dr. Tom Slawski	Chief Biologist, Environmental Division, Southeastern Wisconsin Regional Planning Commission
Leigh Presley	Agriculture Educator, University of Wisconsin-Extension
Supporting Staff Members	
Dan Treloar	County Conservationist, Kenosha County Division of Planning Operations
Andy Buehler	Director, Kenosha County Division of Planning Operations

PLAN PRIORITY ISSUES

At the initial meetings of the CAC, members reviewed the plan priority issues from the last two LWRM plans, and recommended amendments/revisions to the workplan along with adding recommendations for new workplan action items, ranking issues, goals and the objectives. The CAC identified similar issues of concern including the following:

- Cropland erosion from excess sedimentation into lakes and streams;
- Flooding and stormwater management issues;
- Urbanization and wetland losses;
- Invasive species
- Waterfront development and shoreline erosion; and
- Lack of natural resource and environmental information to schools and County residents.

The goals, objectives, and recommended actions contained in this plan were developed to focus on those issues and concerns identified by the CAC and public survey through the protection and preservation the county's land and water resources, the reduction of nonpoint pollution by implementing the state agricultural and non-agricultural performance standards, increasing natural resource and environmental information and education, and improved management of invasive and nonnative species.

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CHAPTER 2

KENOSHA COUNTY OVERVIEW

INTRODUCTION

Kenosha County is located in extreme southeastern Wisconsin, and is bordered on the east by Lake Michigan, on the north by Racine County, on the west by Racine and Walworth Counties, and on the south by Lake and McHenry Counties in Illinois. The impacts of urbanization in the Milwaukee and Racine metropolitan areas, and in particular, in northeastern Illinois, are increasingly affecting the County.

The County covers about 278 square miles and contains one city, all or parts of seven villages, and six towns. There are all or parts of five natural watersheds and a total of about 4,800 acres of inland surface waters within the County. The sub-continental divide between the Mississippi River and Great Lakes drainage basins traverses the County and has important implications for some aspects of land and water resources planning.

The majority of the population resides in the eastern portion of Kenosha County, within the City of Kenosha, the Village of Pleasant Prairie, the Village of Bristol and the Village of Somers. However, population centers are also found in the vicinity of some of the major lakes, including the Villages of Paddock Lake, Silver Lake, and Twin Lakes and in the partially urbanized town areas. These urban centers play an important role in the County's agricultural infrastructure, as well as providing centers for processing, marketing, and sales of agricultural products and supplies. Much of the land in the County remains in agriculture, but the dairy industry has steadily declined. The primary form of agriculture involves cash-grain farming for corn and soybeans. Additionally, as urban and nontraditional rural development has expanded into rural areas, the horse industry has grown significantly, and the number of small-scale and hobby farms has greatly increased, as has the horticulture industry. The major industries within the County are generally located east of IH 94, with smaller industrial development being located in nearly all of the other urban centers.

Kenosha County has experienced significant urban growth and development pressure, and faced the challenge of balancing this growth in conjunction with protecting and maintaining its natural resources. The County has a rich agricultural history and a diversified natural resource base, including the Lake Michigan near shore area, several inland lakes, as well as major river systems. Additionally, the County contains significant areas of quality wetlands, woodlands, and grasslands, the most important of which are incorporated into the areas designated as environmental corridors.

The rural setting of Kenosha County – with its delicate combination of natural areas, farmlands and small towns is rare in southeastern Wisconsin. Productive cropland and dairy farms, profitable nurseries and orchards highlight the rural beauty and cultural heritage of Kenosha County. Niche markets, such as equine facilities and sustainable farms have become prominent in the County. Kenosha County has an important and valuable agricultural base that is integrated into its rich natural resource environment.

POPULATION

The historical and current population of Kenosha County is set forth in Table 2. Between 1860 and 1890, the total population in Kenosha County increased modestly from 13,900 to 15,581 residents. The County experienced rapid growth rates in the decades between 1890 and 1930, including population gains of almost 40 percent between 1890 and 1900 and over 50 percent in each of the two decades between 1900 and 1920. Growth stagnated during the 1930s Depression Era, but increased again during the decades from 1940 to 1970, including a population gain of almost 34 percent from 1950 to 1960. Rapid growth during this period can be attributed to both the migration of new residents to Kenosha County and the natural increase of the existing population (more births than deaths). After World War II, the existing population grew as soldiers returned home and began families, creating the baby-boom generation. Federal subsidies for home ownership led to suburban migration, as families sought newer single-family homes outside the central city. Federal legislation adopted in 1956 led to the construction of a new network of freeways and expressways, providing convenient highway access between suburbs and the central city. The County continued to grow between 1970 and 2000 at more modest rates of around 4 percent in each of the decades between 1970 and 1990 and almost 17 percent between 1990 and 2000. According to the U.S. Census Bureau the County population grew over 11 percent between 2000 and 2010, from 149,577 to 166,426 residents. The total population of Kenosha County in 2010 is 166,426.

Table 2

HISTORICAL POPULATION OF KENOSHA COUNTY: 1850-2010

		Change From Preceding Period	
Year	Population	Number	Percent
1850	10,734	- -	- -
1860	13,900	3,166	29.5
1870	13,147	-753	-5.4
1880	13,550	403	3.1
1890	15,581	2,031	15
1900	21,707	6,126	39.3
1910	32,929	11,222	51.7
1920	51,284	18,355	55.7
1930	63,297	12,013	23.4
1940	63,505	208	0.3
1950	75,238	11,733	18.5
1960	100,615	25,377	33.7
1970	117,917	17,302	17.2
1980	123,137	5,220	4.4
1990	128,181	5,044	4.1
2000	149,577	21,396	16.7
2010	166,426	16,849	11.3

Source: U.S. Bureau of the Census

Kenosha County's population grew by 86,072 people, or about 136 percent, between 1940 and 2000. During this same period, the Southeastern Wisconsin Region experienced an increase of 863,466 residents, or about 81 percent; the State experienced an increase of 2,226,088 residents, or about 71 percent; and the United States experienced an increase of about 150 million residents, or about 113 percent. Thus, Kenosha County experienced a higher rate of growth than the Region, State, and Nation during this period.

Population changes in Kenosha County communities between 1980 and 2010, using population estimates from the U.S Bureau of Census, are shown on Table 3. Between 2000 and 2010, about 53 percent of the County's population growth occurred in the City of Kenosha, about 18 percent occurred in towns, and about 29 percent occurred in villages. In 2010, about 60 percent of the County's population lived in the City of Kenosha, about 19 percent lived in towns, and about 21 percent lived in villages, as shown on Map 1.

Many of the communities in Kenosha County witnessed significant increases in population from 2000 to 2010. The largest numerical increase in community population occurred in the City of Kenosha, where the population grew by 8,866 residents, or over 9.8 percent. The Town of Salem witnessed an increase of 2,196 residents, or about 22 percent, during the decade. The population of the Village of Pleasant Prairie grew by about 3,583 residents, or 22 percent. The Village of Twin Lakes grew by nearly 17 percent between 2000 and 2010 and the Village of Silver Lake by 3 percent. The Village of Paddock Lake was the only community that decreased in population; 0.66 percent or 20 residents. According to the U.S. Census Bureau the state of Wisconsin population grew 6 percent from 2000 to 2010 from 5,363,675 to 5,686,986, respectively.

Table 3

POPULATION TRENDS IN KENOSHA COUNTY COMMUNITIES: 1980-2010

	Year				Change 2000-2010	
Community	1980	1990	2000	2010	Number	Percent
City Kenosha	77,685	80,426	90,352	99,218	8,866	9.8
Villages						
Bristol	3,599	3,968	4,538	4,747	570	14.4
Paddock Lake	2,207	2,662	3,012	2,992	-20	-0.7
Pleasant Prairie a	12,703	12,037	16,136	19,719	3,583	22.2
Silver Lake	1,598	1,801	2,341	2,411	70	3.0
Twin Lakes	3,474	3,989	5,124	5,989	865	16.9
Towns						
Brighton	1,180	1,264	1,450	1,456	6	0.4
Paris	1,612	1,482	1,473	1,504	31	2.1
Randall	2,155	2,395	2,929	3,180	251	8.57
Salem	6,292	7,146	9,871	12,067	2,196	22.3
Somers b	7,724	7,748	9,059	9,597	538	5.9
Wheatland	2,908	3,263	3,292	3,373	81	2.46
Kenosha County	123,137	128,181	149,577	166,426	16,849	11.3

a In 1989, the Town of Pleasant Prairie was incorporated as the Village of Pleasant Prairie and the Town of Pleasant Prairie ceased to exist. The figure used for 1980 represents the population of the former Town of Pleasant Prairie. At the time of incorporation in 1989, a large populated land area was boundary-adjusted from the Village into the City of Kenosha and the Town of Somers. This adjustment accounts for the population reduction in the Village from 1980 to 1990. The City of Kenosha gained an estimated 66 residents and the Town of Somers gained an estimated 588 residents. Source: U.S. Bureau of the Census.

b the Village of Somers incorporated in April 2015, no official population estimated were available from the U.S. Bureau of the Census.

Municipal Expansion

The size, composition and spatial distribution of the population have a profound influence on the quantity and quality of the natural resource base, including agricultural resources of Kenosha County. According to the Southeast Wisconsin Regional Planning Commission (SEWRPC), the increase in population in Kenosha County has outpaced the regional and state population growth. Significant changes in the proportional distribution of households, jobs, and commercial developments in the Region have occurred. The proliferation of un-sewered scattered residential development in the Region has resulted in a trend toward lower urban densities and increased dependency on the automobile. A substantial portion of new residential development has occurred in a dispersed pattern outside of public services, such as public drinking water, waste treatment and public transportation. The automobile and the efficient roadway system has enabled the population to live further from job sites, public services and shopping areas.

SEWRPC utilizes an urban growth analysis and a land use inventory to monitor urban growth and development in the Region. The urban growth analysis delineates concentrations of urban development and depicts the urbanization of the Region over the past 170 years. The Commission land use inventory places all land and water areas in the Region into one of 66 land use categories, providing a basis for analyzing specific urban and nonurban land uses. The inventory results are summarized below;

A small portion of the City of Kenosha was developed prior to 1850. In 1900, urban development was still largely confined to the City of Kenosha. The period from 1900 to 1950 saw continued expansion of the City of Kenosha, incorporation of the Villages of Silver Lake and Twin Lakes, and development around several inland lakes and the Lake Michigan shoreline in the Town of Somers. The period between 1950 and 1963 saw significant growth outward from existing urban areas and incorporation of the Village of Paddock Lake. The period from 1963 to 2000 saw significant urban growth in scattered locations throughout the County, particularly in the eastern and southern portions of the County.

Urban service areas are identified in the regional land use plan based on the sanitary sewer service areas delineated in the regional water quality management plan. Urban service areas in Kenosha County include the City of Kenosha; the Villages of Paddock Lake, Silver Lake, Twin Lakes; Pleasant Prairie, Somers, and portions of the Village of Bristol, and the Towns of Paris, Randall, Salem, and Somers. Although the Greater Kenosha planned sanitary sewer service area includes a small portion of the Town of Paris, the Paris Town Board did not adopt the sewer service area plan, and does not support the inclusion of lands in the Town in the sewer service area. Urban service areas are typically currently served by, or planned to be served by local parks, elementary, middle, and high schools, shopping areas, fire/rescue facilities, and public sanitary sewers within a 25-year period. Portions of the sewer service areas in the City of Kenosha and portions of the Village of Pleasant Prairie, Village of Paddock Lake, and the Village of Bristol and the Village of Somers are also served by public water.

Urban land uses consist of residential; commercial; industrial; governmental and institutional; and transportation, communication, and utility uses. Urban land uses encompassed about 38,051 acres, or about 21 percent of the County, in 2000. Residential land comprised the largest urban land use category in the County, encompassing 18,597 acres, or about 49 percent of all urban land and about 10 percent of the total County. Commercial land encompassed about 1,443 acres or about 4 percent of all urban land and about 1 percent of the total County. Industrial land encompassed about 1,436 acres or about 4 percent of all urban land and about 1 percent of the total County. Land used for transportation, utilities, and communications facilities encompassed about 11,475 acres, or about 30 percent of all urban land and about 6 percent of the total County. Land used for government and institutional uses encompassed about 1,691 acres, or about 4 percent of all urban land and about 1 percent of the total County. Intensively used recreational land encompassed about 3,409 acres, or about 9 percent of all urban land and about 2 percent of the total County.

Nonurban land uses consist of agricultural lands; natural resource areas, including surface waters, wetlands, and woodlands; extractive sites and landfills; and unused land. Nonurban land uses encompassed about 140,151 acres or about 79 percent of the County in 2000. Agricultural land was the predominant land use in the County in 2000. It encompassed 94,716 acres, or about 68 percent of nonurban land uses and 53 percent of the total County. Natural resource areas consisting of surface water, wetlands, and woodlands combined to encompass 30,367 acres, or about 22 percent of nonurban land uses and about 17 percent of the total County. Extractive uses combined encompass about 518 acres, or less than 1 percent of nonurban land uses and the total County. Open lands encompassed about 14,181 acres, or about 10 percent of nonurban land and about 8 percent of the total County. To ensure that future planning reflects land use development that has occurred to date, the 2000 land use inventory was supplemented by identifying major development projects that occurred between 2000 and 2007, based on the 2005 aerial photographs produced by SEWRPC, field inspections, and consultation with local and county officials and staff.

Based on the 2007 generalized inventory, approximately 49,000 acres, or about 28 percent, of the County were in urban uses. Also, approximately 32,246 acres, or about 18 percent, were encompassed in natural resource areas (woodlands, nonfarmed wetlands, and surface waters). Almost half of the County, about 82,089 acres, or approximately 46 percent, were in agricultural use with an additional 1,358 acres, or 1 percent, consisting of farmed wetlands

Between 1975 and 2000, all urban land uses, with the exception of railroad rights-of-way, experienced an increase in acreage. Residential land uses experienced an increase of 4,617 acres, which was the largest increase of all land use categories in the County between 1975 and 2000. Single-family residential accounted for 3,939 acres, or about 85 percent of the total residential land increase. The second largest urban land use category increase was transportation, communications, and utilities. These land uses increased by 3,059 acres. Street and highway rights-of-way accounted for about 78 percent of the increase in this category between 1975 and 2000. The third largest increase in urban land use was recreational land uses. Recreational land use increased by 969 acres, due primarily to the development of the Prairie Springs Park in the Village of Pleasant Prairie and the Kenosha County golf courses. Commercial land use increased by 686 acres (fourth largest increase), and industrial land use increased by 488 acres (fifth largest increase). Between 1975 and 2000, nonurban land uses decreased by about 10,000 acres, or by about 7 percent. Agricultural, woodlands, and extractive land uses were nonurban land use categories that decreased in acreage. Agricultural lands decreased by 14,077 acres, or by about 13 percent, between 1975 and 2000. Woodlands decreased by 463 acres, and extractive land uses decreased by 309 acres between 1975 and 2000. All other nonurban land uses, including wetlands, surface water, landfills, and open lands, experienced an increase in acreage. These trends indicate a post-recession potential demand for additional land to accommodate urban land uses, especially for single-family residential and the transportation infrastructure that serves it, in Kenosha County.

There has also been a decreasing supply of land for agricultural use. If this trend continues it poses several challenges to the desire of County residents to preserve productive farmland while identifying an adequate amount of land to accommodate the projected increase of about 26,800 additional households and 19,850 additional jobs expected to be created in the County between 2000 and 2035.

Housing

There were 69,288 total housing units in the County in 2010. About 68 percent, or 42,581 were owner occupied and about 32 percent, or 20,069, were renter-occupied. About 9 percent of the total housing units, or 6,638 units, were vacant, for rent, for sale or seasonal. The median value for owner-occupied housing units in the County in 2010 was $169,600. Zoning in the Towns of Brighton, Paris, Randall, Salem, Somers, and Wheatland is regulated by the Kenosha County General Zoning and Shoreland/Floodplain Zoning Ordinance. This zoning ordinance allows for single-family residential zoning districts, two- and three-family zoning districts, and multiple-family districts. Zoning ordinances for the

City of Kenosha, Villages of Bristol, Paddock Lake, Pleasant Prairie, Silver Lake, Somers and Twin Lakes include a variety of single-, two-, and multi-family residential zoning districts. About 34,324 housing units should be added to the existing housing stock in the County to meet the projected housing demand by the plan design year of 2035.

Utilities, Energy, and Community Facilities

Development in Kenosha County is supported by private and public utilities that provide residents and businesses with electric energy, natural gas, communication, water, sewage disposal, and solid waste management facilities and services, and community facilities that provide educational, recreational, administrative, and other services.

Wastewater Treatment

Adopted sanitary sewer service area plans within the County include the Greater Kenosha Area (the City of Kenosha and portions of the Village of Pleasant Prairie and Village of Somers, and eastern portions of the Village of Bristol); the Village of Silver Lake, the Village of Twin Lakes, the Village of Paddock Lake, and portions of the Town of Salem and western portions of the Village of Bristol. About 74,070 acres, or 42 percent of the County, were located within adopted sanitary sewer service areas in 2007. About 26,400 acres, or about 15 percent of the County, and an estimated 133,800 residents, or 89 percent of the population, were served by public sanitary sewers in 2000. There is also a sanitary sewer service area in the County which is not served by a sewage treatment plant. This area in the Town of Randall, which is part of the unrefined Powers-Benedict-Tombeau Lakes sanitary sewer service area that lies in both Kenosha and Walworth Counties, fits the urban characteristics used to delineate sanitary sewer service areas in the regional water quality management plan and is envisioned to be served by the Pell Lake sewage treatment plant.

Kenosha County regulates private onsite waste treatment systems (POWTS) for any development that is not served by sanitary sewer. Development in this case applies to residential, commercial, and industrial uses. Chapter 15, “Sanitary Code and Private Sewage System Ordinance,” of the Kenosha County Code of Ordinances sets forth the regulations for POWTS in both incorporated (city and village) and unincorporated (town) areas of the County. Between 1980 and 2006, permits were issued for 3,865 POWTS in Kenosha County.

Water Supply

Portions of Kenosha County served by public water utilities encompassed about 27,452 acres, or about 15 percent of the County, in 2005. An estimated 116,900 residents, or about 74 percent of the County population, were served by public water utilities in 2005. Private water supply systems served about 266 acres in 2005. Users not served by a public or private water utility obtain water from private wells. As provided in the Great Lakes Compact and 2007 Wisconsin Act 227, communities located partially within the Lake Michigan watershed (the City of Kenosha, Village of Pleasant Prairie, and the Town and Village of Somers) can utilize Lake Michigan as a source of water supply provided certain provisions are met. Communities located entirely outside the Lake Michigan watershed, but within a County that straddles the watershed (such as Kenosha County), may request approval from the DNR to use Lake Michigan water as a public water source, provided the spent water is returned to the Lake via a sanitary sewerage system. In this case, approval is also contingent upon the community meeting the provisions of the Great Lakes Compact and Act 227. Based on the long-standing coordinated water supply and sanitary sewerage planning program and the provisions of Wisconsin Act 227 that include the Village of Bristol Utility District No. 3 planned water supply service area as part of the Greater Kenosha Area system, it may be expected that the utility district will be able to continue using its existing allotment of Lake Michigan water for the currently approved sanitary sewer service area.

Electric Power

Most of Kenosha County is provided with electric power services by We Energies. A We Energies electric power generation facility, powered by low-sulfur coal, is located in the Village of Pleasant Prairie. We Energies also own and operate the Paris Generating Station, a natural gas-based plant, in the Town of Paris. The Village of Twin Lakes and the western portion of the Town of Randall receive electric power service from Alliant Energy. Electric power is also provided to the electric power system from Waste Management's Pheasant Run Landfill Gas-To-Energy facility.

Natural Gas

Natural gas service is provided within Kenosha County by We Energies. ANR Pipeline Company operates an interstate system of natural gas pipelines, and provides natural gas to We Energies. ANR Pipeline owns a major underground pipeline that runs primarily east-west through the northern portion of Kenosha County in the City of Kenosha, the Village of Somers, and Towns of Brighton, Paris, and Somers. A separate branch of the ANR Pipeline runs through the Town of Wheatland. The North Shore Gas Company underground natural gas pipeline runs parallel to and west of IH 94 through the eastern portion of the Village of Bristol and portions of the City of Kenosha and Village of Pleasant Prairie until it connects with the ANR Pipeline in the Town of Paris. We Energies also has underground natural gas pipelines that branch off natural gas mainline pipelines, and are located in the City of Kenosha and the Village of Somers and the Towns of Paris, Randall, and Somers. The West Shore Pipeline, a transporter of refined petroleum products, runs north-south centrally through the County.

Communications

Telecommunication service providers in Kenosha County include AT&T, Charter Communications, Cingular (acquired by AT&T in 2007), Cyberlynk, Nextel, Sprint, TDS Metrocom, T-Mobile, SBC, U.S. Cellular, Verizon Wireless, Verizon North, and Time-Warner Cable, and Wisconsin Internet. Wireless antennas providing wireless cell phone service were located at 63 sites throughout Kenosha County in 2005. Recently rural residents have the ability to connect to wireless network made possible by a partnership between Kenosha County and HeirComm Inc. Kenosha County is one of the first in the state to complete a broadband internet project that makes high-speed access available countywide. The initiative improves access for residents, businesses and law enforcement. HeirComm equipment is located on 16 towers throughout western Kenosha County. It further uses relay equipment, mounted to silos, power poles or other structures, to circumvent obstructions to the signal.

Community Facilities and Services

Government and institutional buildings in Kenosha County include Federal, State and County offices; 12 municipal halls; seven libraries; and 16 U.S. post offices as of 2006. The City of Kenosha and the Villages of Pleasant Prairie and Twin Lakes each have a municipal police department that provides service 24 hours a day, seven days a week. The Village of Silver Lake Police Department provides service 20 hours a day. The Kenosha County Sheriff's Department provides service to the Village of Silver Lake for the remaining four hours of each day. The University of Wisconsin - Parkside also has a police department, which provides service to the campus 24 hours a day. All unincorporated areas in the County, the Village of Bristol, the Village of Paddock Lake, and portions of the Village of Genoa City located in the County are served by the Kenosha County Sheriff's Department. The Sheriff's Department also provides backup to all police departments in the County.

There were 11 fire departments serving the County in 2010, which include the Bristol, Kansasville, Kenosha, Paris, Pleasant Prairie, Randall, Salem, Silver Lake, Somers, Twin Lakes, and Wheatland Fire Departments. There were eight emergency medical service areas in Kenosha County in 2010. Many fire department personnel are cross-trained to provide both fire fighting, emergency medical, and/or hazardous materials handling. In addition, most fire and emergency service agencies have mutual aid

agreements in place with other departments if additional equipment or personnel are needed to respond to an emergency. There were four dispatch centers (Public Safety Answering Points) in Kenosha County taking emergency calls. The Kenosha City/County Joint Services PSAP takes calls 24 hours a day, and dispatches personnel or transfers calls, where appropriate, to a local dispatch center. Local PSAP's are operated by the Village of Pleasant Prairie and Village of Twin Lakes Police Departments. The UW-Parkside Police Department also maintains a PSAP for incidents on its campus.

There were 54 public schools and 21 private schools in 2006 serving elementary and secondary grades. There were also five institutions of higher learning in the County consisting of three private colleges, one public technical college, and one public university. There were 34 cemeteries in the County encompassing about 243 acres in 2006. There were three hospitals in the County offering a full range of medical services in 2006, Aurora Medical Center–Kenosha and Kenosha Medical Center Campus in the City of Kenosha and St. Catherine's Medical Center in the Village of Pleasant Prairie. Children's Hospital of Wisconsin–Kenosha is one of the nation's top pediatric facilities and a major teaching affiliate of The Medical College of Wisconsin. In 2006, there were 51 licensed family child care centers, 63 licensed group child care centers, and two licensed day camps in Kenosha County.

Waste Management

Solid waste collection in Kenosha County was provided by a combination of public and private services in 2006. Solid waste facilities in Kenosha County include transfer stations, solid waste storage facilities, recycling facilities, processing facilities, and compost sites. Most of the solid waste collected in the County is deposited in the Pheasant Run Landfill, owned by Waste Management, Inc., in the Town of Paris. Solid waste collected by Veolia Environmental Services is deposited at the Mallard Ridge landfill in Walworth County.

Transportation

This section presents inventories of the existing transportation system in Kenosha County. Much of the inventory information included in this section is drawn from the 2035 regional transportation system plan and the preceding plan for the year 2020, includes five elements: public transit, transportation systems management, travel demand management, bicycle and pedestrian facilities, and arterial streets and highways. Inventory information relating to these elements is presented in this section. Information on rail, harbors, and airport services is also provided.

The street and highway system serves several important functions, including providing for the movement of through vehicular traffic; providing for access of vehicular traffic to abutting land uses; providing for the movement of pedestrian and bicycle traffic; and serving as the location for utilities and stormwater drainage facilities. The arterial street and highway system is intended to provide a high degree of travel mobility, serving the through movement of traffic between and through urban areas. Arterial streets and highways accounted for 365 miles in the County in 2014, shown on Map 2. The primary function of land access streets is to provide access to abutting property. Collector streets are intended to serve primarily as connections between the arterial street system and the land access streets.

Public transportation service to the general public may be divided into the following three categories:

- Intercity or interregional public transportation that provides service across regional boundaries includes Amtrak railway passenger service, Metra Commuter rail service, interregional bus service, and commercial air travel.
- Urban public transportation, commonly referred to as public transit, is open to the general public and provides service within and between large urban areas. The Kenosha Area Transit System and the Kenosha-Racine-Milwaukee Commuter Bus fall into this category.
- Rural and small urban community public transportation, which is open to the general public and provides service in and between small urban communities and rural areas, may also provide

connections to urban areas. The western Kenosha County transit system operated by the County falls into this category.

Rail, bus, ferry, and airline carriers provided Kenosha County residents with public transportation service between the Southeastern Wisconsin Region and a number of cities and regions across the Country. Commuter rail service is provided between the City of Kenosha and Chicago by Metra's Union Pacific North line with intermediate stops between Kenosha and downtown Chicago. On weekdays in 2006, service to the Kenosha station consisted of nine commuter trains operating in each direction between Kenosha and Chicago. On Saturdays, five southbound trains and seven northbound trains operate, and on Sundays and holidays, three trains operate in each direction. Studies are underway to potentially extend commuter rail service coordinated with the Metra service from Chicago/Kenosha to Milwaukee.

Kenosha Area Transit provides seven regular, numbered bus routes serving all portions of the City of Kenosha and its immediate environs. Three additional routes serve major commercial, recreational, and employment centers, including limited stops in the Village of Pleasant Prairie and Bristol and the Town of Somers. The transit system also operates peak-hour tripper routes designed to serve Kenosha secondary schools, including 20 morning routes and 10 afternoon routes. Lastly, Kenosha Area Transit operates a 1.7-mile streetcar loop in the downtown central business district, which also connects the Metra commuter rail station and the Harbor Park residential development. The Kenosha-Racine-Milwaukee Commuter Bus, operated by Wisconsin Coach Lines/Coach USA offers fixed-route express transit service between the Cities of Kenosha, Racine, and Milwaukee. This service consists of eight round trips on weekdays and four round trips on weekends and holidays.

Specialized transportation services provide demand-responsive service to individuals who are elderly, disabled, or assessed as unable to use other transportation services. Kenosha County Achievement Center (KAC) provides a variety of accessible, specialized transportation services in the Kenosha County area. Care-A-Van is Kenosha Area Transit's Para-Transportation Service, operated by KAC. This door-to-door service is available for certified riders with a condition or disability that prevents them from using Kenosha Area Transit fixed-route buses. Western Kenosha County Transit is a regional bus service operating route deviation and door-to-door service throughout Kenosha County, Wisconsin, mainly serving the rural areas west of IH-94. Western Kenosha County offers service between Twin Lakes and the City of Kenosha. Free or discounted transportation service, is also available, to and from medical facilities to qualifying residents through Bucko Ambulatory Transport, CMB Taxi, KAS Transportation, and Southport Transportation.

Bikeways are classified as either "on-street" or "off-street" bikeways. On-street bikeways include bikeways located in a street right-of-way, which include bike lanes, shared roadways signed as bike routes, and bike paths separated from motor vehicle lanes but within the street right-of-way. "Off-street" bikeways are bike paths not located in a street right-of-way. The longest bikeway in the County is the Kenosha County Bicycle Trail, which spans north and south eight miles through the Village of Pleasant Prairie and the Town of Somers. The northern and southern segments of the Kenosha County Bicycle Trail are connected in the City of Kenosha by the Pike Trail. Additional on-street and off-street bikeways are located in the City of Kenosha with about 8.5 miles on-street miles and seven miles of off-street bikeway. A 3.1-mile paved multi-use trail encircles Lake Andrea in the Village of Pleasant Prairie. The Village of Paddock Lake has about 1.5 miles of on-street bikeways. The Village of Twin Lakes has a one-mile off-street bikeway. A 6.0 mile on-street bikeway is also located along CTH KR along the Kenosha-Racine County border in the Town of Paris.

Chartered air service and air freight services are provided at the publicly-owned Kenosha Regional Airport. Commercial (passenger) airline service is provided to residents of the County by General Mitchell International Airport, located in Milwaukee County, and Chicago's O'Hare and Midway International Airports. There are three privately-owned, public-use airports in Kenosha County, Vincent and Westosha

Airports in the Town of Randall and Camp Lake Airport in the Town of Salem. There are also eight privately-owned, private-use airports and six privately-owned, private-use heliports in the County.

SUMMARY

Chapter 2 identifies, describes, and documents demographic trends and existing infrastructure that affects land use and agricultural development in Kenosha County. The size, composition and spatial distribution of the population and its access to services have a profound influence on the quantity and quality of the natural resource base, including agricultural resources of Kenosha County. Chapter 2 summarizes these important elements below:

- Population
- Municipal Expansion
- Housing
- Utilities And Community Facilities
- Community Facilities And Services
- Communications
- Energy
- Water Supply
- Waste Management
- Transportation

The most sustainable land use patterns are served by efficient public facilities and services that meet the social, economic, physical, ecological, and quality-of-life needs of Kenosha County. This vision includes relatively compact urban service areas providing basic urban services and facilities; a safe efficient transportation system; a strong agricultural resource base closely connected to resource-rich open spaces; a clean, sustainable water resource, and abundant public and private recreational opportunities all while retaining the County's cultural heritage and rural character, founded in agriculture.

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CHAPTER 3

AGRICULTURAL AND NATURAL RESOURCE ASSESSMENT

INTRODUCTION

The conservation, preservation and wise use of agricultural and natural resources are fundamental to achieving strong and stable physical and economic development as well as maintaining community identity. Kenosha County recognizes that agricultural and natural resources are limited and very difficult or impossible to replace if damaged or destroyed. Information on the characteristics and location of agricultural, natural, and cultural resources in the County is needed to help properly guide future land uses. This information is necessary to avoid serious environmental problems and to ensure the protection of those precious resources.

In addition to providing food and fiber, agricultural areas contribute significantly to the maintenance of an ecological balance between plants and animals; provide locations proximal to urban centers for the production of certain food commodities which may require nearby population concentrations for an efficient production-distribution relationship; contribute to wildlife habitat; and provide open space which gives form and structure to community development. The maintenance of agricultural lands in agricultural use also serves to prevent urban sprawl, control public costs, maintain the local economic base, and preserve the rural lifestyle which is part of the unique cultural heritage of Kenosha County.

The collection and analysis of basic planning data are essential to the formulation of an effective Land and Water Resource Management Plan for Kenosha County. Such a plan requires detailed information on agricultural resources, as well as on other elements of the natural resource base, if agricultural lands and areas of environmental or open space significance are to be preserved and protected. Sound planning also requires an understanding of the size, composition and spatial distribution of the population, infrastructure, and services as described in Chapter 2. Increasing population levels typically result in the conversion of agricultural and other open lands to residential, industrial, commercial, or other intensive urban land uses. Once converted to urban use, these resources are lost forever. The need for prompt action to preserve the best remaining elements of the natural resource base while at the same time allowing for the efficient and economical expansion of urban areas necessitated by increased population and economic activity levels thus becomes apparent. An understanding of the County Comprehensive Plan, Town, and Neighborhood Plans is extremely important to sound resource management, since such plans and regulatory strategies provide the best indicator of community development objectives and provide insight into the probable amount and distribution of agricultural and open space lands envisioned to be converted to urban uses.

This chapter provides inventory information on existing agricultural and natural resources in Kenosha County. Information regarding soil types, existing farmland, farming operations, topography and geology, nonmetallic mineral resources, water resources, woodland resources, natural areas, critical species habitat sites, environmental corridors, park and open space sites, and climate is included in this chapter. The base year for inventory data presented in this chapter ranges from 1982 to 2015. The inventory data has been collected through regional land use and natural area planning activities conducted by Southeastern Wisconsin Regional Planning Commission (SEWRPC) State and Federal agencies including the Wisconsin Department of Natural Resources (WDNR), Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP), and the U.S. Department of Agriculture (USDA), and the Kenosha County Department of Planning & Development (P&D).

SOILS AND AGRICULTURAL RESOURCES

Soil Survey

The USDA Soil Conservation Service, now the Natural Resources Conservation Service (NRCS), issued a soil survey for Kenosha County documented in the USDA Soil Conservation Service, Soil Survey of Kenosha and Racine Counties, Wisconsin, 1971. Soils were identified and mapped and organized by soil association, soil series, and soil type. The soil survey results, including the attributes of each soil type, are now available on the NRCS website as part of the Soil Survey Geographic (SSURGO) database. Unless otherwise noted, the soil information in this chapter was obtained from the SSURGO database.

The soil survey can play an important role in land use decisions. The information contained in the soil survey can help identify which areas of the County are suitable for agricultural use and areas with limitations for development due to the hydric characteristics of the soil or bedrock near the surface.

Soil Associations

A soil association is a landscape that has a distinctive pattern of soils. It normally consists of one or more major soils and at least one minor soil, and is named for the major soils. Map 3 shows soil associations in Kenosha County. The map provides a general idea of the soils in the County and is useful for comparing different parts of the County. Planning decisions should be based on the more detailed soils information, including soil mapping units and interpretations for various land uses, contained in the soil survey. The nine soil associations in Kenosha County are briefly described below:

The ***Boyer-Granby*** *association* consists of well-drained to very poorly-drained soils that have a loam-to-sand subsoil, underlain by sandy glacial outwash. The soils are nearly level or gently sloping, occupying a low, long terrace adjoining Lake Michigan. This association encompasses about 1 percent of the County.

The ***Casco-Rodman*** *association* consists of well-drained and excessively-drained soils that have a clay-loam or gravelly-loam subsoil, shallow over sand and gravel, on stream terraces and moraine ridges. This association encompasses 2 percent of the County and is located in the western portion of the County.

The ***Fox-Casco*** *association* consists of well-drained soils that have a clay loam and silty clay loam subsoil. The soils are nearly level to rolling and occur mainly on terraces and on hills. This association encompasses about 12 percent of the County and is located primarily in the western portions of the County and along the Pike River in the Town of Somers.

The ***Hebron-Montgomery-Aztalan*** *association* consists of well-drained to poorly-drained soils that have a loamy to silty clay subsoil. The soils are nearly level to rolling and are located on lake plains close to Lake Michigan, along the Fox and Des Plaines Rivers, and along other streams. This association encompasses 24 percent of the County.

The ***Houghton-Palms*** *association* consists of very poorly-drained organic soils occurring in basins and depressions. This association encompasses less than 1 percent of the County and is located in limited areas in the western portion of the County.

The ***Miami*** *association* consists of well-drained soils that have silty clay-loam and clay-loam subsoil, formed in thin loess and the underlying loamy glacial till on ridges and knobs. This association encompasses about 3 percent of the County and is located in limited areas in the western portion of the County.

The ***Morley-Beecher-Ashkum*** *association* consists of well-drained to poorly-drained soils that have a silty clay or silty clay-loam subsoil. These soils are nearly level or gently sloping and occupy low, broad ridges and knobs that are dissected by drainageways and depressions. This association occurs throughout much of the County and is the second largest soil association, encompassing about 25 percent of the County.

The ***Varna-Elliott-Ashkum*** *association* consists of well-drained to poorly-drained soils that have a silty clay-loam-to-clay subsoil. These soils are nearly level or gently sloping and occur on low, broad ridges and knobs. This association is located throughout much of the northern and eastern areas of the County. This is the largest soil association within the County, encompassing over 32 percent of the total area.

The ***Warsaw-Plano*** *association* consists of well-drained soils that have a loam to silty clay-loam subsoil, moderately-deep to deep over sand and gravel on stream terraces. This association encompasses less than 1 percent of the County and is located in a small area in the southwestern portion of the County.

Soil Limitations for Development

A variety of soil characteristics can impact the suitability of land for agriculture and development. Soils that are saturated with water or that have a water table at or near the surface, known as hydric soils or severe wet soils pose significant limitations, especially for development. High water tables often cause wet basements and poorly-functioning absorption fields for POWTS. The excess wetness may also restrict the growth of landscaping plants and trees. Wet soils also restrict or prevent the use of land for crops, unless the land is artificially drained. Map 4 depicts the hydric soils in Kenosha County, as identified by the NRCS. There are 43,840 acres of hydric soils in the County. Although such areas are generally unsuitable for development, they may serve as important locations for restoration of wetlands, or as wildlife habitat.

Topographical features, particularly slopes, have a direct bearing on the potential for soil erosion and the sedimentation of surface waters. Slope steepness affects the velocity and, accordingly, the erosive potential of runoff. As a result, steep slopes place moderate to severe limitations on development and agricultural activities, especially in areas with highly erodible soil types. Map 5 indicates portions of Kenosha County that have slopes exceeding 6 percent. Approximately 456 acres, or 0.25 percent of the County, have slopes of 18 percent or greater, about 1,327 acres, or about 0.75 percent of the County, have slopes in a range from 12 to 18 percent, while about 6,496 acres or about 3.6 percent of the County with slopes greater that 6 percent and less than 12 percent. Areas with slopes exceeding 12 percent are located primarily in the western portion of the County. Steeply sloped agricultural land may make the operation of agricultural equipment difficult or even hazardous. Development or cultivation of steeply sloped lands is also likely to negatively impact surface water quality through related erosion and sedimentation.

Soil Suitability for Agricultural Production

The NRCS has classified the agricultural capability of soils based on their general suitability for most kinds of farming. These groupings are based on the limitations of the soils, the risk of damage when used, and the way in which the soils respond to treatment. Generally, lands with Class I and II soils are considered “National Prime Farmlands.” Almost 72 percent of the County is covered by prime farmland soils. Lands with Class III soils are considered “Farmlands of Statewide Significance,” which cover about 16 percent of the County. Class I soils have few limitations, the widest range of use, and the least risk of damage when used. The soils in the other classes have progressively greater natural limitations. Class II soils have some limitations that reduce the choice of plants that can be grown, or require moderate conservation practices to reduce the risk of damage when used. Class III soils have severe limitations that reduce the choice of plants, require special conservation practices, or both, and Class IV soils have very severe limitations. Class V, VI, and VII soils are considered suitable for pasture but not for crops,

and Class VIII soils are so rough, shallow, or otherwise limited that they do not produce economically worthwhile yields of crops, forage, or wood products.

The location and amount of Class I, II, and III soils, as set forth in Map 6 and Table 4, were an important consideration when farmland preservation areas were identified in the initial County farmland preservation plan (adopted in 1981) and the 2013 farmland preservation plan revision.

Table 4

AGRICULTURAL SOIL CAPABILITY IN KENOSHA COUNTY COMMUNITIES

Local Government	Class I Soils (acres)	Class II Soils (acres)	Class III Soils (acres)	Class IV, V, VI, VII, and VIII Soils and Unclassified Areas (acres)	Surface Water (acres)	Total (acres)[a]
City of Kenosha	- -	12,079	2,669	1,765	84	16,596
Village of Bristol	- -	16,418	3,840	816	318	21,393
Village of Pleasant Prairie	150	16,492	3,525	993	337	21,498
Village of Silver Lake	- -	448	284	137	1	871
Town of Brighton	2	16,230	3,243	3,091	330	22,896
Town of Paris	- -	18,500	3,723	741	49	23,013
Town of Salem	3	12,698	3,998	2,074	1,876	20,648
Town of Somers	20	16,962	1,166	451	60	18,658
Town of Wheatland	311	7,816	3,965	2,992	333	15,417
Village of Genoa City	34	111	1	1	- -	147
Village of Paddock Lake	- -	1,138	337	140	141	1,755
Village of Twin Lakes	28	1,995	829	901	1,028	4,782
Town of Randall	582	5,669	1,701	2,054	470	10,475
Kenosha County	1,130	126,556	29,281	16,154	5,028	178,149
Percent of Total Lands	0.6	71.0	16.4	9.1	2.8	100.0

[a]*Total acreage by community is based on 2005 civil divisions.*

Source: USDA-Natural Resources Conservation Service.

Existing Farmland

Much of the land in the County remains in agriculture, but the dairy industry has steadily declined. The primary form of agriculture involves cash grain farming for corn and soybeans. Additionally, as urban and nontraditional rural development has expanded into rural areas, the horse industry has grown significantly, and the number of small-scale and hobby farms has greatly increased. Farmland in Agricultural Preservation or General Agricultural Zoning Districts was inventoried in 2015. Kenosha County has 61,491 acres Agricultural Preservation District land and 18,993 acres of General Agricultural District lands in 2015, where such zoning districts existed. Agriculture is a major part of Kenosha County's heritage as significant farmlands and working farms still dominate the landscape. According to the USDA Census of Agriculture, in 2012 there were 359 farms in Kenosha County and 460 in 2007, a reduction 22 percent. The total acres of farmland in 2012 were 76,632 acres and 84,345 acres in 2007, a loss of 9 percent over that period. Statistics also showed that the size of farms has increased by 16 percent with the average acres of 213 and 183 in 2012 and 2007, respectively.

Map 7 shows the agricultural preservation and general agricultural lands in Kenosha County in 2015. Excluded incorporated areas are urban or urbanizing areas that do not have agricultural preservation districts. Agricultural lands are used for the cultivation of crops including row crops, grain crops, vegetable crops, hay, and pasture lands. Orchards, nurseries, and identified specialty crops such as mint, ginseng, and berry fields, are also produced. Farm buildings shown include barns, silos, and other buildings used

to store farm equipment or supplies or house farm animals and were drawn from SEWRPC 2010 land use inventory.

Cropland Erosion and Pollutant Loading

From 1999 to 2015, Kenosha County Conservation has conducted the Transect Cropland Erosion Survey program, which is a method to determine the average rate of cropland erosion throughout the County. In 2014, 72.2% of all cropland surveyed was eroding at or below tolerable (T) soil loss rates, 7.8 percent at 1-2 T and less than 1 percent greater than 2 T. Kenosha County has demonstrated improvements in crop erosion, but further efforts are needed to promote no-till practices.

Kenosha County Land and Water Conservation staff also utilized the modeling procedure STEPL v.4.3 (Spreadsheet Tool for Estimating Pollutant Load) to estimate pollutant loads on the landscape over a given year. The results of the STEPL model indicate that existing land use/cover in Kenosha County subwatersheds produces 1,012,569.7 lbs/yr of nitrogen, 242,068.9 lbs/yr of phosphorus, and 88,011.1 tons/yr of sediment. These results were used to identify areas where pollutant loading was especially high. The STEPL model also includes a BMP calculator that computes the combined effectiveness of multiple best management practices implemented in serial or parallel configurations (or both) in a subwatershed. Further details describing this analysis are discussed in Chapter 5.

Farm Production and Revenue

Farm production and revenue inventory data are useful in determining the economic impact of agriculture in Kenosha County and the major types of agricultural products (Table 5). Kenosha County farms combined to sell about $69 million worth of agricultural products in 2012. The top crop grown in Kenosha County by acreage consist of corn for grain, soybeans for beans, forage (hay and haylage), wheat for grain and corn for silage. These crops were grown on 68,098 acres in 2012. Grain crops were the predominant source of agricultural revenue in the County in 2012, accounting for about 36 percent of agricultural revenue.

Table 5

AGRICULTURAL SECTORS IN KENOSHA COUNTY AND WISCONSIN: 2012

	Kenosha County		State of Wisconsin	
Sector	2012 Sales (in thousands)	Percent of Total Agricultural Revenues	2012 Sales (in thousands)	Percent of Total Agricultural Revenues
Dairy	$13,296	19.3	$4,952,039	42.2
Horticulture	9,665	14.0	201,104	1.7
Grains (Crops)	35,239	51.1	3,382,513	28.8
Cattle and Calves	2,062	3.0	1,416,881	12.1
Vegetables	2,086	3.1	555,432	4.7
Other	6,518	9.5	1,236,507	10.5
Total	$68,866	100.0	$11,744,476	100.0

Source: USDA National Agricultural Statistics Service, 2012 Census of Agriculture.

The production and sale of nursery stock, greenhouse, floriculture and sod was the third-largest source of agricultural revenue in Kenosha County in 2012, a value in sale of nearly $10 Million and accounting for nearly 15 percent of total market value of agricultural products sold. The relative importance of the horticultural industry in the County compared to the State is likely a response to the demand for landscaping material for urban development in the County and the Milwaukee and Chicago metropolitan areas. According to the USDA Agricultural Statistics Service, Kenosha County ranked 7th in total horticultural sales in the State of Wisconsin.

The sale of livestock, poultry and their product sales grossed $20,694,000 or 30 percent of the total agricultural products sold. Milk and dairy products made up the largest portion, of this category, at $13,296,000, giving Kenosha a statewide rank of 57th in dairy sales. Kenosha County had 27 dairy farms in 2012. The market value of crops including nursery and greenhouse totaled $48,242,000 or 70 percent of the total agricultural products sold in Kenosha County. Statewide, Kenosha's agricultural revenue ranked 54th of the 72 state counties.

Average net income from farm operations in the County in 2012 was $45,666, which was higher than the State average of $39,603. Farming was the principal occupation of the farm operator on 166 farms, or about 46 percent, and was not the primary occupation of the farm operator on the remaining 193 farms, or 54 percent. Statewide, in 2012 farming was the principal occupation of the farm operator on about 49 percent of farms and was not the principal occupation of the farm operator on the remaining 51 percent of farms.

Agricultural Infrastructure and Support Services

The Working Lands Initiative and the farmland preservation program is more than just a program to provide tax credits as an incentive to preserve farmland for production, it is also a program designed to limit soil erosion and improve and protect water quality. New programs such as the Agricultural Enterprise Areas, and the Purchase of Agricultural Easements, will aid in maintaining an agricultural base for an extended future. This agricultural base will be essential in attracting agricultural related businesses, and, help define Kenosha County's image as a rural community, and suitable location to establish and maintain a farm or farm-related business or service.

As farming has declined in Kenosha County, so have the agricultural infrastructure and support services. The vast majority of cropland in Kenosha County is rented, which often means longer travel distances for farm machinery during planting and harvesting times, and competition with commuter traffic on the roads. Table 6 summarizes some of the known agricultural related businesses, agencies and cooperatives in Kenosha County. No specific sources are listed for the data in Table 6 because it came from numerous sources and the information is not easy to find or verify, and becomes dated quickly.

It should be noted that many local businesses that serve a majority of non-farm customers do provide some support services to farmers. Examples include builders, electricians, plumbers, rental services, and various parts suppliers, repair or other business related services. Farmers often lend their services to other farmers, for trucking, storage, drying, implement repair, general labor and other support services, many of these types of services may not even be counted in the various agricultural inventories.

For purposes of this plan, it was not attempted to quantify these types of support services because it would be difficult to set standards or verify much of the information, especially if agriculture is a secondary client base for several of the noted businesses. Many of these businesses are not strictly tied to Kenosha County farmers, but are providing services to local farmers within the region. Although local agricultural infrastructure is not as prevalent as it once was agriculture services can survive and even flourish in an urbanizing area.

Table 6

AGRICULTURAL BUSINESS AND SUPPORT SERVICES IN KENOSHA COUNTY

Company	Street Address	City	Activity
Burlington Farm Supply	P O Box 237	Burlington	Ag Business
C.P.I.- Burlington	638 Kane Street	Burlington	Ag Cooperative
C.P.I.- Union Grove	107-200th Ave	Union Grove	Ag Cooperative
C.P.I.- Elkhorn	230 S. Wisconsin Street	Elkhorn	Ag Cooperative
C.P.I.- Genoa City	407 Platt Street	Genoa City	Ag Cooperative
Community State Bank	25360 75th Street	Paddock Lake	Ag Lender
Conserv FS	P O Box 580	Kansasville	Ag Cooperative
Farm & Fleet	8401 Durand Ave	Sturtevant	Ag Supplier/Business
First Star Bank	30822 Ketterhagen Rd	Burlington	Ag Lender
Hansen's Meat Service	10407 County Road K	Franksville	Ag Processor/Wholesaler
Henderson Seed	15611 Plank Rd	Union Grove	Ag Business
Highway C Service	13325 Wilmot Rd	Kenosha	Ag Business
Horn/Trevor Feed	P O Box 3	Trevor	Ag Supplier/Business
Interstate Farm Equipment	19805 60th St	Bristol	Ag Business
Kenosha/Racine - Farm Bureau	1701 Main St	Union Grove	Ag Agency
Klema Feeds	10450 County Trunk K	Franksville	Ag Cooperative
Lake Geneva Country Meats	5907 State Road 50 East	Lake Geneva	Ag Processor/Retailer
Leedles Sales & Service	N474 Armsby Rd	Lake Geneva	Dairy Equipment/Business
M&I Bank	4235 52nd Street	Kenosha	Ag Lender
Otter Sales & Service	HWY 36 North	Burlington	Ag Equipment/Business
Pfieffer Sales & Service	22821 83rd St	Salem	Ag Business
Proven Power	31521 Bushnell Rd	Burlington	Ag Equipment/Business
Racine Grain	1313 S Colony Ave	Union Grove	Ag Cooperative
Scharines	N4213 Scharine Rd	Whitewater	Dairy Equipment/Business
Schmidt Implement	P O Box 10	Salem	Ag Business
Schmidt Implement	8841 Antioch Rd	Salem	Ag Business
Surge Supply	1615 Main St	Union Grove	Ag Lender
T & C Sales & Service	13301 Wilmot Rd	Kenosha	Ag Business
Tractor Supply Company	1801 Milwaukee Ave	Burlington	Ag Supplier/Business
Tri-County Supply	901 Main St	Union Grove	Dairy Equipment/Business
USDA – FSA – NRCS	826 Main St	Union Grove	Ag Agency
Vanderwerff Feed Service	7610 Mchenry St	Salem	Ag Supplier/Business

Community Supported Agriculture

In addition to horse stables and small-scale hobby farms, a few other agricultural related industries that have a connection to urbanization have been on the increase. Many Kenosha County farmers offer direct producer-to-consumer marketing of commodities such as fresh produce, meat, pumpkins, Christmas trees, greenhouse and nursery stock, hay, straw, sod, specialty crops, and farm tourism. Kenosha County residents are rediscovering the benefits of buying local food. Most consider locally produced food fresher, tastier and more nutritious. It is also good for your local economy; buying directly from local family farmers helps keep them in business. Family farmers sell their products directly to the public through various channels including farmer's markets, roadside stands, on-farm sales, pick-your-own and Community Supported Agriculture (CSA). CSA's have become a popular way for consumers to buy local, seasonal food directly from the farmer. Typically, members or "share-holders" pledge to cover the anticipated costs of the farm operation. In return, they receive shares in the farm's bounty throughout the growing season. Members also share in the risks of farming, including poor harvests due to unfavorable weather or pests. By direct sales to community members, growers may receive better prices for their crops, gain some financial security, and are relieved of much of the burden of marketing. Regionally the numbers of farmers' markets have doubled in recent years. Map 8 shows some of the local farms, farmer's markets and businesses available in Kenosha County.

NATURAL RESOURCES

Topography and Geology

The landforms and physical features of Kenosha County, such as topography and drainage patterns, are an important determinant of growth and development. The physiography of the area not only must be considered in sound land use and supporting transportation, utility, and community facility planning and development, but it also contributes directly to the natural beauty and overall quality of life in the County. Kenosha County varies from gently rolling glacial plains in the eastern half to steeper hills in the western half. Additionally, the subcontinental divide, which separates the Mississippi River Basin and the Great Lakes-St. Lawrence River Basin, traverses the eastern half of Kenosha County. The County is adjacent to Lake Michigan, one of the five Great Lakes.

Glaciation has largely determined the physiography and topography, as well as the soil within the County. Generalized landforms and topographic characteristics in primarily 50-foot interval contours are shown on Map 9. Topographic elevations range from 580 feet above sea level at the Lake Michigan shoreline to approximately 950 feet in the Town of Randall, along the Wisconsin-Illinois state line. There is evidence of four major stages of glaciation in the Southeastern Wisconsin Region. The last, and most influential in terms of present physiography and topography in Kenosha County, was the Wisconsin stage, which is believed to have ended in the State about 11,000 years ago.

The dominant physiographic and topographic features occur in the western portion of the County. On the western side of the Fox River, gentle slopes give way to steeper hills which are comprised of sand and gravel outwash deposits. The majority of the County is dominated by gently sloping ground moraines. Ground moraines were laid down directly by the glacier, and are typically made up of dense basal till, which contains a combination of silt and clay. Kenosha County also contains wetland areas made up of peat and organic materials. Glacial outwash deposits are common along the major rivers and streams of Kenosha County. Outwash is alluvial in origin and was deposited by glacial meltwaters. A few places in the County also contain lacustrine deposits which consist of sediments from glacial lakebeds. In addition, there are areas of steep bluffs along the Lake Michigan shoreline, particularly near the Racine County line. There are approximately 12.6 linear miles of Lake Michigan shoreline in Kenosha County. The nature of the shoreline varies considerably within the County. At the north end, the shoreline is characterized by clayey bluffs ranging up to about 35 feet in height. The height of the bluff decreases steadily so that it is about 20 feet high at the northern limits of the City of Kenosha and typically four or five feet along the southern shoreline reaches of the County. The beach width also varied considerably, ranging from complete absence of beach in some places to over 275 feet in others. Shoreline erosion and bluff stability conditions can change over time because they are related to changes in climate, water level, the geometry of the near-shore areas, the extent and condition of shore protection measures, the type and extent of vegetation, and the type of land uses in shoreland areas. Bluff stability safety factors and shoreline recession rates are detailed in the *1995 SEWRPC* Lake Michigan shoreline recession and bluff stability report *(Technical Report No. 36)*.

Table 7

ACTIVE NONMETALLIC MINING SITES[a] IN KENOSHA COUNTY: 2015

Location	Owner of Mining Site	Site Area (acres)
Town of Brighton	Pirelli/Marotta (ADAM Enterprises)	43
Town of Randall	Kenosha County Public Works	51
Town of Wheatland	Powers Lake Construction	31
Town of Wheatland	Meyer Materials Company	54
Total Four Sites	- -	179

[a]*These sites have received permits in accordance with the Kenosha County Non-Metallic Mining Reclamation Ordinance.*

Source: Kenosha County Planning & Development.

Nonmetallic Mineral Resources

Nonmetallic minerals include sand, gravel, crushed stone, building (dimension) stone, peat, clay, and asbestos. Nonmetallic mines (quarries and pits) in southeastern Wisconsin provide sand, gravel, and crushed limestone or dolomite for structural concrete and road building; peat for gardening and horticulture; and dimension stone for use in buildings, landscaping, and monuments. Nonmetallic minerals are important economic resources that should be taken into careful consideration whenever land is being considered for development. If an adequate supply of stone and sand is desired for the future, wise management of nonmetallic mineral resources and access to them is important.

Existing Nonmetallic Mining Sites

In 2015 there were 4 active nonmetallic mining sites in Kenosha County. Table 7 lists the mine owner and the local government in which the mine is located. There are currently four nonmetallic mining sites in Kenosha County, all of which produce sand and/or gravel. The four sites have received nonmetallic mining reclamation permits in accordance with the Kenosha County Non-Metallic Mining Reclamation Ordinance, adopted in April 2002. Chapter NR 135 of the *Wisconsin Administrative Code* requires each County to adopt and administer a nonmetallic mining reclamation ordinance. Cities, towns, and villages may also adopt a reclamation ordinance if they are willing to take responsibility for reviewing reclamation plans and issuing and enforcing permits for mines in their community. The Village of Pleasant Prairie is the only local government in Kenosha County that has adopted a nonmetallic mining and reclamation ordinance; as of 2015, there were no active sites in the Village of Pleasant Prairie.

Potential Sources of Sand, Gravel, Clay, and Peat

Map 10 shows the location of potential commercially workable sources of sand, gravel, clay, and peat and the location of active nonmetallic mining sites in Kenosha County. The Wisconsin Geological and Natural History Survey (WGNHS) identified these resources using a variety of sources, including geologic studies, data from Road Material Survey records collected by WGNHS for the Wisconsin Department of Transportation, information on existing extractive sites, and information on closed extractive sites that were recently active. The sand and gravel potential is categorized as high, medium, and low by the WGNHS based on the glacial geology.

Kenosha County has a moderate supply of sand and gravel deposits as a result of its glacial history. The areas categorized as “outwash deposits” have the highest potential for significant deposits of sand and gravel, and account for 19,641 acres, or 11 percent of the County. Areas categorized as “glacial till” have medium to low potential for yielding commercial workable sources of sand and gravel, and encompass

117,017 acres, or 66 percent of the County. The highest-quality deposits are found in the outwash areas of the County, particularly west of the Fox River, where the washing action of glacial melt waters has sorted the sand and gravel into somewhat homogeneous deposits that are commercially more attractive. Most of the sand and gravel mining occurs in the Towns of Wheatland and Randall. The areas categorized as "glacial lake deposits" contain clay deposits useful for construction, and account for 13,450 acres, or about 7 percent of the County. Areas categorized as "peat and organic sediment" may contain economic deposits of peat, and account for 8,715 acres, or 5 percent of the County. These areas are scattered throughout the County, generally in association with wetlands, which limits access to the peat due to regulatory constraints. Although Map 10 shows potential areas of commercially viable clay and peat deposits, many of the areas so depicted are wetlands or environmentally sensitive areas (such as the Peat Lake State Natural Area) that are unlikely to be disturbed for material extraction.

Water Resources

Surface water resources consist of lakes, rivers, streams, and their associated wetlands, floodplains, and shorelands that form important elements of the natural resource base of the County and local communities. Their contribution to economic development, recreational activity, and scenic beauty is immeasurable. The number of acres of surface waters, wetlands, and floodplains in the County and each local community is listed in Table 10.

Surface water resources from Lake Michigan constitute the major source of supply for domestic, municipal, and industrial water users in the City of Kenosha, Villages of Bristol and Pleasant Prairie, and portions of the Town of Somers. Villages and towns in the central and western parts of the County rely on groundwater for domestic, municipal, and industrial water.

Both surface water and groundwater are interrelated components of a single hydrologic system. The groundwater resources are hydraulically connected to the surface water resources inasmuch as the former provide the base flow of streams and contribute to inland lake levels.

Watersheds and Subwatersheds

A subcontinental divide that separates the Mississippi River and the Great Lakes – St. Lawrence River drainage basins crosses Kenosha County from the Town of Somers on the north to the Village of Pleasant Prairie on the south, as shown on Map 11. A portion of the Root River watershed, located in the Town of Paris, also drains to Lake Michigan. About 38,304 acres, or 22 percent of the County, drain to the Great Lakes-St. Lawrence River system; the remaining 139,836 acres, or 78 percent of the County, drain south and west to the Mississippi River.

The subcontinental divide not only exerts a major physical influence on the overall drainage pattern of the County, but also carries with it legal constraints that, in effect, would prohibit any new diversion of substantial quantities of Lake Michigan water across the divide. Areas east of the divide can utilize Lake Michigan as a source of water supply, with the spent water typically returned to the lake via the sanitary sewerage system. Areas west of the divide must utilize groundwater as the water source (the Village of Pleasant Prairie and Village of Somers and Bristol are permitted by the Wisconsin Department of Natural Resources to use Lake Michigan water, provided the wastewater is returned to Lake Michigan via the sanitary sewerage system). The Great Lakes Charter Annex, signed by the governors of the eight States bordering the Great Lakes and the premiers of the Canadian provinces of Ontario and Quebec in June 2001, would ban most diversions of Great Lakes water outside the drainage basin, but makes limited exceptions for communities and counties that straddle the watershed boundary.

Watersheds and subwatersheds within the County are shown on Map 11. The Great Lakes – St. Lawrence River drainage basin includes the Pike River watershed, which encompasses about 11 percent of the County, and the Root River watershed, which encompasses about 1 percent of the County. An additional 10 percent of the County drains directly to Lake Michigan. The Mississippi River drainage basin

includes the Des Plaines River watershed, which encompasses about 44 percent of the County, and the Fox River watershed, which encompasses about 35 percent of the County.

Lakes, Rivers, and Streams

Rivers and streams are identified as either perennial or intermittent. Perennial streams are defined as those which maintain, at a minimum, a small continuous flow throughout the year except under unusual drought conditions. Intermittent streams are defined as watercourses which do not maintain a continuous flow throughout the year. There are approximately 110 miles of named perennial rivers and streams in Kenosha County. An additional 55 miles of unnamed tributary streams draining into the named watercourses were also identified in the adopted regional water quality management plan. As noted above, the County includes portions of the Des Plaines River, Fox River, Pike River, and Root River watersheds. Major streams in the Des Plaines River watershed, which is located in the central portion of the County, are the Des Plaines River, Brighton Creek, Center Creek, Dutch Gap Canal, Jerome Creek, Kilbourn Road Ditch, and the Salem Branch of Brighton Creek. Major streams in the Fox River watershed, which generally includes the area in the western portion of the County, include the Fox River, Bassett Creek, Hoosier Creek Canal, Karcher Creek, New Munster Creek, Palmer Creek, Peterson Creek, and Trevor Creek. Major streams in the Pike River watershed include Nelson Creek, the Pike River, Pike Creek, School Tributary, Somers Branch, and Sorenson Creek located in the eastern portion of Kenosha County, which all drain to Lake Michigan. Barnes Creek and Pike Creek drain directly into Lake Michigan. The East Branch of the Root River Canal, part of the Root River watershed located in the Town of Paris, also drains to Lake Michigan.

Of the 169 stream miles, about 95 miles, or about 56 percent were reported to be of poor quality, and about 66 miles, or about 39 percent were reported to be of fair quality, based upon calculated biotic indices and/or the best professional judgment of WDNR staff conducting the assessments, as shown on Map 11 and Table 8. With the exception of Pike Creek and Pike River, where modifications were recently implemented to these channels, it is likely that the water quality conditions of the perennial streams have not significantly changed since 1982. No water quality data were available for the remaining eight miles of stream courses within Kenosha County. Major streams are shown on Map 11.

Under section 303(d) of the Clean Water Act, the U.S. Environmental Protection Agency (EPA) requires states to develop lists of impaired waters. These are waters that are too polluted or otherwise degraded to meet the water quality standards. These standards set the water quality goals for lakes, rivers, or streams by setting the maximum amount of a pollutant that can be found in the water while still allowing it to be used for fishing, swimming, and allowing aquatic organisms and wildlife to thrive. Water quality standards monitor pollutants or nutrients such as phosphorus, sediment (total suspended solids), bacteria (E.coli), polychlorinated biphenyls, and mercury. A water is polluted or "impaired" if it does not support full use by humans, wildlife, fish and other aquatic life and it is shown that one or more of the pollutant criteria are not met. Kenosha County has three rivers and five beaches on the 303d impaired waters list. The beaches listed are all along Lake Michigan and all exceeded the threshold for E. coli, indicating a recreational use impairment. The beaches include; Southport Park Beach, Simmons Island Beach, Eichelman Beach, Pennoyer Park Beach, and Alford Park Beach. All or a portion of three river systems are also listed as 303d impaired waterways.

1. The Pike River exceeded total phosphorus sample criteria for the fish and aquatic life use and biological impairment was observed (i.e. at least one macroinvertebrate or fish Index of Biotic Integrity (IBI) scored in the poor condition category). A consumption advisory for Polychlorinated Biphenyl's (PCBs) was also added.
2. The Des Plaines River is impaired due to total phosphorus sample data exceeding criteria for the fish and aquatic life use.
3. The Fox River is impaired due to total phosphorus sample data exceeding criteria for the fish and aquatic life use, biological impairment was observed (i.e. at least one macroinvertebrate or fish

Index of Biotic Integrity (IBI) scored in the poor condition category), and specific advisory for PCBs.

There are a total of 27 named lakes located entirely or partially within Kenosha County, 20 of which are major lakes of 50 or more acres in area, as shown on Map 11 and Table 9. Major lakes in the Des Plaines River watershed are Lake Andrea, Benet Lake, George Lake, Hooker Lake, Montgomery Lake, Paddock Lake, Lake Shangri-La, and Vern Wolf Lake. Major lakes in the Fox River watershed are Camp Lake, Center Lake, Dyer Lake, Lilly Lake, Lake Mary, Rock Lake, Silver Lake, and Voltz Lake. Lake Benedict, Cross Lake, Elizabeth Lake, and Powers Lake, also in the Fox River watershed, are located partially in Kenosha County. Paradise Lake located in the Village of Pleasant Prairie is in the Lake Michigan watershed. Together, these major lakes have a combined surface area of about 3,861 acres in Kenosha County. The three largest lakes located entirely within the County are Silver Lake, with a surface area of about 526 acres; Camp Lake, with a surface area of about 464 acres; and Lake Mary, with a surface area of about 329 acres. The lake areas of Elizabeth Lake and Powers Lake located within Kenosha County are 689 and 377 acres, respectively. The majority of the streams and lakes within Kenosha County are fully or partially meeting recommended water use objectives in accordance with the Land and Water Resource Management Plan for Kenosha County.

Lakes and streams are readily susceptible to degradation through improper land use development and management. Water quality can be degraded by either point source or nonpoint source pollution sources including excessive pollutant loads, including nutrient loads, which enter from malfunctioning and improperly located onsite wastewater treatment systems, from sanitary sewer overflows, from construction and other urban runoff, and from careless agricultural practices. The water quality of lakes and streams may also be adversely affected by the excessive development of riparian areas and by the filling of peripheral wetlands, which remove valuable nutrient and sediment traps while adding nutrient and sediment sources. It is important that existing and future development in riparian areas be managed carefully to avoid further water quality degradation and to enhance the recreational and aesthetic values of surface water resources. The trophic status of most of the lakes in Kenosha County is set forth in Table 9. Trophic status is an indicator of overall water quality. As of 1993, nine of the lakes for which data were available were classified as eutrophic, eight as mesotrophic, and four lakes as meso-eutrophic, in the regional water quality management plan update.[1] It is likely that the trophic status of the lakes have not changed since 1993. Before humans, mesotrophic status is the likely historical natural state of these lakes.

Table 8

PERENNIAL STREAM CHARACTERISTICS IN KENOSHA COUNTY

River or Stream	Length (river miles)	Watershed	Water Quality and Impaired Status
Barnes Creek	3.0	Direct Drainage to Lake Michigan	Fair
Bassett Creek	5.1	Fox	Fair
Brighton Creek	17.5[b]	Des Plaines	Fair to Good[c]
Center Creek	5.8	Des Plaines	Poor[c]
Des Plaines River	24.5	Des Plaines	Poor[c] (303d)
Dutch Gap Canal	5.8	Des Plaines	Poor[c]
Fox River	14.1	Fox	Fair (303d)
Hoosier Creek Canal	21.8[d]	Fox	Fair
Jerome Creek[e]	4.0	Des Plaines	- -[f]
Karcher Creek	1.3	Fox	- -[f,g]
Kenosha South Creek[h]	1.0	Direct Drainage to Lake Michigan	- -[f]
Kilbourn Road Ditch	14.8	Des Plaines	Poor[c]
Nelson Creek	0.8	Pike	- -[f]
New Munster Creek	4.7	Fox	Fair
Palmer Creek	- -[d]	Fox	Fair
Peterson Creek	- -[d]	Fox	Fair
Pike Creek	3.7	Direct Drainage to Lake Michigan	Poor[i]
Pike River	38.5	Pike	Poor to Fair[i] (303d)
Salem Branch of Brighton Creek	- -[b]	Des Plaines	Poor[c]
School Tributary	2.4	Pike	- -[f]
Somers Branch	2.3	Pike	- -[f]
Sorenson Creek	1.0	Pike	- -[f]
Root River Canal, East Branch	2.0	Root	Poor[k]
Trevor Creek	3.0	Fox	- -[f]
Total	176.1	- -	- -

[a]*Water quality status as determined by the Wisconsin Department of Natural Resources based upon a calculated biotic index and/or the best professional judgment of staff conducting assessment.*

[b]*The length of Brighton Creek includes both Brighton Creek and the south branch (Salem Branch) of Brighton Creek.*

[c]*The Des Plaines River and its tributary streams, excluding Brighton Creek, have had major physical modifications to their channels, are impacted by high rates of siltation, and generally have had reported water quality problems associated with low dissolved oxygen, high phosphorus, and high fecal coliform concentrations. The lower reaches of the Des Plaines River mainstem have had reported water quality problems associated with toxic contaminants (heavy metals, hydrocarbons, and the pesticide heptachlor epoxide).*

[d]*Hoosier Creek Canal stream length includes Hoosier, Palmer, and Peterson Creeks.*

[e]*Jerome Creek was formerly known as Pleasant Prairie Ditch, which is documented in the 1961 Department of Natural Resources plan,* Surface Water Resources of Kenosha County.

[f]*Water quality data are not available to make an accurate assessment.*

[g]*Data analysis and recommendations relating to the proposed relocation of Karcher Creek for the STH 83 roadway improvement project was conducted from 2003 through 2007, as documented in a SEWRPC Staff Memorandum dated April 12, 2007. Based on findings in the plan, SEWRPC staff considered the water quality of Karcher Creek to be "Good."*

[h]*Kenosha South Creek no longer exists. The creek was once a City of Kenosha stormwater sewer ditch before the 1970's. The ditch was eventually removed to accommodate additional urbanized development from 1970 through the early 1980's. Existence of the stream is documented in the 1961 Department of Natural Resources report,* Surface Water Resources of Kenosha County.

[i]*Pike Creek has had major modifications to its channel, is impacted by high rates of sedimentation, and has had reported water quality problems associated with high fecal coliform concentrations.*

[i]*The Pike River and its tributary streams have had moderate to major physical modifications to their channels, are impacted by high rates of sedimentation, and generally have had reported water quality problems associated with low dissolved oxygen and high fecal coliform concentrations.*

[k]*The East Branch of the Root River Canal has had reported water quality problems associated with low dissolved oxygen and high fecal coliform concentrations.*

Source: Wisconsin Department of Natural Resources and SEWRPC.

Table 9

MAJOR AND MINOR LAKES WITHIN KENOSHA COUNTY

Lake	Surface Area (acres)	Watershed	Lake Type[a]	Maximum Depth (feet)	Trophic Status[b]
Paddock Lake	132	Des Plaines	Drained lake	32	Meso-eutrophic
Hooker Lake	120	Des Plaines	Drainage lake	27	Meso-eutrophic
Vern Wolf Lake	118	Des Plaines	Drainage lake	12	Eutrophic
Benet Lake	103	Des Plaines	Drained lake	24	Eutrophic
Lake Andrea	110	Des Plaines	Seepage lake	45	- -[c]
Lake Shangri-La	81	Des Plaines	Drained lake	- -[d]	Eutrophic
George Lake	72	Des Plaines	Drainage lake	16	Eutrophic
Montgomery Lake	62	Des Plaines	Drained lake	23	Mesotrophic[e]
Lake Russo	23	Des Plaines	Seepage lake	- -[c]	- -[c]
Mud Lake	23	Des Plaines	Drained lake	15	Eutrophic[e]
Paasch Lake	22	Des Plaines	Drained lake	20	- -[c]
Lake Francis	17	Des Plaines	Drained lake	22	- -[c]
Elizabeth Lake	689[f]	Fox	Drained lake	32	Mesotrophic
Silver Lake	526	Fox	Drainage lake	43	Mesotrophic
Camp Lake	464	Fox	Drainage lake	17	Meso-eutrophic
Powers Lake	377[f]	Fox	Drainage lake	33	Mesotrophic
Lake Mary	329	Fox	Drained lake	33	Mesotrophic
Center Lake	137	Fox	Drainage lake	28	Mesotrophic
Lilly Lake	84	Fox	Seepage lake	22	Meso-eutrophic
Voltz Lake	64	Fox	Drained lake	24	Eutrophic
Dyer Lake	63	Fox	Drainage lake	13	Eutrophic
Cross Lake	63[f]	Fox	Drained lake	35	Eutrophic
Lake Benedict	59[f]	Fox	Drained lake	38	Mesotrophic
Rock Lake	53	Fox	Drained lake	33	Mesotrophic[e]
Peat Lake	43	Fox	Drained lake	8	- -[c]
Flanagan Lake	11	Fox	Seepage lake	24	- -[c]
Paradise Lake	25	Lake Michigan	Seepage lake	35	Eutrophic
Total	3,861	- -	- -	- -	- -

[a] Drainage lakes have both an inlet and outlet where the main water source is stream drainage. Drained lakes have no inlet, but like spring lakes, have a continuously flowing outlet. These lakes are not groundwater-fed since their primary source of water is from precipitation and direct drainage from the surrounding lands. Seepage lakes do not have an inlet or an outlet, and only occasionally overflow. As landlocked waterbodies, the principal source of water is precipitation or runoff, supplemented by groundwater from the immediate drainage area.

[b] Trophic status is an indicator of overall water quality (measurements of potential and actual biological activity) as determined by SEWRPC based upon water chemistry data reported by DNR, and/or the U.S. Geological Survey, except as noted. Lakes with high concentrations of nutrients and algae, generally accompanied by low transparencies, are eutrophic ("poor" water quality) or highly productive, because the algae grow and reproduce at a high rate. Lakes with low concentrations, most often accompanied by high transparencies, are oligotrophic ("good" water quality) or low in productivity. Lakes with intermediate concentrations, or between eutrophic and oligotrophic, are mesotrophic, or in the middle. Meso-eutrophic lakes are those leaning towards or approaching a eutrophic state. Eutrophic status supports rough fish (i.e. carps and bullheads); mesotrophic status supports the largest range of game fish (i.e. bass and walleyes), and oligotrophic status supports few aquatic plants and productive fisheries, but are excellent for swimming and boating.

[c] No data available.

[d] Maximum depth of Lake Shangri-La is not available separately. Historically, it has been combined with Benet Lake.

[e] Trophic status as determined by the Wisconsin Department of Natural Resources based upon satellite telemetry.

[f] The area listed for Elizabeth Lake, Powers Lake, Cross Lake, and Lake Benedict include only those lake areas that fall within the jurisdictional boundaries of Kenosha County. The total areas are 865, 459, 87, and 78 acres, respectively.

Source: Wisconsin Department of Natural Resources, Kenosha County Department of Planning and Development, Village of Pleasant Prairie, and SEWRPC.

Wetlands

Wetlands are generally defined as areas that have a predominance of hydric soils and that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of hydrophytic (water loving) vegetation. The basic definition of a wetland are areas where water is at, near, or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which has soils indicative of wet conditions. Wetlands generally occur in depressions and near the bottom of slopes, particularly along lakeshores and stream banks, and on large land areas that are poorly drained. Wetlands may, however, under certain conditions, occur on slopes and even on hilltops. Wetlands perform an important set of natural functions which include support of a wide variety of desirable, and sometimes unique, forms of plant and animal life; water quality protection; stabilization of lake levels and streamflows; reduction in stormwater runoff by providing areas for floodwater impoundment and storage; and protection of shorelines from erosion.

Table 10

SURFACE WATER, WETLANDS, AND FLOODPLAINS IN KENOSHA COUNTY COMMUNITIES[a]

Local Government	Surface Water (acres in 2000)	Floodplains (acres in 2015)	Wetlands (acres in 2010)
City of Kenosha	84	858	645
Village of Pleasant Prairie	337	3,702	3,877
Village of Silver Lake	1	171	151
Village of Bristol	318	3,237	3,057
Town of Brighton	330	1,051	3,068
Town of Paris	49	1,415	1,472
Town of Salem	1,876	3,607	3,691
Town of Somers	60	2,236	928
Town of Wheatland	333	1,817	2,954
Village of Genoa City	- -	- -	5
Village of Paddock Lake	141	239	206
Village of Twin Lakes	1,029	1,192	708
Town of Randall	470	698	1,131
Kenosha County	5,028	20,023	21,893

[a]*Total acreage by community is based on 2010 civil divisions.*

Source: Kenosha County Planning & Development, Federal Emergency Management Agency, Wisconsin Department of Natural Resources, and SEWRPC.

The Wisconsin Department of Natural Resources wetland inventory has identified 21,893 acres of wetlands in Kenosha County, covering 12.5 percent of the county. This inventory was completed by SEWRPC, under contract with the WDNR. The wetland delineations were prepared from large-scale orthophotography obtained in March and April of 2010. Some wetland areas were field checked between 2006 and 2012 to confirm wetland boundaries and characteristics. The current wetland inventory includes wetlands of ¼ acre or larger in size. Wetlands are shown on Map 11. Wetland acreage within each community is provided in Table 10. Kenosha County Wetlands were sorted by covertype/vegetated classes. Vegetated mapping units were classified by the uppermost layer of vegetation which covers 30% or more of the area. Vegetated classes take precedence over unvegetated classes if a choice has to be made. Subclasses were also used when the information could be easily obtained from existing soil surveys, lake survey maps, or other data sources.

- Aquatic Bed (Plants growing entirely on or in a water body) - 658 acres
- Deep Water Lake (Lakes and ponds with a depth greater than 6 feet) - 407 acres
- Emergent/Wet Meadow (Herbaceous plants which stand above the surface of the water or soil) - 8460 acres

- Flats/Unvegetated Wet Soil (Exposed wet soils which do not support vegetation) - 1366 acres
- Forested Wetland (Woody plants taller than 20 feet) - 5824 acres
- Open Water (Lakes and ponds with a depth of 6 feet or less, and unvegetated river sloughs) - 1356 acres
- Scrub/Shrub (Woody plants less than 20 feet tall) - 4224 acres
- Filled/Drained Wetland (Previously filled or drained wetlands) - 233 acres

Wetlands and their boundaries are continuously changing in response to changes in drainage patterns and climatic conditions. While wetland inventory maps provide a basis for areawide planning, detailed field investigations are necessary to precisely identify wetland boundaries on individual parcels. Field investigations are generally conducted at the time a parcel is proposed to be developed or subdivided.

Shoreland and Floodplain

Shorelands are defined by the Wisconsin Statutes as lands within the following distances from the ordinary high water mark of navigable waters: one thousand feet from a lake, pond, or flowage; and three hundred feet from a river or stream, or to the landward side of the floodplain, whichever distance is greater. In accordance with the requirements set forth in Chapters NR 115 (shoreland regulations) and NR 116 (floodplain regulations) of the Wisconsin Administrative Code, the Kenosha County shoreland and floodplain zoning ordinance restricts uses in wetlands and limits the uses allowed in the 100-year floodplain to protect wetland function, prevent damage to structures and property and to preserve floodwater conveyance areas and the storage capacity of floodplains. The ordinance also limits the removal of vegetation and other activities in shoreland areas and requires structures to be set back a minimum of 75 feet from navigable waters. State law requires that counties administer shoreland and floodplain regulations in unincorporated areas. The natural floodplain of a river is a wide, flat-to-gently sloping area contiguous with, and usually lying on both sides of, the river channel and the channel itself. The floodplain, which is normally bounded on its outer edges by higher topography, is gradually formed over a long period of time by the river during flood stage as that river meanders in the floodplain, continuously eroding material from concave banks of meandering loops while depositing it on the convex banks. The flow of a river onto its floodplain is a normal phenomenon and, in the absence of flood control works, can be expected to occur periodically. For planning and regulatory purposes, floodplains are defined as those areas subject to inundation by the 100-year recurrence interval flood event. This event has a 1 percent chance of being equaled or exceeded in any given year. Floodplains are generally not well suited for urban development because of the flood hazard, the presence of high water tables, and/or the presence of wet soils.

Floodplains in Kenosha County were identified as part of the Kenosha County Flood Insurance Study (FIS) and the accompanying Flood Insurance Rate Map. Flood elevations and floodplain limits were identified through detailed studies along the Des Plaines River, Fox River, and Pike River as part of the FIS. The FIS depicts “approximate” floodplains along streams and lakes where no detailed engineering studies were conducted. All three watersheds in the County have adopted and published watershed plans. Floodplain delineations developed as part of the FIS and the Des Plaines River, Fox River, and Pike River detailed studies are shown on Map 11. Floodplains identified as part of the shoreland and floodplain zoning map update adopted by Kenosha County and each city and village in 2012. Floodplains encompass an area of approximately 20,023 acres, or approximately 11.5 percent of the County.

The Federal Emergency Management Agency (FEMA) has initiated a coastal analysis and mapping study to produce updated Digital Flood Insurance Rate Maps (DFIRMs) for coastal counties around the Great Lakes, Including Kenosha County. The study will update the coastal storm surge elevations for Kenosha County. This new coastal flood hazard analyses will utilize updated 1-percent-annual chance stillwater elevations obtained from a comprehensive storm surge study conducted by the U.S. Army Corps of Engineers. Coastal flood maps will be produced that include the 1-percent- and 0.2-percent-annual chance flood hazard areas, Coastal High Hazard (VE Zone) and Coastal A Zone (AE Zone), Base Flood

Elevations (BFEs), and Limit of Moderate Wave Action (LiMWA) boundary. Kenosha County and local communities will be provided with an opportunity to review the flood maps prior to FIRM production.

In 2014, FEMA and the WDNR conducted four Risk MAP Discovery meetings, with communities in the Upper Fox Watershed, to get a better idea of their mitigation and floodplain planning needs. The Upper Fox River encompasses the counties of Kenosha, Racine, Walworth and Waukesha. The resulting discovery report provided funding for Hydrologic & Hydraulic modeling and completion of detailed survey work for over 152 stream miles. The decision to fund DFIRM production will be decided in subsequent funding cycles. The final maps when complete will add new studied flood zones to the Kenosha County floodplain overlay district.

Groundwater Resources

Groundwater resources constitute another key element of the natural resource base of the County. Groundwater not only sustains inland lake levels and wetlands and provides the base flow of streams, but also serves as the water supply for domestic, municipal, and industrial water users in Kenosha County, with the exception of the City of Kenosha, the Village of Pleasant Prairie, and portions of the Village of Somers and Village of Bristol, which obtain their water from Lake Michigan.

To satisfy future water demands in southeastern Wisconsin, including Kenosha County, coordinated regional water resource management is needed to optimize the use of ground and surface water. The regional water supply planning program is documented in the in SEWRPC Planning Report No. 52, *A Regional Water Supply Plan for Southeastern Wisconsin* and provides guidance in this regard.

The subsurface units within Kenosha County that supply useable amounts of groundwater to wells are known as aquifers, and they differ widely in their ability to store and transport water. There are three major aquifers within Kenosha County. From the ground surface downward, they include: 1) the sand and gravel aquifer, 2) the Niagara dolomite aquifer, and 3) the sandstone aquifer. The first two aquifers are commonly referred to as the “shallow” aquifer, because of their proximity to the land surface and their intimate hydraulic interconnection. The latter, accordingly, is commonly known as the “deep” aquifer.

The sand and gravel aquifer consists of unconsolidated sand and gravel deposits in glacial drift and alluvium. These deposits occur over much of the County, either at the land surface or buried beneath less permeable drift, such as glacial till.

The Niagara dolomite aquifer in Kenosha County consists of Silurian Age dolomite, which overlies Maquoketa shale. The Maquoketa shale separates the Niagara and the deep sandstone aquifers. The shale layer has very low permeability which restricts the vertical movement of water and largely confines water within the sandstone aquifer. The bottom of the sandstone aquifer is the surface of the impermeable Precambrian rocks. This aquifer is continuous throughout the County and is a part of a large regional aquifer that is used as a source of water supply for major concentrations of urban development throughout Southeastern Wisconsin and Northeastern Illinois.

The source of most groundwater that is contained in the shallow aquifer is precipitation, which infiltrates and recharges this groundwater reservoir. The amount of infiltrate largely depends on the type of soils that cover the land surface. Towards the eastern half of the County the soils are high in clay content and have a high density, which reduces infiltration and permeability. The soils in the western half of the County, especially in the Fox River basin, are predominately composed of glacial outwash, which is an assortment of stratified sands and gravel with a higher infiltration rate and much greater permeability. The deep sandstone aquifer is primarily recharged west of Kenosha County, where the confining shale layer is absent. Discharge primarily occurs from pumping of wells, with limited additional discharge to surface waters directly or through wetlands.

Two of the greatest concerns of the groundwater supply include contamination and over-usage. The vulnerability of groundwater to contamination is a combination of several factors; however, two of the most important elements are soil and subsurface material characteristics and depth to groundwater levels. Since the eastern half of the County is largely covered by glacial till soils with high clay content, contamination is not as much of a concern compared to the western part of the County. As illustrated on Map 12, the western region of Kenosha County has a large portion that ranges from zero to 25 feet to groundwater. The shallowness to groundwater, in combination with the stratified sand and gravel characteristics of glacial outwash soils, makes the Fox River basin the most sensitive to contamination in the County.

Over the last century, the sandstone aquifer has seen a drawdown of its water levels. In the latter part of the 1800s and the early part of the 1900s, Racine and Kenosha Counties began to experience a decline in groundwater levels. The water levels in the sandstone aquifer are declining at a rate of up to five feet per year in some areas. The regional groundwater resources report prepared by SEWRPC and the initial analyses conducted under the regional water supply plan indicate that there is an adequate supply of groundwater in the aquifers which underlie Kenosha County, provided those aquifers are properly managed and protected. This is due, in large part, to the fact that over 80 percent of the water supply for Kenosha County comes from the City of Kenosha Water Utility, which utilizes Lake Michigan as a source of supply. Over 80 percent of the groundwater used in Kenosha County is withdrawn from the shallow aquifer. However, it is important to note that there have been historic documented drawdown impacts in the deep aquifer due to groundwater withdrawals in northeastern Illinois. Currently, it is uncertain what the future impacts of those northeastern Illinois groundwater uses will be in the future.

Like surface water, groundwater is susceptible to depletion in quantity and to deterioration in quality as a result of contamination and over-usage. The vulnerability of groundwater to contamination is a combination of several factors, including soil type, subsurface material characteristics, and depth to groundwater levels. Thus, smart land use and park and open space planning must appropriately consider the potential impacts of urban and rural development on this important resource.

Recharge of the aquifers underlying Kenosha County is derived largely by precipitation. Areas of groundwater recharge are shown on Map 13. The map identifies areas based upon the rate of annual groundwater recharge from precipitation in the County. Areas were placed into the following classifications: very high (more than six inches of recharge per year), high (four to six inches of recharge per year), and moderate (three to four inches of recharge per year), and low (less than three inches of recharge per year). The protection of recharge areas classified as having a high or very high recharge potential is particularly important in the long term protection and preservation of groundwater resources in Kenosha County. The protection of these areas may be expected to be largely achieved through the implementation of the *Multi-jurisdictional Comprehensive Plan for Kenosha County:2035* since that plan recommends preservation of the environmental corridors, isolated natural resource areas, significant natural areas, prime agricultural lands, and other agricultural and open areas of the County. In addition, the use of low impact development designs, cluster developments, and other sustainable development designs have the potential to effectively maintain infiltration capabilities in urban areas.

As shown on Map 13, about 5 percent of the County is rated “very high” for recharge potential, and about 20 percent is rated “high” for recharge potential. High and very high recharge potential areas are scattered throughout the County, with the largest concentration found in the County’s western area. Over one-half of the planning area (about 56 percent) is classified as having “moderate” recharge potential, and about 8 percent is classified as having a “low” potential.

Groundwater is susceptible to both depletion in quantity and to deterioration in quality as a result of urban and rural development. Consequently, comprehensive planning must appropriately consider the potential impacts of urban and rural development on this important resource. Land use planning must also take

into account, as appropriate, natural conditions that may limit the use of groundwater as a water supply source and protect and enhance the natural recharge areas.

Natural Areas, Critical Species Habitat, and Geological Sites

A comprehensive update to the inventory of natural and geological resources in the County was conducted by the Regional Planning Commission in 2009 as part of an amendment to the regional natural areas and critical species habitat protection and management plan *SEWRPC Planning Report No. 42*, A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin, *September 1997, as amended in 2010*. This update systematically evaluated physical changes to high-quality natural areas, critical species habitat, and sites having geological significance within the Region, including Kenosha County, and reflects new findings since the preparation of the original natural areas plan. Recommendations developed through the plan amendment for the protection and management of identified natural areas, critical species habitat, and geological sites have been incorporated into our updated park and open space plan. Tables 1, 2 and 3 in Appendix A describe the natural areas and critical species habitat areas identified in Kenosha County. Map 18 depicts the location of the natural areas and critical species habitat areas identified in Kenosha County.

Natural Areas

Natural areas are tracts of land or water so little modified by human activity, or sufficiently recovered from the effects of such activity, that they contain intact native plant and animal communities believed to be representative of the landscape before European settlement. Natural areas sites are classified into one of three categories: natural areas of statewide or greater significance, natural areas of countywide or regional significance, and natural areas of local significance. Classification of an area into one of these three categories is based upon consideration of the diversity of plant and animal species and community types present; the structure and integrity of the native plant or animal community; the extent of disturbance from human activity, such as logging, agricultural use, and pollution; the commonness of the plant and animal community; unique natural features; the size of the site; and the educational value.

A total of 42 natural areas, encompassing about 3,792 acres, or about 2 percent of the County, were identified in Kenosha County in 2009. Of the 42 identified sites, six are classified as natural areas of statewide or greater significance sites and encompass about 617 acres, 17 are classified as natural areas of countywide or regional significance sites and encompass about 1,903 acres, and 19 are classified as natural areas of local significance sites and encompass about 1,272 acres.

Critical Species Habitat

Critical species habitat sites are those areas, outside of natural areas, where the chief value lies in their ability to support rare, threatened, or endangered species. Such areas constitute “critical” habitat that is important to ensure survival of a particular species or group of species of special concern.

A total of 32 sites supporting threatened or rare plant or bird species have been identified in Kenosha County and encompass an area of about 5,309 acres. A total of 33 aquatic sites supporting threatened or rare fish, herptile, or mussel species have also been identified in the County. There are 77.4 stream miles and 3,414 lake acres of critical aquatic habitat in Kenosha County.

Geological Sites

The Kenosha Dunes and Buried Forest, located in the Village of Pleasant Prairie, is the one geological site of importance identified in the County in 2009. Geological sites are identified on the basis of scientific importance, significance in industrial history, natural aesthetics, ecological qualities, educational value, and public access potential. The Kenosha Dunes and Buried Forest site encompasses an area of 36

acres and lies wholly within the established project boundary of the Chiwaukee Prairie-Carol Beach State Natural Area.

Reestablishment of Grasslands

In addition to setting forth recommendations for the protection of existing areas with important biological resources, the regional natural areas plan also recommends that efforts be made to reestablish relatively large tracts of grasslands and forest interiors in the Region. Reestablishment of such tracts would serve to provide additional habitat for bird populations, which have been adversely affected by loss of habitat due to development in the Region.

One site in Kenosha County was identified for reestablishment of grasslands is centered on the Bong State Recreation Area and the adjoining Kenosha and Salem School Forest properties in the Town of Brighton. It is envisioned that this site could serve as one of several relatively large grassland reserve sites proposed to be established in Wisconsin by the WDNR. The WDNR envisions that large sites would consist of at least 10,000 acres of land that are as treeless and open in character as possible, although not all such land would have to be in public ownership. The present Bong State Recreation Area is approximately 4,520 acres, or about seven square miles and could serve as the core area of one such large site. To supplement the present publicly owned lands, it is proposed that the WDNR enter into appropriate land management agreements with landowners in the proximity of the Bong site with a view toward meeting the goal of establishing a minimum area of 10,000 acres to serve as suitable habitat for grassland birds.

Invasive Plants and Animals

Invasive plant and animal species threaten the biodiversity of high-quality natural resources in Wisconsin. The WDNR recognizes 148 species of plants and 24 species of animals as invasive to the State of Wisconsin as of 2007. Purple loosestrife, Phragmites, and reed canary grass have been identified as significant invasive plant species present in Kenosha County. Additional invasive plant species that can be found in Kenosha County include garlic mustard and buckthorn. Certain invasive animals, such as the gypsy moth and forest tent caterpillar, pose threats to native plant species. Prevalent throughout the Midwest, the emerald ash borer (a type of beetle) poses a threat to ash tree populations in the Kenosha County and the State of Wisconsin. The emerald ash borer was discovered in Kenosha County in 2009.

Forest Resources

Woodlands

With sound management, woodlands can serve a variety of beneficial functions. In addition to contributing to clean air and water and regulating surface water runoff, woodlands help maintain a diversity of plant and animal life. The destruction of woodlands, particularly on hillsides, can contribute to excessive stormwater runoff, siltation of lakes and streams, and loss of wildlife habitat. Woodlands are defined as upland areas of one acre or more in area, having 17 or more trees per acre, each deciduous tree measuring at least four inches in diameter 4.5 feet above the ground, and having canopy coverage of 50 percent or greater. Coniferous tree plantations and reforestation projects are also classified as woodlands. In 2007, woodlands encompassed over 9,024 acres, or nearly 5 percent of the County. This data includes upland woods only, not lowland woods classified as wetlands, such as tamarack swamps. Woodlands should be maintained for their scenic, wildlife habitat, recreational and air and water quality protection value.

Environmental Corridors and Isolated Natural Resource Areas

Environmental corridors are concentrations of the best remaining elements of the natural resource base. It has been recognized that preservation of these areas are essential to both the maintenance of the overall environmental quality of the County and wellbeing of its residents. The Southeastern Wisconsin Region Planning Commission has identified and delineated the environmental corridors within the Southeast region of Wisconsin and Kenosha County,

Primary environmental corridors include a wide variety of the most important natural resources and are at least 400 acres in size, two miles long, and 200 feet wide. Secondary environmental corridors serve to link primary environmental corridors, or encompass areas containing concentrations of natural resources between 100 and 400 acres in size. Where secondary environmental corridors serve to link primary corridors, no minimum area or length criteria apply. Secondary environmental corridors that do not connect primary corridors must be at least 100 acres in size and one mile long. An isolated concentration of natural resource features at least five acres in size and 200 feet wide, but not large enough to meet the size or length criteria for primary or secondary environmental corridors, is referred to as an isolated natural resource area.

Environmental corridors and isolated natural resource areas in Kenosha County in 2010 are shown on Map 14. The preservation of environmental corridors and isolated natural resource areas in essentially natural, open uses can help reduce flood flows, reduce noise pollution, and maintain air and water quality. Corridor preservation is important to the movement of wildlife and for the movement and dispersal of seeds for a variety of plant species. In addition, because of the many interacting relationships between living organisms and their environment, the destruction and deterioration of any one element of the natural resource base may lead to a chain reaction of deterioration and destruction. For example, the destruction of woodland cover may result in soil erosion and stream siltation, more rapid stormwater runoff and attendant increased flood flows and stages, as well as destruction of wildlife habitat. Although the effects of any single environmental change may not be overwhelming, the combined effects will eventually create serious environmental and developmental problems. These problems include flooding, water pollution, deterioration and destruction of wildlife habitat, reduction in groundwater recharge, as well as a decline in the scenic beauty of the County. The importance of maintaining the integrity of the remaining environmental corridors and isolated natural resource areas thus becomes apparent. As shown on Map 14, the primary environmental corridors in Kenosha County generally lie along rivers and streams and adjacent to lakes, or are associated with woodlands, wetlands, or park and open space sites. In 2010, about 29,184 acres, comprising about 16 percent of the County, were encompassed within primary environmental corridors. Secondary environmental corridors are located chiefly along the smaller perennial streams and intermittent streams in the County, including wetlands associated with these streams. About 7,040 acres, comprising about 4 percent of the County, were encompassed within secondary environmental corridors in 2010. Isolated natural resource areas within the County include a geographically well-distributed variety of isolated wetlands, woodlands, and wildlife habitat. These areas encompassed about 4,352 acres, or about 2 percent of the County, in 2010.

Lake Michigan Shoreline and Bluff Areas

The eastern boundary of the County consists of approximately 13 miles of Lake Michigan shoreline. Lake Michigan is one of the largest freshwater lakes in the world and is a major source of water supply for many communities, including the City of Kenosha, the Village of Somers and Pleasant Prairie, and portions of the Village of Bristol and Town of Somers. The shoreline and coastal areas of Lake Michigan have significant importance for recreational and open space uses, namely:

- The near coastal areas of the lake are used for numerous recreational activities, including motor boating, sailing, canoeing, kayaking, sport fishing, and swimming.
- While the bluff significantly limits direct access to beach and shore areas in some areas of the County, the lands along the shoreline provide picturesque locations for park and open space lands.
- The bluff and beach areas provide critical habitat sites for shorebirds and songbirds.
- The Lake Michigan shoreline is recognized as one of the most important flyways in North America for numerous migrating birds, including songbirds, hawks and falcons, and waterfowl. As such, the bluff and shoreline areas are popular bird watching sites.

Shoreline erosion and bluff stability conditions are important considerations in planning for the protection and sound development and redevelopment of lands located along Lake Michigan. These conditions can change over time because they are related to changes in climate, water level, the geometry of the near shore areas, the extent and condition of shore protection measures, the type and extent of vegetation, and the type of land uses in shoreland areas. In 1995 SEWRPC completed a study of shoreline erosion and bluff stability conditions along Lake Michigan for its entire length in the Southeastern Wisconsin Region.

The findings for Kenosha County are depicted on Map 15 and include bluff height, bluff stability, shoreline recession data, and beach width. This information is documented in greater detail in the SEWRPC Technical Report No. 36, Lake Michigan Shoreline Recession and Bluff Stability in Southeastern Wisconsin: 1995. Bluff stability field research was conducted at 18 sites in Kenosha County. A safety factor was calculated for potential failure surfaces within the bluffs using shear strengths and stresses. The score is defined as the ratio of the forces resisting shear, such as soil cohesion and friction, to the forces promoting shear, such as soil mass, along a failure surface. A factor of less than 1.0 is considered unstable, a factor of 1.0 to 1.1 is considered marginally stable, and a factor of greater than 1.1 is considered stable.

The nature of the Lake Michigan shoreline varies considerably within Kenosha County. At the north end, the shoreline is characterized by clayey bluffs ranging up to about 35 feet in height. The height of the bluff decreases steadily so that it is about 20 feet high at the northern limits of the City of Kenosha and typically four or five feet along the southern shoreline reaches of the County. Bluff stability safety factors ranged greatly, from 0.72 to 5.55, in Reach 3. Shoreline recession rates also ranged greatly from an average of 0 to 5.9 feet per year between 1963 and 1995. The beach width varies considerably, ranging from complete absence of beach in some places to over 275 feet in others.

Climate

Its mid-continental location gives Kenosha County a continental climate that spans four seasons. Summers generally occur during the months of June, July, and August. They are relatively warm, with occupation periods of hot, humid weather and sporadic periods of cool weather. Lake Michigan often has a cooling effect on the County during the summer. Winters are cold and generally occur during the months of December, January, and February. Winter weather conditions can also be experienced during the months of November and March in some years. Autumn and spring are transitional weather periods in the County when widely varying temperatures and long periods of precipitation are common. (See Table 11). The median growing season, the number of days between the last freeze in the spring and the first freeze in the fall, is 170 days and can range from 150 to 192 days. Precipitation in the County can occur in the form of rain, sleet, hail, and snow and ranges from gentle showers to destructive thunderstorms. The more pronounced weather events, such as severe thunderstorms and tornadoes, can cause major property and crop damage, inundation of poorly drained areas, and lake and stream flooding.

Table 11

CLIMATE NORMALS IN KENOSHA COUNTY

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Ave Daily High (F°)	28.2	32.2	41.7	52.1	62.6	73.4	78.7	78.0	70.8	59.8	46.8	33.4
Ave Daily Low (F°)	11.7	16.2	26.2	35.5	44.6	53.9	60.6	60.0	52.9	41.9	30.9	17.9
Ave Precipitation (")	1.34	1.03	2.19	3.43	3.02	3.44	4.00	3.85	3.89	2.52	2.49	2.01

Data from the weather station at Kenosha, latitude 42°33' N, longitude 87°48' W, elevation 600 ft

SUMMARY

This chapter provides inventory information on existing agricultural and natural resources in Kenosha County. Information regarding soil types, existing farmland, farming operations, nonmetallic mining resources, topography and geology, water resources, forest resources, natural areas and critical species habitat sites, and environmental corridor is included in this chapter. A summary of the agricultural and natural resources inventory findings are highlighted below:

There are nine soil associations in Kenosha County: the Boyer-Granby association, Casco-Rodman association, Fox-Casco association, Hebron-Montgomery-Aztalan association, Houghton-Palms association, Miami association, Morley-Beecher-Ashkum association, Warsaw-Plano association, and the Varna-Elliott-Ashkum association.

The U.S. Natural Resources Conservation Service (NRCS) has classified the agricultural capability of soils based on their general suitability for most kinds of farming. These groupings are based on the limitations of the soils, the risk of damage when used, and the way in which the soils respond to treatment. Generally, lands with Class I and II soils are considered “National Prime Farmlands” and lands with Class III soils are considered “Farmlands of Statewide Significance.” The soils in Classes IV through VIII have progressively greater natural limitations.

Agriculture is a major part of Kenosha County’s heritage as significant farmlands and working farms still dominate the landscape. According to the USDA Census of Agriculture, in 2012 there were 359 farms in Kenosha County. The total acres of farmland in 2012 were 76,632 acres. Statistics also showed that the size of farms are increasing by 16 percent over the last 5 years with farms averaging 213 acres, in 2012.

Surface elevations in the County range from a low of 580 feet above sea level along the Lake Michigan shoreline to a high of 950 feet in the southwestern portion of the County, near the Wisconsin-Illinois state line.

In 2015, there were four nonmetallic mining sites in the County. No sites in Kenosha County have been registered as sites having marketable nonmetallic mineral deposits.

About 78 percent of the County is located west of the subcontinental divide and drains to the Mississippi River. The remaining 22 percent of the County is east of the divide and drains to the Great Lakes-St. Lawrence River. The subcontinental divide not only exerts a major physical influence on the overall

drainage pattern of the County, but also carries with it legal constraints that, in effect, prohibit any new diversions of substantial quantities of Lake Michigan water across the divide.

Adequate and quality infrastructure is essential for sustainable agriculture in Kenosha County. It is difficult to quantify the various support services available to Kenosha County farmers, but agri-business can survive and even flourish in an urbanizing area.

Kenosha County residents are rediscovering the benefits of buying local food. Many believe that food purchased from local family farmers is fresher, tastier and more nutritious. There has been a popular movement to support farmers' markets, roadside stands, on-farm sales, pick-your-own and Community Supported Agriculture.

There are 20 major inland lakes located in the County. The total surface area of major and minor lakes is 3,861 acres, or more than 2 percent of the County. There were approximately 110 miles of perennial streams and approximately 22,889 acres of nonfarmed wetlands in the County in 2010.

Environmental corridors and isolated natural resource areas include the best remaining woodlands, wetlands, plant and wildlife habitat areas, and other natural resources and have truly immeasurable environmental and recreational value. Environmental corridors and isolated natural resource areas are identified by SEWRPC and classified depending on their size. Primary environmental corridors are at least 400 acres in area, two miles in length, and 200 feet in width. Secondary environmental corridors are between 100 and 400 acres in size and at least one mile in length except where secondary corridors serve to link primary environmental corridors, in which case no minimum area or length criteria apply. Isolated natural resource areas are between five and 100 acres in size and at least 200 feet in width.

Primary environmental corridors in Kenosha County are located along major stream valleys, around major lakes, and in large wetland areas. In 2010, about 29,184 acres, comprising about 16 percent of the County, were encompassed within primary environmental corridors. Secondary environmental corridors are located chiefly along the smaller perennial streams and intermittent streams. Over 7,040 acres, comprising about 4 percent of the County, were within secondary environmental corridors in 2010. Isolated natural resource areas include a geographically well-distributed variety of isolated wetlands, woodlands, and wildlife habitat. These areas encompassed about 4,352 acres, or about 2 percent of the County, in 2010.

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CHAPTER 4

RELATED PLANS, REGULATIONS, NATURAL RESOURCE PROGRAMS AND CONSERVATION APPROACHES

INTRODUCTION

This second update to the Kenosha County Land and Water Resource Management Plan is built upon the first two plans and it complements other planning and resource management efforts and programs linking local level planning with regional and watershed level plans. The plan, therefore, provides an integrated framework within which Kenosha County will conduct activities to protect and rehabilitate the land and water resource base of the County and contribute to the environmentally sound management of these valuable resources in a coordinated and compatible manner with watershed wide needs and resource management programs. One of the first steps to be undertaken in the land and water resource management planning program is the inventory, collation, and review of the recommendations of relevant previously prepared reports and plans.

A number of plans currently exist which focus on the natural resources of Kenosha County. These plans include programs which address the interconnection of the natural resources of Kenosha County with those of the related watersheds and the Southeastern Wisconsin Region, as well as the importance of natural resources at the County and community level. The plans collated and reviewed for input into this current planning program were generally most relevant to actions undertaken by the County or potentially to be undertaken by the County. In addition, selected plans prepared at the local level, including local land use plans, park and open space plans, lake and water quality management plans, and sewer service area plans prepared for individual communities or for special purpose units of government were considered. All of these documents provide the basis for developing an integrated scheme for the sustainable management of the natural resources of Kenosha County through the coordinated efforts of Federal, State, County, and local governments, special-purpose units of government, and community groups. The Land and Water Resource Management Plan provides an opportunity to promote detailed action at the local level while achieving strategic objectives within the boundaries of Kenosha County, its watersheds, and the Southeastern Wisconsin Region. This plan takes into account planning objectives identified by local officials and also those reflected in locally-adopted land use plans and ordinances. Accordingly, an important step in the planning process was a review of the existing framework of area wide and local plans and related land use regulations. This chapter presents a summary of those plans and reports.

REGIONAL PLANS

The Southeastern Wisconsin Regional Planning Commission has prepared and adopted a number of regional plans which together set forth the fundamental concepts that are recommended to guide the development of the seven-county Southeastern Wisconsin Region. The regional land use and transportation system plans are the most basic regional plan elements. Additional plan elements include water quality management, water supply, parks and open space, natural areas, and housing. Together, these plans set forth the fundamental concepts that are recommended to guide the development of Southeastern Wisconsin. Regional plan recommendations can be implemented, in part, by integrating them into county and local government comprehensive plans.

Regional Water Quality Management Plan

In 1979, the SEWRPC completed and adopted a region wide water quality management plan for Southeastern Wisconsin as a guide to achieving clean and healthy surface waters within the seven-

county Region. The plan was designed, in part, to meet the Congressional mandate that the waters of the United States be made “fishable and swimmable” to the extent practical. It is set forth in SEWRPC Planning Report No. 30, A Regional Water Quality Management Plan for Southeastern Wisconsin: 2000, Volume One, Inventory Findings, September 1978; Volume Two, Alternative Plans, February 1979; and Volume Three, Recommended Plan, June 1979. Subsequently, SEWRPC completed a report documenting the updated content and implementation status of the regional water quality management plan: SEWRPC Memorandum Report No. 93, A Regional Water Quality Management Plan for Southeastern Wisconsin: An Update and Status Report, March 1995. This status report also documents the extent of progress, which had been made toward meeting the water use objectives and supporting water quality standards set forth in the regional plan.

The regional water quality management plan update, resulted in the reevaluation and, as necessary, revision of the three major elements comprising the original plan including; the land use element, the point source pollution abatement element, and the nonpoint source pollution abatement element. In addition, in cooperation with the MMSD, the regional water quality management plan update work was reviewed with a Citizens Advisory Council and was presented at forums of elected officials. The planning update was subject of a series of public hearings, and adopted by SEWRPC in 2007. The updated plan is set forth in SEWRPC Planning Report No. 50, A Regional Water Quality Management Plan Update for the Greater Milwaukee Watersheds.

The principle human activities contributing to potential ground water contamination were identified in an inventory and analysis of the groundwater resources of the Southeast Region. The potential sources include: above ground storage tanks, accidental spills, animal waste storage facilities, agricultural activities, animal feed lot leakage, underground storage tanks, fertilizer application, pesticide application, irrigation return flow, septic tanks, landfills, underground pipelines, liquid waste, highway deicing, illegal drainage, illegal wells, improper waste disposal, sewers, and groundwater development such as improper well construction or over pumping.

Regional Water Supply Plan

The Commission is conducted a regional water supply study for the Southeastern Wisconsin Region and prepared *SEWRPC Planning Report No. 52*, A Regional Water Supply Plan for Southeastern Wisconsin*, December 2010.* The regional water supply plan together with past SEWRPC groundwater inventories and a ground water simulation model *SEWRPC Technical Report No. 37,* Groundwater Resources of Southeastern Wisconsin, *June 2002* and *SEWRPC Technical Report No. 41,* A Regional Aquifer Simulation Model for Southeastern Wisconsin, *June 2005* will form the SEWRPC regional water supply management program. The preparation of these three elements includes interagency partnerships with the U.S. Geological Survey, the Wisconsin Geological and Natural History Survey, the University of Wisconsin-Milwaukee, the Wisconsin Department of Natural Resources, and many of the area’s water supply utilities.

The regional water supply plan includes the following major components:

- Water supply service areas and forecast demand for water use.
- Recommendations for water conservation efforts to reduce water demand.
- Evaluation of alternative sources of supply, recommended sources of supply, and recommendations for development of the basic infrastructure required to deliver that supply.
- Identification of groundwater recharge areas to be protected from incompatible development.
- Specification of new institutional structures necessary to carry out plan recommendations.
- Identification of constraints to development levels in certain areas of the region due to water supply sustainability concerns.

The recommendations and guidance for groundwater sustainability set forth in SEWRPC Planning Report No. 52 are considered by municipalities in Kenosha County when evaluating the sustainability of proposed developments and in conducting local land use planning.

COUNTY AND MULTI-JURISDICTIONAL PLANS

Kenosha County Multi-Jurisdictional Comprehensive Plan: 2035

The Multi-Jurisdictional Comprehensive Plan for Kenosha County: 2035 was completed in April, 2010. The local government bodies participating with Kenosha County in this planning process are listed below:

- City of Kenosha
- Village of Bristol
- Village of Pleasant Prairie
- Village of Paddock Lake
- Village of Silver Lake
- Village of Twin Lakes
- Town of Brighton
- Town of Paris
- Town of Randall
- Town of Salem
- Town of Somers
- Town of Wheatland

Kenosha County staff and officials worked with local governments, SEWRPC, and UW-Extension to produce the comprehensive plan. SEWRPC staff drafted the plan chapters for review by County and UW-Extension staff, and the advisory committee composed of local government representatives, local and County officials, and County residents and landowners. The importance of the comprehensive plan as a basis for decision-making is reinforced by consistency requirements in the State planning law, which specifies that zoning, land division, and official mapping regulations must be consistent with the plan. The recommended land use plan map for Kenosha County: 2035 is shown on Map 16. The *Kenosha County Multi-Jurisdictional Comprehensive Plan* is a "living document" and is amended annually with a thorough review and update at least every 10 years.

The land use plan for Kenosha County for the year 2035, presented on Map 16, is a compilation of the land use plan maps prepared by each local government in the County. The plan map indicates where certain types of urban development should be allowed while preserving agricultural and environmentally significant land and resources. A summary of planned land use categories is described in the following paragraphs.

Farmland Protection

Areas designated for farmland protection occupy 37,129 acres, or about 21 percent of the County, on the 2035 land use plan map. This category allows for all agricultural uses and consists primarily of parcels at least 35 acres or greater in size that contain soils suitable for agricultural production. The comprehensive plan encourages continuation of agricultural activity in these areas, including dairy farming, row crops, and niche agriculture, such as orchards and organic farming.

General Agricultural and Open Land

General agricultural and open land uses occupy 8,621 acres, or about 5 percent of the County, on the 2035 land use plan map. The general agricultural and open land use category would allow all agricultural uses, as well as residential development with an average density of one home for each 10.0 to 34.9 acres

of land. The comprehensive plan encourages continuation of agricultural related activity in this area, including dairy farming, row crops, equestrian farms, agricultural related warehousing and food processing, plant nurseries, and niche agriculture such as orchards, organic farming, and hobby farms. Open lands may include pasture lands and fallow fields.

Rural-Density Residential

The rural-density residential use category occupies 5,653 acres, or about 3 percent of the County, on the 2035 land use plan map. This category includes single-family homes at lot sizes or densities equating to five acres to 9.9 acres per dwelling unit. Rural-density residential land is mostly rural in character. The use of conservation subdivision design or lot-averaging techniques is encouraged to help preserve rural character in areas where rural-density residential development is allowed.

Extractive & Landfill

Extractive land uses involve onsite extraction of surface or subsurface materials. Extractive lands identified on the County 2035 land use plan map include existing and planned areas to be used for nonmetallic mining operations, and encompass 1,384 acres, or about 1 percent of the County. All extractive uses require the preparation of a reclamation plan for re-use of the site when mining is completed. Existing extractive sites have prepared such plans, and the sites will be reclaimed in accordance with those plans when mining operations have been completed. A landfill is an engineered facility for the disposal of nonhazardous solid waste that is located, designed, constructed, and operated to contain the solid waste and pose no substantial hazard to human health or the environment. The two active landfills in the County, Pheasant Run Landfill and the WE Energies boiler and coal ash landfill, are identified on the County land use plan map, and encompass 421 acres, or less than 1 percent of the County

Environmentally Significant Areas

- **Primary Environmental Corridor (PEC)** - Environmental corridors are linear areas in the landscape that contain concentrations of high-value elements of the natural resource base. Primary environmental corridors contain almost all of the best remaining woodlands, wetlands, and wildlife habitat areas, as well as floodplains and steeply sloped areas where intensive urban development would be ill-advised. Primary environmental corridors are at least two miles in length, 400 acres in area, and 200 feet in width. Primary environmental corridors occupy 23,616 acres, excluding associated surface water areas, or about 13 percent of the County. This land use category includes certain areas of “planned” primary environmental corridors consisting of existing “farmed wetlands” adjacent to such corridors that are located within existing or planned urban or cluster developments.

- **Secondary Environmental Corridor (SEC)** - contains concentrations of high-value elements of the natural resource base, but is smaller in area than primary environmental corridors. Such corridors are at least one mile in length and 100 acres in area, except where secondary corridors connect to or serve to link primary environmental corridor segments. Secondary environmental corridors, under the plan, occupy 6,409 acres, excluding associated surface water areas, or about 4 percent of the County.

- **Isolated Natural Resource Area (INRA)** - consist of areas with important natural resource values which are separated geographically from primary and secondary environmental corridors. Most of the isolated natural resource areas in the County are wetlands or tracts of woodlands that are at least 200 feet wide and five acres in area. Isolated natural resource areas, under the plan, occupy 3,903 acres, excluding associated surface water areas, or about 2 percent of the County.

- **Other Conservancy Land to be Preserved** - The plan also recommends that 3,671 acres of other conservancy lands be preserved. This land use category includes woodlands, natural areas,

and critical species habitat sites located outside environmental corridors and isolated natural resource areas; a significant geological site; and common open areas of residential developments, including conservation subdivisions. This category also includes portions of State-owned wildlife areas and certain nonfarmed wetlands that are outside environmental corridors and isolated natural resource areas.

- **Nonfarmed Wetlands outside PEC, SEC, INRA, and Other Conservancy Land to be Preserved** - This category consists of primarily nonfarmed wetlands (wetlands with natural vegetation), typically less than five acres in size, that are located outside environmental corridors, isolated natural resource areas, and other conservancy lands to be preserved. These areas contain soils that are poorly drained and support wetland vegetation during years of normal or high precipitation or periods of normal or high water table. Wetlands under this land use category encompass 1,509 acres, or about 1 percent of the County.

- **Surface Wate**r - The surface water land use category includes lakes, ponds, and major rivers, including those associated with environmental corridors and isolated natural resource areas. Surface waters encompass 5,607 acres, or about 3 percent of the County.

Residential Suburban, Medium and High Density

Suburban-Density Residential the average density equating to one home per 40,000 square feet to 4.9 acres. Medium-Density Residential the average density equating to one dwelling unit per 6,000 to 39,999 square feet. High-Density Residential the average density is less than 6,000 square feet per dwelling unit. Combined residential land use categories occupies 37,352 acres, or about 21 percent of the County, on the 2035 land use plan map.

Mixed-Use

The mixed-use category occupies 4,742 acres, or about 3 percent of the County, on the 2035 land use plan map, and would include a mix of residential and compatible commercial and/or institutional uses. Development in this category would typically be subject to planned unit development (PUD), traditional neighborhood development (TND), transit-oriented development (TOD), or mixed use related regulations in the applicable zoning ordinance. Mixed-use areas generally include traditional downtown business districts, infill development sites, and areas adjacent to arterial streets, highways, and transit stops (bus or rail) within urban service areas of the County.

Commercial Office/Professional Services

Commercial uses occupy 4,397 acres, or about 3 percent of the County, on the 2035 land use plan map. This category includes retail stores; services, such as drycleaners, barber or beautician shops, banks, and restaurants; and offices and professional services of doctors, dentists, architects, engineers, attorneys, computer programmers, graphic artists, insurance agents, financial planners, and other similar recognized professions and consultation services. This category may also include downtown business districts, neighborhood and community shopping centers, highway and regional shopping areas, financial institutions, and medical facilities. The office/professional services category occupies 581 acres, or less than 1 percent of the County, on the 2035 land use plan map. This category includes a variety of business uses such as the offices and professional services of doctors, dentists, architects, engineers, attorneys, computer programmers, graphic artists, insurance agents, travel agents, financial planners, and other similar recognized professions and consultation services. This category may also include corporate headquarters, financial institutions, and medical facilities.

Industrial

The plan envisions that the areas devoted to industrial land uses would occupy 5,307 acres, or about 3 percent of the County. This category would accommodate manufacturing and other industrial uses, such as warehouses and outdoor storage of commercial vehicles and building materials.

Business/Industrial Park

The business/industrial park category occupies 2,725 acres, or about 2 percent of the County, on the 2035 land use plan map. This category would allow a mix of office, retail, service, and industrial uses, and reflects the modern business park where a mix of office and compatible service and/or industrial uses are typically accommodated. It is anticipated that these areas would be developed in an attractive park-like setting with landscaping, consistent signage, and similar or compatible building materials and designed to present an integrated image to customers.

Governmental and Institutional

The governmental and institutional land use category includes governmental and institutional buildings and grounds for which the primary function involves administration, safety, assembly, or educational purposes. This includes public and private schools, government offices, police and fire stations, libraries, cemeteries, religious institutions, hospitals, nursing homes, and similar facilities. In the City of Kenosha and the Village of Pleasant Prairie, this category would also allow commercial office buildings that are not associated with a government or institutional use. The plan envisions that areas devoted to governmental and institutional uses would occupy 3,861 acres, or about 2 percent of the County.

Park and Recreational

The park and recreational land use category includes lands developed with facilities for public and private outdoor recreation and publicly-owned indoor recreational facilities. It includes both public parks and privately-owned recreational areas, such as a ski hill and golf courses. The plan envisions that the areas devoted to park and recreational uses would occupy 5,090 acres, or about 3 percent of the County, in 2035.

Transportation, Communication, Utility Street, and Highway Right-of-Way

Transportation, communication, and utility category include airports, park-ride lots, and railroad rights-of-way. It also includes parcels used for private and public utilities that provide residents and businesses with electric power, natural gas, communications, water, and sewage and solid waste management facilities and services. This category occupies 2,367 acres, or about 1 percent of the County, on the 2035 land use plan map. Existing street and highway rights-of-way includes future street rights-of-way shown on adopted neighborhood plans, and the proposed right-of-way for the IH 94 freeway corridor, including inter-changes, currently under development. There are 10,910 acres, or about 6 percent of the County, within street and highway rights-of-way category.

In addition, the comprehensive plan serves to increase the awareness and understanding of County and city, village and town planning goals and objectives by landowners, developers, and other private interests. With an adopted comprehensive plan in place, private sector interests can proceed with greater assurance that proposals developed in accordance with the plan will receive required approvals.

Kenosha County Park and Open Space Plan

A Kenosha County park and open space plan *SEWRPC Community Assistance Planning Report No. 131,* A Park and Open Space Plan for Kenosha County, Wisconsin, *2nd Edition April 2012* was most recently amended in 2012. The plan consists of both an open space preservation element and an outdoor recreation element, intended to, respectively, protect areas containing important natural resources and to provide major parks, area-wide trails, and resource-oriented recreational facilities. Major parks are defined as publicly-owned parks at least 100 acres in size providing opportunities for such resource-oriented activities as camping, golfing, picnicking, and swimming. Responsibility for providing community parks, neighborhood parks, and local trails is assigned to cities, villages, and towns.

The regional park and open space plan, as amended by the park and open space plan for Kenosha County, contains recommendations which, if implemented, would provide residents of Kenosha County with opportunities to participate in a wide range of resource-oriented outdoor recreation activities. Those recommendations are concerned with the provision of major parks, which provide opportunities for intensive resource-oriented outdoor recreation activities, and recreation corridors, which provide opportunities for various trail-oriented activities. In addition, the plan contains recommendations for the protection and preservation of open space lands, including natural resource features such as woodlands, wetlands, and floodplains, located within environmental corridors and isolated natural resource areas.

Kenosha County Farmland Preservation Plan

Prime agricultural lands are those lands which, in terms of farm size, the aggregate area being farmed, and soil characteristics, are best suited for the production of food and fiber. A number of important public purposes are served by the preservation of prime agricultural lands. Such public purposes include maintenance of agricultural reserves; maintenance of open space; control of public costs by avoiding the need to provide urban services such as sanitary sewer, public water, and full-time police and fire protection; and preservation of the local economic base.

Prime agricultural lands in Kenosha County were identified by the Kenosha County farmland preservation plan, *SEWRPC Community Assistance Planning Report No. 45* A Farmland Preservation Plan for Kenosha County, Wisconsin*, June 1981.* which was adopted by the Kenosha County Board in June 1981. In this plan, prime agricultural land must meet the following criteria: the farm unit must be at least 35 acres in size; at least 50 percent of the farm unit must be covered by soils which meet Soil Conservation Service (now the USDA Natural Resources Conservation Service) criteria for “Prime Farmland” or “Farmland of Statewide Importance” (generally Class I, II, or III soils); and the farm should be located in a contiguous farming area at least 100 acres in size. Farmland preservation is recommended by a number of local land use and comprehensive plans.

In 2009 Wisconsin Act 28 (2009-2011 Budget Bill) created what is known as the “Working Lands Initiative”. This new law made significant revisions to Chapter 91 of the Wisconsin State Statutes, which has been the Wisconsin’s farmland preservation law since 1977. The Working Lands Initiative expands and modernizes the state’s existing farmland preservation program Creating new tools to assist in local program implementation, including:

- Expanding and modernizing the state's existing farmland preservation program
- Creating new tools to assist in local program implementation, including:
- Establishing the Agricultural Enterprise Areas (AEAs) program
- Creating a Purchase of Agricultural Conservation Easement (PACE) matching grant program

An important element in modernizing the existing program is a requirement for every county in the state to update their existing farmland preservation plan, which is the purpose of this document. Under the new law, the Kenosha County farmland preservation plan must be updated by December 31, 2011. This update to our existing Farmland Preservation Plan for Kenosha County, adopted in 1981, will continue to lend strong support to the preservation of productive and potentially productive agricultural land and environmentally significant natural areas, while providing for well planned urban growth, which is compatible with the County’s agricultural and natural resources.

Key Changes from the Farmland Preservation Plan for Kenosha County, 1981

The adoption of our first Plan in 1981 and the adoption of the Countywide Zoning Ordinances in 1983 together have helped protect Kenosha County farmland and enable owners of farmland to participate in the State Farmland Preservation tax credit program. The Farmland Preservation Plan has guided both land use patterns and land use decisions. Population growth and urban development pressure in Kenosha County over the past 30 years has been significant, but the major losses of farmland have

occurred within the planned urban service and growth areas, and within the County's cities and villages. Annexation and incorporation has also diminished the plans influence and countywide zoning authority to protect farmland.

The Farmland Preservation Plan update recommends certified farmland preservation areas that encompass a total area of 38,552 acres, or about 61 square miles of land in Kenosha County, as shown in Map 17. The Certified Farmland Preservation Areas comprise 63 percent of the County's existing farmland preservation zoning district and were based on the following criteria:

1. Lands that are predominately in active agricultural, agriculture accessory, agriculture-related or natural resource use;
2. Lands that are planned to support a predominance of agriculture, agricultural accessory, agriculture-related and natural resource uses for fifteen years or more based on the Multi-jurisdictional Comprehensive Plan for Kenosha County: 2035;
3. Are clearly shown as "Farmland Protection" on planned land use maps and neighborhood planning maps in town and village plans adopted as part of the Multi-jurisdictional Comprehensive Plan for Kenosha County: 2035;
4. Are completely outside designated sanitary sewer service areas, delineated in the regional water quality management plan as amended and approved by the Southeastern Wisconsin Regional Planning Commission and the Wisconsin Department of Natural Resources;
5. Are located primarily within areas previously identified in the Farmland Preservation Plan for Kenosha County (1981);
6. At least 50 percent of the farmland must be covered by soils which meet the U.S. Department of Agriculture, NRCS, standards for National Prime Farmland or Farmland of Statewide Significance.

This plan applies the same criteria for designating prime farmland in Kenosha County as the initial Kenosha County Farmland Preservation Plan and Agricultural Zoning Districts. The Kenosha County Farmland Preservation Plan Update continues to concentrate its efforts to preserve farmland with the most productive soils, generally comprised of soils in Capability Classes I, II, and III, as identified by the USDA, Natural Resources Conservation Service. The plan also supports the preservation of large, contiguous blocks of farmland, to promote more efficient farming and minimize urban-rural land use conflicts. The plan recommends the maintenance of agriculture as an important component of Kenosha County's economic base and rural heritage. The plan stresses the importance of conformance to the state agricultural standards and prohibitions for agriculture in NR 151 of the Wis. Adm. Code.
The farmland preservation plan update, like our original plan, is intended to serve as a guide for the preservation of agricultural lands in Kenosha County. In addition, the updated plan includes recommendations for the protection of environmentally significant areas and recommendations regarding the location and density of urban development within the County for at least the next fifteen years.

The major changes in the plan update include:

1. The adoption of a Farmland Preservation Areas Map, designating Certified Farmland Preservation Areas for preservation for agriculture and agricultural uses.
2. Support for the establishment of Agricultural Enterprise Areas (AEA), a new program in the State Working Lands Initiative, and designates specific areas in Kenosha County for potential AEA Agreements.
3. Encourages the implementation of the Purchase of Agricultural Conservation Easements (PACE) program, which provides State funding of the purchase of such easement from willing landowners in order to preserve agricultural capacity and conserve unique agricultural resources.
4. Monitor compliance of the State land and water conservation performance standards to maintain farmer eligibility in the Wisconsin Farmland Preservation Program and incentive tax credits.

5. Develop methods to ensure nutrient management plans required by Section NR 151.07 of the Wisconsin Administrative Code are implemented throughout the County.
6. Promotes agriculture and associated agricultural industries in Kenosha County and recommends additional agricultural related uses allowed in agricultural preservation districts.

Kenosha County Land and Water Resources Management Plan 2000-2004 and Plan Update 2008-2012

The original land and water resources management plan was adopted by the County Board in September 2000 *SEWRPC Community Assistance Planning Report No. 255,* A Land and Water Resources Management Plan for Kenosha County, Wisconsin*, September 2000.* The plan update, *SEWRPC Community Assistance Planning Report No. 259 (2nd edition)*, A Land and Water Resources Management Plan for Kenosha County, Wisconsin, *October, 2007*. The plans identified a set of priority issues related to County land and water resources, including: stormwater management, sedimentation, animal waste runoff, yard waste management, illicit dumping of waste, excessive fertilizer and pesticide application, wetland resource protection, groundwater degradation, loss of farmland and open space, and lack of riparian buffers. These concerns and issues were used as a basis for developing the goals, objectives, and recommended actions for the plan. Recommendations specific to each of the County's five major watersheds were divided into the following categories: agricultural land use, nonagricultural and urban land use, water quality and wildlife habitat, educational programming, and groundwater. To address these issues the plan identifies the following goals: reduce agricultural and non-agricultural nonpoint source pollution; reduce sedimentation in agricultural drainage ways; encourage urban density land use only within identified urban service areas; improve the overall water quality and wildlife habitat; continue to implement and enhance the County's shoreland management program; reduce the threat to groundwater contamination; and increase educational efforts related to groundwater resources, natural resources, and the environment. The plan sets forth the objectives and actions that will be carried out in order to achieve the goals associated with each issue and identifies the agency or organization responsible for carrying out the listed action steps.

Comprehensive Watershed and Basin Plans

The Regional Planning Commission has developed comprehensive plans for the Fox River watershed, *SEWRPC Planning Report No. 12*, A Comprehensive Plan for the Fox River Watershed, April *1969, and amended September 1973.* Pike River Watershed, *Applied Ecological Services* Pike River Watershed-Based Plan, *August 2013* and the Des Plaines River watershed. *SEWRPC Planning Report No. 44,* A Comprehensive Plan for the Des Plaines River Watershed, *June 2003*. The Fox River Watershed encompasses 96 square miles, or about 35 percent of the total land area of Kenosha County. The Pike River Watershed encompasses 30 square miles, or about 11 percent of the total land area of Kenosha County. The Des Plaines River Watershed encompasses 122 square miles, or about 44 percent of the total land area of Kenosha County. Together these comprehensive watershed plans cover approximately 90 percent of the land area of Kenosha County. These plans include delineations of new floodplain boundaries and updates to existing boundaries along many streams in each watershed. Plan recommendations were developed for future land use, park and open space needs, stormwater and floodland management, water quality management, and fisheries management. These watershed plans also recommend the continued maintenance and preservation in open uses of primary and secondary environmental corridors and isolated natural resource areas, and the preservation and restoration of potential wetland and prairie areas. The WDNR also prepares State of the Basin Reports for each basin in the County to provide an overview of land and water resource quality, identify challenges facing these resources, and outlining future actions for the WDNR. Basin reports also offer valuable insight into natural features, challenges and threats to these systems and includes the Southeastern Fox basin (Documented in Wisconsin Department of Natural Resources, The State of the Southeast Fox River Basin, February 2002 PUBL WT-701-2002) the Root-Pike basin. (Documented in *SEWRPC Community Assistance Planning Report No. 316,* A Restoration Plan for the Root River Watershed, July 2014 and the Dutch Gap Canal (Documented in the *Lake County Stormwater Management Commission,* North Mill Creek-

Dutch Gap Canal Watershed-Based Plan, *November 2011*). These reports have identified the high priority issues and actions that will need to be monitored and managed to restore and protect the basin's resources for the present and future.

Three of the watershed plans noted above are consistent with EPA's nine key elements and provide a framework for improving water quality in a holistic manner within a geographic watershed. The nine elements help assess the contributing causes and sources of nonpoint source pollution, involve key stakeholders and prioritize restoration and protection strategies to address water quality problems. The watershed plans that have achieved nine key element status include; North Mill Creek-Dutch Gap Canal Watershed-Based Plan, A Restoration Plan for the Root River Watershed, and Pike River Watershed-Based Plan.

A summary of the nine key elements are listed below:

1) Identify the causes and sources
2) Estimate pollutant loading into the watershed and the expected load reductions
3) Describe management measures that will achieve load reductions and targeted critical areas
4) Estimate the amounts of technical and financial assistance and the relevant authorities needed to implement the plan
5) Develop an information/education component
6) Develop a project schedule
7) Develop the interim, measurable milestones
8) Identify indicators to measure progress and make adjustments
9) Develop a monitoring component

Each nine key element plan estimated impairment reduction targets to provide a means to measure how implementation of management measures at "Critical Areas" was expected to reduce watershed impairments. The basis for known impairments, reduction targets, & impairment reduction from critical areas and high priority areas were summarized and the summary tables are included in this plan as Appendices B, C, and D. The reduction targets listed were based on documented information, modeling results, best professional judgment, and/or water quality standards and criteria set by the WDNR, USEPA, and USGS. Each plan summarizes the overall impairment reduction expected after addressing critical and high priority areas.

Aquatic Plant Management Plans

In order to protect diverse and stable communities of native aquatic plants and prevent the spread of invasive aquatic plants, many aquatic plant management and nuisance control activities are listed in aquatic plant management plans. In Kenosha County, recent aquatic plant management plans have been developed for Shangri-la/Benet Lake - SEWRPC Memorandum Report No. 192, An Aquatic Plant Management Plan for Lake Shangri-la and Benet Lake, Kenosha County, Wisconsin. In general, most comprehensive lake management plans address aquatic plant management in detail.

Lake Management Plans

A method to assist lake groups into working toward long-term lake goals, such as improve water quality, understand the lake's complex ecosystem, and increase lake protection is to develop a Lake Management Plan. If implemented properly, Lake Management Plans can provide realistic lake management goals and outcomes to provide the lake community with a better environmental and economical return. Completed lake management and protection plans in Kenosha County include; a lake protection plan for Elizabeth Lake And Lake Mary - *Community Assistance Planning Report No. 302*, A Lake Management Plan For Elizabeth Lake And Lake Mary, Kenosha County, Wisconsin, *Volume 1 and 2, July 2009,* A lake management plan for George Lake - *Community Assistance Planning Report No. 300*, A Lake Management Plan for George Lake, Kenosha County, Wisconsin *August 2007*, a lake protection plan for Powers Lake was completed - *SEWRPC Memorandum Report No. 193*, A Lake

Protection Plan for Powers Lake, *November 2011.* A Lake Management Plan for George Lake, Kenosha County, Wisconsin *August 2007.* Just recently, A Lake Protection and Aquatic Plant Management Plan for Rock Lake, Kenosha County, Wisconsin, SE*WRPC Community Assistance and Planning Report No. 323*, was complete in June 2015.

All-Hazard Mitigation Plan

The mitigation planning requirements of FEMA's *44 Code of Federal Regulations, Section 201.6 (d) (44 CFR 201.6(d))* require that local hazard mitigation plans must be prepared, approved and updated to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and reapproved every five years for local jurisdictions to be able to receive hazard mitigation funding. Thus, in September 2009, Kenosha County in cooperation with its 12 municipalities and the Southeastern Wisconsin Regional Planning Commission prepared the initial hazard mitigation plan. *Community Assistance Planning Report No. 278*, Kenosha County Hazard Mitigation Plan: 2011-2015 J*une 2011*. The scope of this plan is countywide, and is intended to set forth the most appropriate, feasible, and effective hazard mitigation strategy for Kenosha County and the local units of government within the County. The plan complements, refines and focuses the State Hazard Mitigation Plan of Wisconsin on local conditions and hazards likely to occur or be experienced within Kenosha County and Southeastern Wisconsin. The plan development process encourages innovative programming and leadership and to build constructive partnerships with local units of government, business, and other stakeholders with a shared interest and obligation in protecting the safety and economic stability of Kenosha County, and to provide information and guidance to neighboring communities as they develop jurisdictional hazard mitigation plans at the local and sub-regional levels. Kenosha County in collaboration with the SEWRPC has assembled a Kenosha County Hazard Mitigation Plan Task Force, to begin the update process, with completion scheduled for December 2015.

CITY, TOWN, AND VILLAGE PLANS

Local Land Use, Master, and Comprehensive Plans

Section 62.23 of the *Wisconsin Statutes* grants cities and villages the authority to prepare and adopt local master plans or plan elements, such as a community land use plan. Section 60.10(2)(c) of the *Statutes* gives towns the authority to prepare and adopt a local master plan under Section 62.23 provided a town adopts village powers and creates a town plan commission. All of the towns in Kenosha County have adopted village powers and created a plan commission. Several communities, including the City of Kenosha, Village of Pleasant Prairie and Somers, and the Towns of Salem and Somers have prepared detailed neighborhood plans, which recommend specific land uses and street and lot layouts.

City and Village Land Use, Master, and Comprehensive Plans

Kenosha County's city and village future land use plans include a variety of land uses such as residential, commercial, industrial, parks, environmental corridors, government and institutional and other land uses. City and village planning areas generally extend beyond corporate boundaries to include areas outside of those boundaries that are expected to be annexed by the city or village within the planning period. City and village planning areas are often related to the extraterritorial plat approval area granted to cities and villages under Section 236.10 of the *Statutes*.

Town Land Use and Comprehensive Plans

Town land use and comprehensive plans include a variety of recommended land uses, including agricultural, residential, commercial, industrial, parks, environmental corridors, government and institutional and other land uses. Because towns do not have extraterritorial planning authority, town planning areas do not extend beyond town boundaries. The overlapping planning authority demonstrates the importance of intergovernmental cooperation in the comprehensive planning process.

COUNTY AND LOCAL ORDINANCES

Good community development depends not only on quality planning at all levels of government, but on practical implementation measures as well. Land use and development regulations affect the type of uses allowed, as well as the detailed design and site layout of proposed developments. The following presents a summary of general zoning, subdivision, and official mapping regulations adopted by the county and local governments.

General Zoning

Zoning is a tool used to regulate the use of land in Kenosha County in a manner that serves to promote the general welfare of its citizens, the quality of the environment, and the conservation of its resources. Zoning is also used to implement a land use plan. Zoning in and of itself is the delineation of areas or zones into specific districts which provides uniform regulations and requirements that govern the use, placement, spacing, land size and structures.

Cities in Wisconsin are granted general, or comprehensive, zoning powers under Section 62.23 of the *Wisconsin Statutes.* The same powers are granted to villages under Section 61.35 of the *Wisconsin Statutes.* Counties are granted general zoning powers within their unincorporated areas under Section 59.69 of the *Wisconsin Statutes.* However, a county zoning ordinance becomes effective only in those towns that ratify the county ordinance. Towns that have not adopted a county zoning ordinance may adopt village powers and subsequently utilize the city and village zoning authority conferred in Section 62.23 of the *Wisconsin Statutes*. Town zoning, however, is subject to county board approval where a general county zoning ordinance exists. Alternatively, towns may adopt a zoning ordinance under Section 60.61 of the *Wisconsin Statutes* where a general county zoning ordinance has not been adopted, but only after the county board fails to adopt a county ordinance at the petition of the governing body of the town concerned. General zoning is in effect in all communities in Kenosha County. The Kenosha County Health Department administers the state mandated Private Sewage System Program for all unsewered areas of Kenosha County. Kenosha County Division of Planning Operations staff, in accordance with *Chapter 12 Kenosha County General Zoning and Shoreland/Floodplain Zoning Ordinance*, regulates general zoning functions for the Village of Somers, the townships of Brighton, Paris, Randall, Salem, Somers, and Wheatland. In addition, the office is responsible for shoreland, floodplain and shoreland-wetland zoning for all unincorporated areas in the County. The City of Kenosha, Villages of Bristol, Paddock Lake, Pleasant Prairie, Silver Lake, and Twin Lakes have adopted and enforce their own general zoning ordinance.

Floodland Zoning

Section 87.30 of the *Wisconsin Statutes* requires that cities, villages, and counties, with respect to their unincorporated areas, adopt floodland zoning to preserve the floodwater conveyance and storage capacity of the floodplain areas and to prevent the location of new flood damage-prone development in flood hazard areas. The minimum standards that such ordinances must meet are set forth in Chapter NR 116 of the *Wisconsin Administrative Code.* The required regulations govern filling and development within a regulatory floodplain, which is defined as the area subject to inundation by the 100-year recurrence interval flood event, the event which has a 1 percent chance of occurring in any given year. Under Chapter NR 116, local floodland zoning regulations must prohibit all forms of development within the floodway, which is that portion of the floodplain required to convey the 100-year recurrence peak flood flow. Local regulations must also restrict filling and development within the flood fringe, which is that portion of the floodplain located outside of the floodway that would be covered by floodwater during the 100-year recurrence flood. Permitting the filling and development of the flood fringe area, however, reduces the floodwater storage capacity of the natural floodplain, and may thereby increase downstream flood flows and stages. The County Shoreland/Floodplain Zoning Ordinance applies in all of the unincorporated areas of the Towns in Kenosha County. All incorporated cities and villages where floodplains have been identified have adopted floodland zoning ordinances.

In the Camp Lake/Center Lake Floodplain Fringe Overlay District, County zoning allows for development and filling, as permitted, and structures within the floodplain fringe, provided that the structure is adequately floodproofed. The Villages of Pleasant Prairie, Silver Lake, and Twin Lakes and the City of Kenosha have their own general floodplain zoning ordinances. The Village of Pleasant Prairie's ordinance requires that compensatory floodwater storage be provided to offset the effects of any fill placement in the 100-year floodplain. The City of Kenosha, and the Villages of Silver Lake and Twin Lakes allow for development, as permitted, within the floodplain fringe. Additionally, the Village of Silver Lake allows for structures in the floodway, provided that they are used for nonresidential purposes, are anchored in place, the longitudinal axis is parallel to the flow of water, and that the structure does not increase the flood elevations by any more than 0.00 foot.

Shoreland and Shoreland-Wetland Zoning

Under Section 59.692 of the *Wisconsin Statutes*, counties in Wisconsin are required to adopt zoning regulations within statutorily defined shoreland areas, or, those lands that are within 1,000 feet of a navigable lake, pond, or flowage, or 300 feet of a navigable stream, or, to the landward side of the floodplain, whichever distance is greater, within their unincorporated areas. Minimum standards for county shoreland zoning ordinances are set forth in Chapter NR 115 of the *Wisconsin Administrative Code.* Chapter NR 115 sets forth minimum requirements regarding lot sizes and building setbacks; restrictions on cutting of trees and shrubbery; and restrictions on filling, grading, lagooning, dredging, ditching, and excavating that must be incorporated into county shoreland zoning regulations. Most projects requiring a shoreland permit from Kenosha County will require a corresponding Wisconsin Department of Natural Resources and possibly a U.S. Army Corps of Engineers permit. Kenosha County shoreland permits are not valid without the necessary Town, State, or Federal permits. In addition, Chapter NR 115 requires that counties place all wetlands five acres or larger and within the statutory shoreland zoning jurisdiction area into a shoreland – wetland overlay district to ensure their preservation after completion of appropriate wetland inventories by the Wisconsin Department of Natural Resources. Aside from wetlands within the shoreland zone, selected wetlands generally five acres and larger are also placed into conservancy zoning outside the shoreland zone in the unincorporated areas of the County. In 1982, the State Legislature extended shoreland-wetland zoning requirements to cities and villages in Wisconsin. Under Sections 62.231 and 61.351, respectively, of the *Wisconsin Statutes* cities and villages in Wisconsin are required to place wetlands five acres or larger and located in statutory shorelands into a shoreland wetland conservancy zoning district to ensure their preservation. Minimum standards for city and village shoreland-wetland zoning ordinances are set forth in Chapter NR 117 of the *Wisconsin Administrative Code*. It should be noted that the basis for identification of wetlands to be protected under Chapters NR 115 and NR 117 of the *Wisconsin Administrative Code* is the Wisconsin Wetlands Inventory. Mandated by the State Legislature in 1978, the Wisconsin Wetlands Inventory resulted in the preparation of wetland maps covering each U.S. Public Land Survey Township in the State. The most recent inventory was completed for counties in Southeastern Wisconsin in 2010; the inventory was compiled by the Southeastern Wisconsin Regional Planning Commission on behalf of the Wisconsin Department of Natural Resources as part of a cooperative agreement to update the Wisconsin Wetland Inventory in Southeastern Wisconsin. The wetland inventory was compiled with reference to orthophotography acquired in the spring of 2010, and also with reference to land use, vegetation, topographic, and soils information.

County shoreland-wetland zoning ordinances are in effect in all unincorporated areas of Kenosha County. The incorporated City of Kenosha and the Villages of Bristol, Paddock Lake, Pleasant Prairie, Silver Lake, Somers, and Twin Lakes have adopted their own shoreland-wetland zoning ordinances pursuant to Sections 62.231 and 61.351, respectively, of the *Wisconsin Statutes*.

Subdivision Regulations

Chapter 236 of the *Wisconsin Statutes* requires the preparation of a subdivision plat whenever five or more lots of 1.5 acres or less in area are created either at one time or by successive divisions within a period of five years. The *Statutes* set forth requirements for surveying lots and streets, for plat review and approval by State and local agencies, and for recording approved plats. Section 236.45 of the *Statutes* allows any city, village, town, or county that has established a planning agency to adopt a land division ordinance, provided the local ordinance is at least as restrictive as the State platting requirements. Local land division ordinances may include the review of other land divisions not defined as "subdivisions" under Chapter 236, such as when fewer than five lots are created or when lots larger than 1.5 acres are created.

The subdivision regulatory power Mr. Buehler noted that the Fox River and Lake Michigan floodplain studies currently underway should be made mention of. Mr. Treloar said he would add that discussion.
s of towns and counties are confined to unincorporated areas. Kenosha County adopted *Chapter 14 Subdivision Control Ordinance* in 2014 (this ordinance is currently being updated and will be approved by December 2015). City and village subdivision control ordinances may be applied to extraterritorial areas, as well as to incorporated areas. It is possible for both a county and a town to have concurrent jurisdiction over land divisions in unincorporated areas, or for a city or village to have concurrent jurisdiction with a town or county in the city or village extraterritorial plat approval area. In the case of overlapping jurisdiction, the most restrictive requirements apply. Each of the incorporated communities in Kenosha County has adopted its own subdivision ordinance.

Nonmetallic Mining Reclamation Ordinance

Effective June 1, 2002, *Chapter 13 Kenosha County Non-Metallic Mining Reclamation Ordinance* establishes a local program to ensure effective reclamation, including, but not limited to, the control and prevention of soil erosion, the prevention of water pollution of the surface and subsurface waters, and the promotion of sound future land use on nonmetallic mining sites in Kenosha County. The Village of Pleasant Prairie adopted and administers a nonmetallic mining ordinance that requires nonmetallic mining restoration plans for nonmetallic mining sites within the Village.

Agricultural Zoning District

Kenosha County regulates the A-3 Agricultural Zoning District to provide for the proper location and regulation of manufacturing, warehousing, storage, and related industrial, commercial, marketing, and service activities that are dependent upon, or closely allied to, the agricultural industry. Accessory uses in the A-3 District include commercial feedlots. The following facilities are considered commercial feedlots: 1) any tract of land or structure wherein any type of fowl or the by-products thereof are raised for sale at wholesale or retail; 2) any structure, pen, or corral wherein cattle, horses, sheep, goats, and swine are maintained in close quarters for the purpose of fattening such livestock for final shipment to market; 3) an animal confinement facility used or designed for the feeding or holding of 500 or more animal units for a period of 30 days or more. All new and expanding commercial feedlot facilities must comply with special requirements, set forth in Chapter 12 of the County Code of Ordinances, to receive approval.

STATE NONPOINT POLLUTION STANDARDS AND PROHIBITIONS

Through 1997 Wisconsin Act 27, the State Legislature required the WDNR and DATCP to develop performance standards for controlling nonpoint source pollution from agricultural and nonagricultural land and from transportation facilities. The performance standards are set forth in Chapter NR 151, "Runoff Management," of the *Wisconsin Administrative Code,* which became effective on October 1, 2002, revised in 2010 and became effective on January 1, 2011.

Nonagricultural (urban) Performance Standards and Storm water Discharge Permits

The nonagricultural performance standards set forth in Chapter NR 151 encompass two major types of land management. The first includes standards for areas of new development and redevelopment and the second includes standards for developed urban areas. The performance standards address the following areas:

- Construction sites for new development and redevelopment,
- Post construction stormwater runoff for new development and redevelopment,
- Developed urban areas, and
- Non-municipal property fertilizing.

Chapter NR 151 requires counties and local units of government in urbanized areas, which are identified based on population density, to obtain a WPDES stormwater discharge permit as required. Under Chapter NR 216 Kenosha County, the City of Kenosha, and the Villages of Paddock Lake and Pleasant Prairie will be required to obtain WPDES stormwater discharge permits. Chapter NR 151 requires permit holders to reduce the amount of total suspended solids in stormwater runoff from areas of existing development that is in place as of October 2004 to the maximum extent practicable, according to the following standards:

- By March 10, 2008, the NR 151 standards call for a 20 percent reduction, and
- By October 1, 2013, the standards call for a 40 percent reduction.

Permitted municipalities are required to implement the following 1) public information and education programs relative to specific aspects of nonpoint source pollution control; 2) municipal programs for collection and management of leaf and grass clippings; and 3) site-specific programs for application of lawn and garden fertilizers on municipally controlled properties with over five acres of pervious surface. Under the requirements of Chapter NR 151, by March 10, 2008, incorporated municipalities with average population densities of 1,000 people or more per square mile that are not required to obtain municipal stormwater discharge permits must implement those same three programs.

In addition, regardless of whether a municipality is required to have a stormwater discharge permit under Chapter NR 216, Chapter NR 151 requires that all construction sites that have one acre or more of land disturbance must achieve an 80 percent reduction in the amount of sediment that runs off the site. With certain limited exceptions, those sites required to have construction erosion control permits must also have post-development stormwater management practices to reduce the total suspended solids (sediment) that would otherwise run off the site by 80 percent for new development, 40 percent for redevelopment, and 40 percent for infill development occurring prior to October 1, 2012. After October 1, 2012, infill development will be required to achieve an 80 percent reduction. If it can be demonstrated that the solids reduction standard cannot be met for a specific site, total suspended solids must be controlled to the maximum extent practicable.

Section NR 151.12 of the *Wisconsin Administrative Code* requires infiltration of post-development runoff from areas developed on or after October 1, 2004, subject to specific exclusions and exemptions as set forth in Sections 151.12(5)(c)5 and 151.12(5)(c)6, respectively. In residential areas, either 90 percent of the annual predevelopment infiltration volume or 25 percent of the post-development runoff volume from a two-year recurrence interval, 24- hour storm, is required to be infiltrated. However, no more than 1 percent of the area of the project site is required to be used as effective infiltration area. In commercial, industrial and institutional areas, 60 percent of the annual predevelopment infiltration volume or 10 percent of the post-development runoff volume from a two-year recurrence interval, 24-hour storm, is required to be infiltrated. In this case, no more than 2 percent of the project site is required to be used as effective infiltration area.

Construction Site Erosion Control

Sections 62.234 and 61.354 of the *Wisconsin Statutes* grant authority to cities and villages, respectively, to adopt ordinances for the prevention of erosion from construction sites and the management of stormwater runoff from lands within their jurisdiction. Under Section 60.627 of the *Wisconsin Statutes* towns may adopt village powers and subsequently utilize the authority conferred on cities and villages to adopt their own erosion control and stormwater management ordinances, subject to county board approval where a county ordinance exists. On October 3, 2010 Kenosha County adopted Chapter 17 Kenosha County Stormwater Management, Erosion Control, and Illicit Discharge Ordinance. The general purpose of this ordinance is to establish regulatory requirements for land development and land disturbing activities aimed to minimize the threats to public health, safety, welfare, and the natural resources of Kenosha County from construction site erosion and post-construction stormwater runoff. This ordinance is intended to meet the current construction site erosion control and post-construction stormwater management regulatory requirements of Subchapter III of both NR 151 and NR 216 *Wis. Admin. Code*

A construction site erosion control and stormwater management ordinance is also in effect for the townships of Salem and Somers which each have their own general ordinance regulating erosion within construction areas. The City of Kenosha and the Villages of Bristol, Paddock Lake, Pleasant Prairie, Silver Lake, Somers, and Twin Lakes have adopted erosion control and stormwater management ordinances. These ordinances require persons engaging in land disturbing activities to apply erosion control practices, as set forth in the WDNR "Storm Water Management and Post-Construction Technical Standards," which specify the minimum requirements needed to plan, design, install, and maintain a wide array of conservation practices aimed at controlling erosion from construction sites, abating urban nonpoint source pollution, and promoting infiltration of stormwater.

Agricultural Regulations, Performance Standards, and Prohibitions

Agricultural performance standards and manure management prohibitions are outlined in Chapter NR 151, Wisconsin Administrative Code. The agricultural standards and prohibitions were developed to control polluted runoff from all cropland and livestock operations while protecting Wisconsin's water resources and are summarized below;

Agricultural Performance Standards

- Sheet, rill and wind erosion: All cropped fields shall meet the tolerable (T) soil erosion rate established for that soil.
- Tillage setback: No tillage operations may be conducted within 5 feet of the top of the channel of surface waters.
- Phosphorus index: Croplands, pastures, and winter grazing areas shall average a phosphorus index of 6 or less over the accounting period and may not exceed a phosphorus index of 12 in any individual year within the accounting period.
- Manure storage facilities: All new, substantially altered, or abandoned manure storage facilities shall be constructed, maintained or abandoned in accordance with accepted standards. Failing and leaking existing facilities posing an imminent threat to public health or fish and aquatic life or violate groundwater standards shall be upgraded or replaced.
- Process wastewater handling: There may be no significant discharge of process wastewater to waters of the state.
- Clean water diversions: Runoff from agricultural buildings and fields shall be diverted away from contacting feedlots, manure storage areas and barnyards located within water quality management areas (300 feet from a stream or 1,000 feet from a lake or areas susceptible to groundwater contamination).
- Nutrient management: Agricultural operations applying nutrients to agricultural fields shall do so according to a nutrient management plan.

Manure Management Prohibitions

- No overflow of manure storage facilities.
- No unconfined manure piles in a water quality management area.
- No direct runoff from feedlots or stored manure into state waters.
- No unlimited livestock access to waters of the state in locations where high concentrations of animals prevent the maintenance of adequate or self–sustaining vegetative cover.

Chapter NR 243, "Animal Feeding Operations," of the *Wisconsin Administrative Code* sets forth rules for concentrated animal feeding operations and other animal feeding operations for the purpose of controlling the discharge of pollutants to waters of the State. Concentrated animal feeding operations are defined as livestock and poultry operations with more than 1,000 animal units. Animal units are calculated for each different type and size class of livestock and poultry. For example, facilities with 1,000 beef cattle, 700 milking cows, or 200,000 chickens each would be considered to have the equivalent of 1,000 animal units. All concentrated animal feeding operations and certain types of other animal feeding operations must obtain Wisconsin Pollutant Discharge Elimination System (WPDES) permits. In general, animal feeding operations are defined as feedlots or facilities, other than pastures, where animals are fed for a total of 45 days in any 12-month period.

Under Chapter NR 216, "Stormwater Discharge Permits" of the *Wisconsin Administrative Code* agriculture is not exempt from the requirement to submit a notice of intent (NOI) for one or more acres of land disturbance for the construction of structures such as barns, manure storage facilities or barnyard runoff control systems. Construction of an agricultural building or facility must follow an erosion and sediment control plan consistent with Section NR 216.46, *Wisconsin Administrative Code*, including meeting the performance standards of Section NR 151.11, *Wisconsin Administrative Code*. Agriculture is exempt from this requirement for activities such as planting, growing, cultivating and harvesting crops for human or livestock consumption and pasturing of livestock as well as for sod farms and tree nurseries. NR 216 establishes the criteria and procedure for issuance of stormwater discharge permits to limit the discharge of pollutants carried by stormwater runoff into waters of the State.

CONSERVATION PROGRAMS

USDA FARM SERVICE AGENCY AND NATURAL RESOURCES CONSERVATION SERVICE

The USDA Farm Service Agency (FSA) and the Natural Resources Conservation Service (NRCS) have several programs to help reduce erosion, protect wildlife habitat, restore wetlands, and improve water quality. All programs involve cost-share assistance from the Federal government, provided the landowner follows the prescribed practices of each program. Kenosha County LWCD works with landowners, the FSA and NRCS to utilize local, State and Federal program funds to implement conservation practices.

The NCRS administers a variety of incentive programs which indirectly may help prevent nonfarm development in agricultural areas. These programs include the Conservation Reserve Program (CRP), the Conservation Reserve Enhancement Program (CREP), Conservation Stewardship Program (CSP), Environmental Quality Incentives Program (EQIP), and the Wetland Reserve Program (WRP), among others. Under these programs, a landowner enters into an agreement to restore or protect lands for a 10-year or longer period in return for cash payments or assistance in making land conservation improvements.

Conservation Reserve Program

The USDA administers the Conservation Reserve Program to help provide water quality protection, reduce soil erosion, protect the Nation's ability to produce food and fiber, reduce sedimentation in streams

and lakes, improve water quality, establish wildlife habitat, and enhance forest and wetland resources. The CRP is a voluntary program for agricultural landowners that provide annual rental payments and cost-share assistance to establish long-term, resource-conserving covers on eligible farmland. It encourages farmers to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover, such as a prairie-compatible, noninvasive forage mix; wildlife plantings; trees; filter strips; or riparian buffers. Farmers receive an annual rental payment for the term of the multi-year contract based on the agriculture rental value of the land, and up to 50 percent Federal cost sharing is provided to establish vegetative cover. The program is administered by the FSA with technical assistance provided by NRCS. NRCS works with landowners to develop their application, and to plan, design, and install the conservation practices on the land.

Conservation Reserve Enhancement Program

Like CRP, CREP is administered by the FSA and contracts require a 10- to 15-year commitment to keep lands out of agricultural production. By combining CRP resources with State and private programs, CREP provides farmers and ranchers with a sound financial package for conserving and enhancing the natural resources of farms.

The program is intended to help protect water quality and wildlife habitat. Farmers enrolled in CREP remove land from agricultural production and plant native grasses, trees, and other vegetation to improve water quality, soil conditions, and wildlife habitat. CREP provides rental payments and other financial incentives to encourage producers to voluntarily enroll in 10- to 15-year contracts. Goals of CREP are to reduce fertilizer and sedimentation runoffs (non-point pollution runoff), and establish riparian buffers and grassland habitat. It can provide a viable option to supplement farm income as well. Such land usually contains poor soils for agricultural production including flooded areas (low-yielding land) and land along streams which usually yield less than in the center of fields. CREP is not currently available in Kenosha County, but eventually could be available.

Environmental Quality Incentives Program

The Environmental Quality Incentives Program is a voluntary conservation program that supports agriculture and environmental quality as compatible goals. Through EQIP, farmers may receive financial and technical help with structural and management conservation practices on agricultural land. EQIP offers contracts for practice implementation for periods ranging from one to 10 years, and it pays up to 50 to 75 percent of the costs of eligible conservation practices. Incentive payments and cost share payments may also be made to encourage a farmer to adopt land management practices such as nutrient management, manure management, integrated pest management, or wildlife habitat management.

Farm and Ranch Lands Protection Program

The NRCS helps to keep productive farmland in agricultural use by providing assistance in purchasing development rights from farmers and placing an agricultural or conservation easement on eligible farmlands through the Farm and Ranch Lands Protection Program (FRPP), commonly referred to as purchase of development rights (PDR). The FRPP provides State or local governments, or non-profit organizations, with up to 50 percent of the purchase price of such perpetual voluntary easements. In order to be eligible, the farmland must be prime or of statewide importance, unique, or other productive farmland, must meet highly erodible land provisions set forth in the Food Security Act, or include important historical or archaeological sites. Additionally, the farmland must have the location, size, and existing protections, including appropriated zoning, that support long-term agricultural use.

Resource Conservation and Development

The Resource Conservation and Development (RC&D) program was established by the Federal Agricultural Act of 1962. This act directs the USDA to help units of government conserve and properly utilize all resources in solving local issues. Wisconsin has seven RC&Ds, covering all Wisconsin counties.

In 2005, Kenosha County became a member of the Town and Country RC&D area which was organized to cover thirteen counties in southeastern Wisconsin. The Town and Country RC&D helps to facilitate the development and coordination of existing and innovative projects, and will assist in finding funding to implement them. Town and Country RC&D has helped promote agricultural, energy, water quality, and educational projects and programs throughout the Region.

Wetlands Reserve Program

The Wetlands Reserve Program (WRP) is another voluntary program designed to restore and protect wetlands on private property. It is an opportunity for landowners to receive financial incentives to restore wetlands that have been drained for agricultural purposes. Landowners who choose to participate in WRP may sell a conservation easement or enter into a cost-share restoration agreement with NRCS to restore and protect wetlands. The landowner voluntarily limits future use of the land, yet retains private ownership. The landowner and NRCS develop a plan for the restoration and maintenance of the wetland. This program offers landowners three options; permanent easements, 30-year easements, and restoration cost-share agreements of a minimum 10-year duration.

Wildlife Habitat Incentives Program

Administered by the NRCS, the Wildlife Habitat Incentives Program (WHIP) is a voluntary program to develop or improve wildlife habitat on private lands. It provides both technical assistance and up to 75 percent Federal cost sharing to help establish and improve wildlife habitat. Landowners agree to work with NRCS to prepare and implement a wildlife habitat development plan which describes the landowner's goals for improving wildlife habitat, includes a list of practices and a schedule for installing them, and details the steps necessary to maintain the habitat for the life of the cost-share agreement. WHIP emphasizes re-establishment of declining species and habitats, including prairie chickens, meadowlarks, sharp-tailed grouse, Karner blue butterfly, smallmouth bass, blue-winged teal, and many other species of grassland birds, reptiles, insects, and small mammals. Some of the opportunities that exist are installing in-stream structures to provide fish habitat, restore prairie and oak savannahs, and brush management and control of invasive species.

Cost shared practices include burning, seeding, and brush management of prairies, grasslands, and savannahs; installing in-stream structures and bank stabilization in streams; and improving timber stands and managing brush on woodlots. Federal or State wildlife agencies or private organizations may provide additional funding or expertise to help complete a project. Contracts normally last a minimum of five years from the date the contract is signed and cost sharing does not exceed $10,000. Eligible lands must be a minimum of five acres of agricultural or nonagricultural land, woodlots, pasture land, streambanks, and shorelands. Lands currently enrolled in other conservation programs are not eligible to participate in WHIP.

Conservation Stewardship Program

The Conservation Stewardship Program (CSP) is a voluntary program that encourages agricultural and forestry producers to address resource concerns by undertaking additional conservation activities and improving and maintaining existing conservation systems. CSP provides financial and technical assistance to help land stewards conserve and enhance soil, water, air, and related natural resources on their land. CSP pays participants for conservation performance—the higher the performance, the higher the payment. It provides two possible types of payments. An annual payment is available for installing new conservation activities and maintaining existing practices. A supplemental payment is available to participants who also adopt a resource conserving crop rotation. Through five-year contracts, NRCS makes payments each fiscal year for contract activities installed and maintained in the previous year.

The Fund for Lake Michigan

The mission of the Fund for Lake Michigan is to support efforts, and in particular those in southeastern Wisconsin, which enhances the health of Lake Michigan, its shoreline and tributary river systems for the benefit of the people, plants and animals that depend upon the system for water, recreation and commerce. The Fund for Lake Michigan is a donor-advised fund of the Greater Milwaukee Foundation, Inc.

WISCONSIN DEPARTMENT OF AGRICULTURE TRADE AND CONSUMER PROTECTION (DATCP)

Wisconsin Working Lands Initiative

The Wisconsin Working Lands Initiative includes three programs as part of the 2009 – 2011 state budget signed into law by Governor Doyle on June 29, 2009; the Farmland Preservation Program, The Agricultural Enterprise Area Program, and the Purchase of Agricultural Conservation Easement Program.

Farmland Preservation Program

The Wisconsin Working Lands Initiative provides landowners with an opportunity to claim farmland preservation tax credits through participation in the program. These tax credits are income tax credits that are applied against tax liability and are available for the 2010 tax year and beyond. Eligible landowners may collect one of the following per acre amounts:

- $5.00 for farmers with a farmland preservation agreement signed after July 1, 2009 and located in an agricultural enterprise area
- $7.50 for farmers in an area zoned for farmland preservation
- $10.00 for farmers in an area zoned for farmland preservation and in an agricultural enterprise area, with a farmland preservation agreement signed after July 1, 2009

There is no cap on the amount of credit that an individual can claim or on the amount of acreage eligible for a credit. Eligibility requirements include:

1) Acres claimed must be located in a farmland preservation area identified in a certified County farmland preservation plan. Eligible lands include:
   - A-1 Agricultural Preservation District lands, and/or
   - Located in a designated agricultural enterprise area and under a farmland preservation agreement.
2) Claimants must have $6,000 in gross farm revenue in the past year or $18,000 in the past three years. Income from rental receipts of farm acres does not count toward gross farm revenue. However, gross farm revenue produced by the renter on the landowner's farmland can be used to meet this eligibility requirement.
3) Claimants must be able to certify that all property taxes owed from the previous year have been paid.
4) Farmers claiming farmland preservation tax credits must certify on their tax form that they comply with state soil and water conservation standards. New claimants must also submit a certification of compliance with soil and water conservation standards that has been issued by the Kenosha County Land & Water Conservation committee.

In addition to the Farmland Preservation program, landowners can also claim an income tax credit under the Wisconsin Farmland Tax Relief Credit Program. The acreage and production requirements of this separate program are the same as for the Wisconsin Farmland Preservation program indicated above;

however, this is solely a tax relief program where the credit is not affected by the claimant's household income. In addition, there are no land use planning requirements or required compliance with County soil and water conservation standards.

Agricultural Enterprise Areas

The Working Lands Program established the "agricultural enterprise area" (AEA) program. Established AEA's will maintain large areas of contiguous land primarily devoted to agricultural use, encourage farmers and local governments to invest in agriculture, provide an opportunity for farmers to enter into farmland preservation agreements to claim higher income tax credits, and encourage compliance with state soil and water conservation standards. Under state law, DATCP has the authority to designate up to 2,000,000 acres as AEAs.

Purchase of Agricultural Conservation Easements

The Working Lands Initiative offers the Purchase of Agricultural Conservation Easements (PACE) program to provide funds to cover the cost of purchasing agricultural easements. Under the program, DATCP pays up to 50 percent of the cost of purchasing an easement and may pay up to the full amount of the related transaction costs, such as the costs of land surveys and appraisals. Through the PACE program, the state will provide funding to cooperating local governments or non-profit organizations to purchase easements from willing landowners. Land with an agricultural conservation easement cannot be developed for any purpose that would prevent its use for agriculture. Landowners may not apply for PACE funding directly. Instead, DATCP will work in conjunction with local governments and nonprofit conservation organizations to purchase agricultural conservation easements from willing landowners. Our farms are a vital part of ensuring a healthy future for Kenosha County and Wisconsin through supporting the economy, helping to face environmental challenges, and guaranteeing access to food, programs such as PACE secure farmland for future generations.

Soil and Water Resource Management Program

DATCP administers Wisconsin's soil and water resource management program (SWRM) under the provisions of Chapter 92 of the Wisconsin Statutes and Chapter ATCP 50 of the Wisconsin Administrative Code. The SWRM grant program was developed to support locally-led conservation efforts. Counties are awarded grant funds to pay for conservation staff and provide landowner cost-sharing to develop and implement a Land and Water Resource Management Plan (LWRMP). The current version of Chapter ATCP 50, revised in October 2004, relates specifically to agricultural programs and it establishes requirements and/or standards for:

- Soil and water conservation on farms
- County soil and water programs, including land and water resource management plans
- Grants to counties to support County conservation staff
- Cost-share grants to landowners for implementation of conservation practices
- Design certifications by soil and water professionals
- Local regulations and ordinances
- Cost-share practice eligibility and design, construction, and maintenance

Eligible projects include grade stabilization structures, livestock fencing, riparian buffers, filter strips, streambank and shoreline protection, water and sediment control basins, well abandonment, and wetland restoration. Farmers must comply with ATCP 50 farm conservation practice requirements including; soil erosion at or below "T", nutrient management to implement the phosphorous index, and cropland managed to include a minimum 5-foot tillage setback and livestock operators must prevent a "significant" discharge of feed storage runoff, milkhouse wastewater, or other process wastewater. Cost-share funding may be available to assist with compliance.

WISCONSIN DEPARTMENT OF NATURAL RESOURCES (WDNR)

Knowles-Nelson Stewardship Fund

The Knowles-Nelson Stewardship Fund program was established by the Wisconsin Legislature in 1989 for a ten-year period. The program was renewed for an additional ten years as part of the 1999-2001 Wisconsin State Budget. The goals of the Stewardship Program are to protect and restore nature-based outdoor recreation areas and areas having scenic or ecological value. The Stewardship Program is financed through the issuance of general obligation bonds and is expected to distribute about $80 million annually Statewide for the ten-year period of the program. The WDNR administers the Stewardship Program. The program is an umbrella for a number of subprograms, each with its own goals, priorities, and criteria, which are summarized below. Projects submitted for grants under the Stewardship Program must be included in a locally-adopted park plan.

Aids for the Acquisition and Development of Local Parks (ADLP)

The ADLP program is a regional allocation program which provides up to 50 percent matching grants to local and county units of government and nonprofit conservation organizations (NCOs) to provide assistance for the acquisition and development of local and County parks. NCOs can use these funds for the acquisition of land or easements only. County and local governments may use ADLP funds for the purchase of land and easements and the development of outdoor recreation areas for nature-based outdoor recreation purposes.

Acquisition of Development Rights

The Acquisition of Development Rights program is a Statewide program which provides up to 50 percent matching grants to local and County units of government and NCOs to acquire development rights (conservation easements) in areas where restrictions on residential, commercial, or industrial development would help protect natural, agricultural, or forestry values and enhance nature-based outdoor recreation.

Urban Green Space (UGS)

The Urban Green Space program is a Statewide program which provides up to 50 percent matching grants to local and County units of government and NCOs to acquire or protect scenic, ecological, or other natural features within or near urban areas and provide land for nature-based outdoor recreation, including noncommercial gardening. These funds can be used for the acquisition of land only.

Urban Rivers (URGP)

The Urban Rivers grant program is a Statewide program which provides up to 50 percent matching grants to local and County units of government and NCOs to purchase land or easements, or to develop shoreline enhancements on or adjacent to rivers that flow through urban or urbanizing areas. This program is intended to preserve or restore urban rivers or riverfronts for the purpose of revitalization and nature-based outdoor recreation activities. NCOs can use these funds for the acquisition of land or easements only.

Land and Water Conservation Fund (LAWCON or LWCF) Program

The Land and Water Conservation Fund (LAWCON) program was established by the U.S. Congress in 1964 to provide funding for the acquisition of land for park or open space preservation purposes and the development of outdoor recreation facilities. In Wisconsin, LAWCON funds are administered by the WDNR. Up to 50 percent of project costs are eligible for funding under this program. A portion of the awarded amount is available to local and County units of government for the acquisition of land and the development of parks and trails. The “nature-based facilities” restriction in the Knowles-Nelson Stewardship Program does not apply to LAWCON funds.

River Protection Grant Program

The River Protection Grant Program, administered by the WDNR, is intended to protect or improve rivers and natural river ecosystems, including water quality, fisheries habitat, and natural beauty. The program includes the following two subprograms:

River Planning Grants

This program provides grants of up to 75 percent to County and local units of government, nonprofit conservation organizations, and qualified river management organizations. Eligible activities include river organization development, educational efforts, assessments of water quality and aquatic life, and non-point source evaluations. Reimbursement is limited to $10,000 per project.

River Management Grants

This program provides grants of up to 75 percent to County and local units of government, nonprofit conservation organizations, and qualified river management organizations. Eligible activities include purchase of land or easements, development of local ordinances, and restoration of in-stream or shoreland habitat. Reimbursement is limited to $50,000 per project.

Urban and Community Forestry Grant Program

The Urban and Community Forestry Grant Program, administered by the WDNR, provides grants of up to 50 percent to County and local units of government and nonprofit conservation organizations for urban forestry activities. Eligible activities include development of an urban forestry plan or urban open space program, development of a tree ordinance, development of a public awareness program, conducting street tree inventories, and tree planting and maintenance. Reimbursement is limited to $25,000 per project.

Wisconsin Managed Forest Land Program

The Managed Forest Land (MFL) program is an incentive program intended to encourage sustainable forestry on private woodlands in Wisconsin. Owners of at least 10 acres of contiguous wooded land that is used primarily for growing forest products are eligible to apply for the program through the WDNR. Following approval of the application, the WDNR prepares a management plan for the property, which will require some timber harvest at prescribed intervals and payment at that time of a “stumpage” tax. The program can provide significant property tax savings for participating landowners.

Under this program, lands enrolled in the “closed” category are not available to the public while the “open” lands are accessible for such recreation activities as hunting, fishing, and cross-country skiing. Enrollment is by contract between the WDNR and the landowner; the landowner can choose a 25- or 50-year contract; landowners make payments in lieu of property taxes amounting to less than what the property tax would be; and must consist of at least 10 acres of contiguous forest land located in the same municipality. Landowners must agree to follow a forest management plan. The MFL Program was created in 1985, replacing similar programs—the Wisconsin Forest Crop Law program and Wisconsin Woodland Tax Law program. Some contracts under the Forest Crop Law program remain in effect in Wisconsin; all Woodland Tax Law program contracts have expired. Lands enrolled in the MFL program are listed in Table III-15 and shown in Map III-17 in Chapter III.

Managed Forest Land Public Access Grant Program

This public access grant program is available under the MFL program to award grants to local units of government, the WDNR, and nonprofit conservation organizations for acquiring easements or purchasing land for public access to offset the impact of closed acreage under the MFL program.

Lake Protection Grants

The lake protection program provides grants of up to 75 percent, to a maximum of $200,000, to protect or restore lakes and their ecosystems. Local and County units of government, tribal governments, lake and sanitary districts, nonprofit conservation organizations, and certain lake associations are eligible for this program. Eligible activities include the acquisition of land or conservation easements to protect lake water quality, the restoration of wetlands tributary to a lake, the development of ordinances to protect water quality, and lake improvement projects included in a WDNR-approved lake management plan.

Lake Planning Grants

The lake planning program provides grants of up to 75 percent, to a maximum of $10,000, for the preparation of lake management plans and for gathering and analyzing lake-related information. Local and County units of government, lake and sanitary districts, nonprofit conservation organizations, and certain lake associations are eligible for this program. Lake management plans in Kenosha County are listed on Table VI-3 in Chapter VI.

Lake Protection and Rehabilitation Districts have been formed under Chapter 33 of the Wisconsin Statutes for Lake Benedict, Camp Lake, Center Lake, Elizabeth Lake and Lake Mary (Twin Lakes), George Lake, Hooker Lake, Lilly Lake, Lake Mary, Paddock Lake, Powers Lake, Lake Shangri-La, and Voltz Lake. Lake districts are a special-purpose unit of government formed to maintain, protect, and improve the quality of a lake and its watershed.

Recreational Boating and Facilities (RBF)

RBF is a State program intended to encourage the development of recreational motorized boating facilities. The program provides up to 50 percent matching grants to local and County units of government and lake districts for projects such as boat ramps and piers and support facilities such as parking lots and restrooms. Initial dredging and construction of bulkheads and breakwaters may also be eligible for funding. The Wisconsin Waterways Commission awards RBF grants.

Sport Fish Restoration Act (SFR)

SFR is a Federal program intended to support restoration of sport fishing habitat and to provide facilities for public access to sport fishing areas, including piers and boat landings. The program provides up to 75 percent matching grants to County and local units of government to develop fishing piers and public boating access sites.

Gypsy Moth Suppression Program

The Gypsy Moth Suppression Program is a voluntary partnership involving state, county, municipality and landowner in a state-organized aerial insecticide treatment to suppress damaging gypsy moth populations. These populations can cause tree defoliation. The areas determined for aerial spraying are surveyed in the fall. The suppression program sprays are completed the following May and June.

Early Detection and Response Grant Program

Aquatic Invasive Species (AIS) Control Grants help prevent and control the spread of aquatic invasive species in the waters of the state. These grants can be used for education, prevention, planning, early detection, rapid response and established infestation control projects.

- Collecting an entire intact adult specimen. If possible, collect the roots, stems, flowers and fruit of the invasive plants.
- Icing or refrigerating the specimen immediately.

- Making a label that includes the date collected, the person who collected the specimen, the township, range and section, county, and waterbody name of where the specimen was collected. Include topographic map or plat map if possible.
- Submitting the specimen to the department within 3 days.

The Department will confirm the species and determine the appropriate method of control. The sponsor will be authorized in writing to conduct the project that will include a permit, if needed and notification of eligibility for an AIS grant. The sponsor will then need to complete a grant application to receive 75% reimbursement. Pre and post treatment monitoring will be required and is an eligible cost.

NONPOINT SOURCE POLLUTION ABATEMENT PROGRAMS

Nonpoint source abatement programs are aimed at improving surface water quality (lakes and rivers) by abating pollution caused by stormwater runoff. In addition to the assistance provided by DATCP, the WDNR may provide grants to governmental units and special purpose districts to assist the implementation of nonpoint source pollution abatement practices and projects, where pollution abatement cannot be achieved though the implementation of County soil and water resources activities funded under DATCP cost-shares. Funding is generally targeted to areas such as those listed on the State's list of impaired waters, public health threat situations, and areas considered high priority areas such as outstanding or exceptional resource waters. Programs include the following:

Targeted Runoff Management (TRM) Grant Program

To help control polluted runoff from both agricultural and urban sites, TRM grants are available to address high-priority resource problems. Eligibility is limited to local units of government, special-purpose districts (i.e., school or stormwater utility districts), tribal commissions, and regional planning agencies. Governmental units may be granted 70 percent of eligible costs for various (urban or rural) best management practices (BMPs), up to a cap of $150,000. Property purchases (from willing sellers only) granted at 50 percent of WDNR-approved appraised value can be included in the $150,000 grant cap. Rural easements, funded at 75 percent of the WDNR-appraised value, can also be included in the $150,000 grant cap. For rural Best Management Practices (i.e. barnyard relocation and manure storage), County land conservation departments hold contracts on behalf of County residents. Funds are disbursed on a reimbursement basis upon completion of the project according to a two-year grant contract terms.

Urban Nonpoint Source and Storm Water (UNPS&SW) Planning Program

UNPS&SW grant funds are used to control polluted runoff in urban project areas. Funds are typically awarded for either planning or construction projects. The grant period is two years. Projects funded by these grants are site-specific, serve areas generally smaller in size than a subwatershed, and are targeted to address high-priority problems. An "urban project area" must meet one of these criteria:

- Has a residential population density of at least 1,000 people per square mile,
- Has a commercial or industrial land use,
- Is a portion of a privately owned industrial site not covered by a WPDES permit issued under Chapter NR 216 of the Wisconsin Administrative Code, or
- Is a municipally-owned industrial site (regardless of Chapter NR 216 permit requirements)

Governmental units are eligible for a grant even if the governmental unit is covered by a stormwater permit under Chapter NR 216 of the Wisconsin Administration Code.

UNPS&SW planning grants can be used to pay for a variety of technical assistance activities. Eligible activities such as stormwater management planning, related information and education activities, ordinance and utility development and enforcement are cost shared at 70 percent. Eligible UNPS&SW

construction grant costs may include such projects as stormwater detention ponds, filtration and infiltration practices, streambank stabilization, and shoreline stabilization. Those eligible costs are cost shared at 50 percent up to a maximum of $150,000. Additional cost-share reimbursements may be available for project design, land acquisition, and permanent easements costs with approval by the WDNR regional staff.

Additionally, a municipal flood control and riparian restoration program provides financial assistance for the collection and transmission of stormwater for flood control and riparian restoration under the urban nonpoint program. Grants may be used for developing flood control facilities and structures, purchasing conservation easements on land within a floodway, or flood proofing structures within the 100-year flood plain.

Notice of Discharge Grant Program

Eligible applicants are governmental units working with livestock operation owners or operators with pollution discharge concerns resulting in the issuance of a Notice of Discharge (NOD) or Notice of Intent to Issue a Notice of Discharge (NOI) from DNR. Eligible projects are those designed to implement best management practices (BMPs) for improving water quality impaired by pollution discharges at an animal feeding operation satisfying the conditions of the NOD or NOI.

COUNTY AND LOCAL PROGRAMS

Kenosha County Land and Water Conservation (LWC)

As part of the Kenosha County Division of Planning Operations, LWC manages all natural resource and agricultural conservation programs in Kenosha County, including the development and implementation of recommendations contained in the County Land and Water Resource Management Plan. LWC staff provides technical and engineering assistance for the control of soil erosion and water pollution through a variety of local programs. LWC staff will conduct resource inventories, including soils, drainage, topography, water resources, land use and vegetation through on-site visits or map interpretations. They will develop resource management recommendations and plans, complete engineering and design activities for construction projects, including site surveys, runoff and flow calculations, prepare construction drawing and supervise the construction of conservation practices.

LWC staff also administers local regulations aimed to prevent water pollution from construction site erosion, urban stormwater runoff and manure storage facilities. LWC staff will help determine what programs a farmer might be eligible for and can assist in obtaining available funds. They administer the state financial assistance program and assist with several federal programs. Kenosha LWC administers local ordinances and program compliance requirements for the Farmland Preservation Program, erosion control and stormwater management for new developments in unincorporated areas, shoreland, floodplain and wetland zoning requirements and restrictions. They also help landowners meet the conservation requirements for participation in a variety of state and federal programs.

In addition, Kenosha LWC staff conducts a wide variety of information and education programs to raise awareness and encourage citizens to take action to preserve their soil and water resources. Outreach tools include: Ties to the Land Newsletter, Conservation Poster Contest, Rural Landowner Workshops & Expos, Nutrient Management Training, Lake Landowners Packet, etc….

Kenosha County Tree and Shrub Program

Kenosha County Tree & Shrub Program has been offered for over 25 years and has sold nearly one million trees. The purpose of the program is to encourage area residents to plant native trees and shrubs for the purpose of conservation and wildlife enhancement. The program offers a variety of pines,

hardwoods, and shrubs. This sale is open to the interested public in the area. The tree program also offers an opportunity to introduce the community to Kenosha County conservation staff and programs.

Kenosha/Racine Land Trust

The Kenosha/Racine Land Trust may purchase lands containing significant natural resources or hold conservation easements for such lands in Kenosha and Racine Counties. This nonprofit conservation organization (NCO), established in 1993, holds conservation easements and monitors the conservation restrictions within these easements. Kenosha/Racine Land Trust recently purchased its first land in Kenosha County in the Village of Bristol, which is called the Jean McGraw Memorial Preserve, consisting of approximately 15 acres of wetlands and upland woodlands with public access. Land trusts help protect land and water resources for the public benefit and are eligible to participate in State grant programs that fund land or conservation easement acquisitions.

OTHER CONSERVATION APPROACHES

In addition to zoning, other conservation programs and approaches that have proven successful in other communities in Wisconsin and across the nation experiencing development pressures may have relevance for Kenosha County communities. These include:

Conservation Easements

A conservation easement is a legally recorded agreement of deed restrictions that landowners voluntarily place on their property to protect agricultural, natural, or cultural resources, such as farmland, water resources, open space, wildlife habitat, or historic sites, by prohibiting specified uses. For example, most agricultural easements restrict uses other than those associated with agricultural practices, such as residential, commercial, or industrial uses. Lands remain on the tax rolls, sometimes at a reduced rate. Landowners can sell or donate either a portion or the entire parcel to either a governmental unit or a qualified conservation organization such as a land trust (i.e. the Kenosha/Racine Land Trust) to monitor and enforce the restrictions set forth in the easement. In return, landowners can receive tax benefits for granting easements.

Usually, the terms of an easement are specific and include instructions on allowable uses on the property and the time period set for the easement. Although most conservation easements are permanent, some impose restrictions for a specified number of years. The easement also legally binds future landowners to the terms set forth in the legally recorded easement attached to the land.

Conservation Subdivisions

Conservation subdivision design, sometimes referred to as cluster development design, involves the grouping of dwellings on a portion of a development parcel in order to preserve the remainder of the parcel in open space. Management options for the open space areas include, among others, preservation of existing natural features, restoration of natural conditions, and continued agricultural use. The open space may be owned by a homeowners association, the local municipality or County, the State, a land trust or other private conservation organization, or the original landowner. Conservation easements and attendant deed restrictions should be used to protect the common open space from future conversion to more intensive uses.

In comparison to conventional subdivision designs, conservation subdivisions afford greater opportunity for preserving open space and maintaining the natural resources of the parcel being developed. When properly designed, the visual impact of new residential development from surrounding streets and adjoining parcels can be minimized and significant natural features and agricultural lands can be protected from development. Infrastructure installation and maintenance costs may be reduced due to shortened street and utility lengths.

On August 6, 2002, the Rural Cluster Development Overlay District *in Chapter 12 Kenosha County General Zoning and Shoreland/Floodplain Zoning Ordinance*, was approved to preserve rural landscape character, sensitive natural areas, farmland, and other large areas of open land, while permitting residential development at low, rural densities, in an open space setting located and designed to reduce the perceived intensity of development and provide privacy for dwellings. Rural Cluster Development attempts to preserve important landscape elements, including those areas containing unique and environmentally sensitive natural features such as woodlands, hedgerows, stream corridors, wetlands, floodplains, shorelands, prairies, ridge tops, steep slopes, and critical species habitat by setting them aside from development. Such areas are contained in primary environmental corridors as identified by the Regional Planning Commission and are of particular significance for conservation.

Lot Averaging

In some cases it may be determined that a cluster development is not appropriate for a particular parcel. In other cases, the community may be uncomfortable with the idea of joint ownership of common open space. In such cases, the community concerned could consider allowing lot averaging as a means of preserving rural areas. Maintaining an overall rural density, the lot sizes would be permitted to vary as long as the lot area that is taken from one lot is transferred to one or more other lots, so that a minimum "average" lot size required by the zoning ordinance is maintained within the development site concerned. Lots within the development larger than the minimum lot size required by the zoning ordinance would be deed restricted to prevent further division. Although no common open space is created, the advantage of lot averaging is flexibility of site design and the ability to concentrate some of the permitted dwellings on smaller lots in certain areas of the development parcel while the remaining dwellings would be located on a few larger lots. Alternatively, a large parcel could be maintained in agricultural use with smaller lots developed with homes. Features of the rural landscape or environmentally sensitive areas can be preserved, albeit on private lots.

Lot averaging is a development technique providing for great flexibility in the type of rural residential options accommodated, including historic farmsteads, retaining a rural flair and possibly use, as well as large nonfarm estates which are held in individual private ownership. Concomitantly, the balance of smaller than normal lots in a given development would be less expensive than their counterparts within conservation subdivisions, because no common open space is being leveraged.

Purchase of Development Rights (PDR)

Purchase-of-development-rights programs, or "PDR" programs, represent another potential means to ensure the preservation of agricultural lands as well as other natural areas and open space. Under a PDR program, landowners are compensated for permanently committing their land to agricultural and open space use. Deed restrictions or easements are used to ensure that the lands concerned remain in agricultural or other open space use. Such restrictions are attached to the land and remain in effect regardless of future sale or other transfer of the land.

PDR programs may be administered and funded by State, County, or local units of government, land trusts and other private organizations, or combinations of these. The amounts paid to farmland owners under PDR programs may be calculated on the basis of the number of dwelling units permitted under existing zoning, on the basis of the difference between the market value of the land and its value solely for agricultural purposes, or on some other basis.

PDR programs provide assurance that farmland will be permanently retained in open use. Landowners receive a potentially substantial cash payment while retaining all other rights to the land, including the right to continue farming. The money paid to the landowner may be used for any purpose, such as debt reduction, capital improvement to the farm, or retirement income. Lands included in a PDR program

remain on the tax roll and continue to generate property taxes. Since the land remains in private ownership, the public sector does not incur any land management responsibilities.

PDR programs have not been widely embraced within the Region to this point. The primary drawback of PDR programs is the potentially high cost. Given the attendant costs, PDR programs should be strategically targeted toward agricultural lands where long-term preservation is particularly important. A PDR program could, for example, be directed at existing farmland surrounding a public nature preserve or major park in order to ensure a permanent open space buffer around the park or nature preserve.

Transfer of Development Rights (TDR)

Under transfer-of-development-rights programs, or "TDR" programs, the right to develop a specified number of dwelling units under existing zoning may be transferred from one parcel, which would be maintained in open space use, to a different parcel, where the number of dwelling units permitted would be correspondingly increased. When the parcels are held by the same owner, the development rights are, in effect, simply transferred from one parcel to the other by the owner; when the parcels are held by different landowners, the transfer of development rights involves a sale of rights from one owner to another, at fair market value. In either case, the result is a shift in density away from areas proposed to be maintained in farming or other open use toward areas recommended for development. The transfer of development rights may be permanent or may be for a specific period of time or set of conditions.

The transfer of development rights may be implemented only if authorized under County or local zoning. To enable the transfer of development rights, the zoning ordinance must establish procedures by which the TDR technique will be administered, including the formula for calculating the number of residential dwelling units which may be transferred from the "sending" area to the "receiving" area. The zoning district map must identify the sending and receiving areas, or at least identify the districts within which development rights can be transferred from one parcel to another.

While the creation and administration of a TDR program is somewhat complicated, the technique is another means for preserving open space and maintaining rural densities, while directing development to areas where it may best be accommodated. Currently, the Wisconsin Statutes do not authorize TDR programs at the County level, which may limit their use at the County level.

SUMMARY

Kenosha County and Kenosha County's communities have a rich history of planning. Numerous plans have been developed at the regional level including a regional land use plan, transportation system plan, natural areas plan, regional water supply and a water quality management plans. Plans developed at the County level include a Comprehensive Plan, Farmland Preservation Plan, County Park and Open Space Plan, All-Hazard Mitigation Plan, Land and Water Resources Management Plan, and Comprehensive Watershed and Basin Plans. These existing plans and programs provide the guidelines for natural resource management in Kenosha County.

Chapter 4 also describes conservation funding programs used to preserve agricultural and natural resources that are available to county and local governments, including federal, state, county, and local programs. Included are sources of grant funds for the acquisition, preservation, and development of park and open space sites and information regarding current practices, programs, and methods used to preserve agricultural and natural resources.

Programs that focus on agricultural and natural resources include the Wisconsin Farmland Preservation Program, Working Lands - Purchase of Agriculture Conservation Easements Program, Soil and Water Resource Management Program, Conservation Reserve Program, Conservation Reserve Enhancement Program, Environmental Quality Incentives Program, and the Wetland Reserve Program. Federal and

State programs are also available to help County and local governments and nonprofit conservation organizations to acquire park and open space lands, and to help to provide recreational facilities, including bicycle and pedestrian facilities.

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CHAPTER 5

GOALS, OBJECTIVES, IMPLEMENTATION, MONITORING/EVALUATION, AND ESTIMATED COSTS

INTRODUCTION

The Kenosha County Land and Water Resources Management Plan incorporates inventory findings, including land use, natural resource data, soil and agricultural assets, and water quality data. Additionally, the plan addresses a 10-year scope with principal land and water resource concerns and issues that were identified by the Citizen Advisory Committee and public survey responses. A comprehensive set of goals, workplan objectives, and planned actions were developed based on the principal issues and concerns that were identified by the Citizen Advisory Committee.

These concerns and issues were used as a basis for developing the goals, workplan objectives, and planned actions for the Kenosha county land and water resources management plan. To achieve these goals the Kenosha county LWCD plans to partner with state and federal agencies and other environmental organizations on a variety of projects and programs. The objectives of the plan were divided into categories including; the protection and preservation of land and water resources, the reduction of nonpoint pollution by implementing the state agricultural performance standards, the reduction of nonpoint pollution by implementing the state non-agricultural performance standards, the increase in natural resource and environmental information/education, and invasive/nonnative species management and control. The recommended goals, workplan objectives, and planned actions for the years 2017-2026 are summarized in the following sections, and are presented in detail in Table 14.

Kenosha County's Land and Water Resource Management Plan is a long-range, living instrument to plan conservation efforts over a 10-year period, therefore, the workplan activities may require amendment due to varying environmental conditions, local priorities and commitments, changing programs and policies, and funding considerations. The general goals of this plan were developed through a public participation process and no changes or amendments to workplan activities would be undertaken without proper approvals from the Kenosha County LWCC and DATCP.

PROTECT AND PRESERVE LAND AND WATER RESOURCES

Goals and Workplan Objectives

In order to more effectively protect and preserve land and water resources, specific goals and workplan objectives have been identified as follows:

- Conserve Kenosha County's unique natural resources in the face of increasing urbanization and resulting loss of farmland;
- Prevent the degradation and disturbance of wetlands;
- Create, restore and enhance wetland, riverine, and wildlife habitat throughout the county;
- Prepare, update and implement comprehensive lake and watershed management plans;
- Promote riparian buffers along all water resources in the County;
- Protect the quality and quantity of groundwater supplies;
- Support efforts to protect and enhance our forests and woodlots and;

- Continue to implement and refine the County's shoreland management program with emphasis on shoreline protection, restoration, and enhancement.

The County, the Towns and local government should make an effort to restrict over-development by following existing and newly adopted land use plans. Ongoing and future development should be held to a high environmental standard through the implementation of existing and newly adopted local ordinances and policies. Kenosha County LWCD will encourage farmers to keep farming, through sustainable and alternative agricultural practices and other initiatives which may include the purchase of development rights, comprehensive land use plans, agricultural enterprise areas, farm-to-table programs (connecting local farmers with local buyers), cooperative farm approaches, trusts, deeded outlots, conservancies, etc.

SEWRPC Planning Report No. 50, A Regional Water Quality Management Plan Update for the Greater Milwaukee Watersheds update provides specific recommendations on land use, the point source pollution abatement, and the nonpoint source pollution abatement. These recommendations were determined by detailed modeling needed to achieve the adopted water use objectives for the southeastern Wisconsin region. The recommendations and guidance for water quality management set forth in SEWRPC Planning Report No. 50 is an invaluable resource tool for Kenosha County, the Towns, and local governments in land and water management planning. In order to meet the identified goals and workplan objectives related to the protection and preservation of Kenosha County's land and water resources, soil erosion from unstable river and lake shorelines should be quantified. Priority sites should be mapped and funding should be identified and obtained to assist landowners in implementing shoreline protection measures. Wetlands should to be protected through NR 151, NR 103 and local ordinances to insure setback requirement for protected areas are met.

Planned Actions

The Kenosha County LWCD and the WDNR will work together to update and review water quality inventory data to assess existing conditions, as well as providing a benchmark to evaluate the effectiveness of nonpoint source pollution control best management practices. This baseline data will be used to monitor progress of the land and water resource management plan implementation. The needed data would be obtained by the WDNR, by lake associations/districts and other work groups with an interest in water quality monitoring. Kenosha County LWCD will continue to encourage lake associations/districts to develop, adopt, update, and implement lake management and aquatic plant management plans for their individual lakes, become more active in water quality monitoring and encourage interested organizations to apply for various grants for both lake and river protection activities. The LWCD will continue to partner with the Southeastern Wisconsin Regional Planning Commission to provide assistance in identifying grant opportunities and in the grant application process itself.

Riparian buffers are one of the most effective means of protecting water quality through reducing sediment delivery. Accordingly, Kenosha County LWCD will continue to work with and form more resource partnerships to educate riparian landowners of the water quality benefits of buffers. Kenosha County LWCD will offer SWRM cost-share funds, as available, to install bio-engineered systems with vegetated buffers. Kenosha County is currently promoting voluntary programs such as the Conservation Reserve Program (CRP) to protect water quality. The LWCD encourages alternative softer methods, such as bio-logs and vegetated bags, to protect shorelines subject to low erosion intensity. Kenosha County will work to achieve the pollutant reduction goals set forth in both regional and watershed water quality management plans. Kenosha County LWCD will continue to monitor Lake Michigan shoreline, especially in those reaches with relatively high unprotected bluffs and where shoreline protection structures are in need of maintenance, failing or failed, and where shoreline protection structures have been placed in isolated situations and are likely to cause differential erosion processes acting on unprotected portions of the shoreline in the vicinity of those structures. Additionally, Kenosha County will protect the shoreline and water resources from continued degradation by continuing to administer its

shoreland ordinance regulation limiting the extent of activities such as filling, tree cutting, and grading that occurs within the shoreland zone. Kenosha County LWCD administers the shoreland regulations within the shoreland jurisdiction of the county zoning. Kenosha County will continue to administer the floodplain ordinance. We have adopted floodland zoning regulations and are participating in the National Flood Insurance Program. Kenosha County also participates in FEMA's Community Rating System program that provides lower insurance premiums under the National Flood Insurance Program.

In order to meet the goals and objectives to reduce the threat to groundwater contamination, Kenosha County LWCD will continue to use SWRM grant funds to cost-share the decommissioning of abandoned and unused wells. The County will also encourage and support local governments in developing wellhead protection programs to ensure safe setbacks from all municipal wells. The County will continue to administer Chapter 15 *Sanitary Code and Sewage System Ordinance*. The County continues to facilitate the use of funding sources for repairing or replacing failing septic systems such as the Wisconsin Fund - Private onsite wastewater treatment system replacement or rehabilitation financial assistance program.

Due to growing concerns associated with groundwater contamination from agriculture and related industries, LWCD and NRCS staff will work with agricultural producers to soil test farm fields and provide assistance to producers to develop nutrient management plans for farm fields. The County will utilize the available inventory data and GIS mapping that is set forth in the regional groundwater inventory to delineate those areas that are considered susceptible to groundwater contamination. Educational program activities will include elements that increase the awareness level of the importance of groundwater and ways to protect groundwater resources. In addition to existing programs and educational materials, new in-school programs will be encouraged to include: sources of groundwater and its importance, groundwater uses, and how-to protect groundwater.

To ensure the continued quality of groundwater resources in Kenosha County, the LWCD, Towns, and local government shall incorporate information on groundwater recharge areas and the potential for groundwater contamination as one component of future land use planning. New development will be encouraged to locate in areas where public water supply systems are already available. The Southeastern Wisconsin Regional Planning Commission has conducted a regional water supply study for the southeast region. The recommendations and guidance for groundwater sustainability set forth in SEWRPC Planning Report No. 52, A Regional Water Supply Plan for Southeastern Wisconsin will be considered by Kenosha County when evaluating the sustainability of proposed developments and in conducting local land use planning.

AGRICULTURAL PERFORMANCE STANDARDS

Goals and Workplan Objectives

The goals and objectives set forth in this plan focus on achieving the State minimum performance standards for rural nonpoint source pollution as well as the recommendations identified in the regional water quality and watershed management plans. A general summary of the goals and workplan objectives that were identified include the following:

- All land where crops or feed are grown, including pastures, shall be managed to achieve a soil erosion rate equal to, or less than, the "tolerable" (T) rate established for that soil. Note: "T" is the tolerable erosion rate for each soil type to maintain its productivity indefinitely. T-values generally range from three to five tons per acre per year and are documented in the NRCS Technical Guide.
- Application of manure or other nutrients to croplands must be done in accordance with a nutrient management plan, designed to meet state standards for limiting the entry of nutrients into groundwater or surface water resources.

- Clean water runoff must be diverted away from contacting feedlots, manure storage facilities, and barnyards in water quality management areas (areas within 300 feet of a stream, 1,000 feet from a lake, or areas susceptible to groundwater contamination).
- Follow the tillage setback of five feet from the top of the channel of surface waters
- Croplands, pastures, and winter grazing areas shall average a phosphorus index of 6 or less and may not exceed a phosphorus index of 12 in any individual year within an accounting period.
- There may be no significant discharge of process wastewater to waters of the State.
- All new or substantially altered manure storage facilities must meet current engineering design standards to prevent surface or groundwater pollution. The following manure management prohibitions also apply statewide:
  - No direct runoff from animal feedlots to "waters of the state."
  - No overflowing manure storage facilities.
  - No unconfined manure piles in shoreland areas (areas within 300 of a stream, 1,000 feet from lakes).
  - No unlimited livestock access to "waters of the state" where the livestock prevent sustaining an adequate vegetative cover.
- Reduce soil delivery rate from riparian cropland;
- Develop, implement, and monitor compliance of nutrient and pest management plans to protect water quality;
- Utilize GIS technology to maintain detailed mapping of priority farms and their compliance status.

Planned Actions

The planned actions are to be used in combination to achieve the aforementioned goals and workplan objectives include developing farm conservation plans for agricultural producers and encouraging landowners and farmers to utilize a wide variety of best management practices designed to target soil erosion. The County will continue to conduct the annual cropland erosion survey to monitor the use of conservation practices and their effectiveness in reducing agricultural erosion. The County LWCD will promote the establishment of appropriate riparian buffers designed according to NRCS standards to reduce sediment delivery to water resources.

The LWCD will continue to work with farmers to develop nutrient management plans that consider a variety of best management practices such as soil testing, accounting for legumes and manure before fertilizer application, and utilizing integrated pest management to reduce the amount of applied chemicals to fields. The LWCD will monitor manure management practices in the county to ensure that practices are in compliance with the State performance standards.

The Kenosha County LWCD is utilizing a detailed database supported by geographic information system (GIS) technology and a parcel-based land management software package called Trakit to identify and facilitate land management of farms prioritized for compliance with State performance standards. Priority farm information has been inventoried and mapped. High priority areas include livestock farms, farms located in water quality management areas (WQMA's), dairy operations and farms with other livestock. Additional information is being updated, inventoried and mapped, including restricted manure and sludge application sites, nutrient management plan locations, cost-shared practices, Natural Resources Conservation Service (NRCS) conservation plans for highly erodible lands, and Conservation Reserve Program contracts.

Planned actions associated with improving stream sedimentation and agricultural drainage include the implementation, by individual agricultural producers, of best management practices to reduce soil erosion and sediment delivery as identified in farmland management plans. In addition, farmers and rural landowners shall be encouraged, after following proper permitting procedures, to periodically clean out accumulated sediment from drainage channels, and where possible, improve aquatic habitat and water quality.

Wisconsin Administrative Code Chapter NR 217, has established effluent limitations and compliance strategies for wastewater treatment plants (WWTP) and certain other point dischargers. Two approaches currently available include Water Quality Trading and Adaptive Management. Water Quality Trading requires a facility to acquire environmentally equivalent (or superior) pollutant reduction credits to offset enough of a facility's phosphorus load to demonstrate compliance with a phosphorus water quality-based effluent limit. Adaptive management is solely focused on improving water quality so that the applicable phosphorus criterion is met. In other words, water quality trading focuses on compliance with a discharge *limit* (offsetting the amount of phosphorus in the effluent); while adaptive management focuses on compliance with P *criteria* (meeting an acceptable in-stream phosphorus concentration). Adaptive management is governed by a different set of rules than water quality trading, and provides greater flexibility. Wastewater treatment plants that participate in adaptive management are subject to some additional requirements, which include meeting interim phosphorus effluent limits and optimizing existing treatment processes.

The Kenosha County LWCD can provide information about soil and water quality in the County, as well as land use data. The LWCD has access to data about impaired waters in the county and sources of water pollution. Our staff can assist in identifying agricultural operations that might be significant sources of nutrient runoff in a watershed. LWCD staff can provide outreach and technical assistance to farmers implementing conservation practices. We can also help model BMP efficiently.

The Village of Bristol WWTP will have to meet NR 217 effluent standards. They have taken the first steps by collecting baseline water chemistry and there is potential for partnerships between the Village and the Kenosha County LWCD to accomplish phosphorus compliance through the installation of conservation practices in the watershed.

AGRICULTURAL PERFORMANCE STANDARDS IMPLEMENTATION STRATEGY

The goals, workplan objectives and planned actions presented above represents part of the framework for an annual workplan that will be developed and carried out by the Kenosha County LWCD over the next ten years. Proposed planned activities were purposely broadly defined in order to meet future changes in the environment, changes in programs and policies, changes in local priorities and changes in available funding. As required by DATCP, a more detailed list of planned activities are set forth below, as a strategy to implement the nonpoint pollution performance standards and prohibitions under NR 151.

Priority Farms Strategy: To implement the above noted standards and prohibitions fairly in the agricultural areas, a systematic and comprehensive approach is required. The strategy for implementation detailed below is a likely process for implementation with some need for flexibility as program experience develops and fiscal conditions may dictate. In order to identify and evaluate farms for compliance with standards and prohibitions it is essential that a prioritization process be implemented to address the requirements of Chapter NR151. The Kenosha County LWCD has developed the following priority farm identification strategy; farms that have a valid complaint or staff observations regarding a violation of the agricultural performance standards or prohibitions will require immediate contact and on-site review. Farms will also be considered high priority if they located in watersheds draining to 303(d) waters, are farms that have received cost-share assistance under the Soil and Water Resource Management grant program and farms located in nine key element planned watersheds.

Additionally, Kenosha County LWCD will use GIS as a tool to identify priority farms for compliance determinations, track progress on implementing performance standards and meet reporting requirements. Color digital orthophotos from spring 2015 will be used as a base map for initial screening. Kenosha County has also obtained oblique pictometry to improve the screening process. Using county 1-foot contour maps, derived from LiDAR and water resource layers, Water Quality Management Areas

(WQMA) (300 feet from a stream or 1000 feet from a lake) can be delineated. Digital crop land units from the USDA-Farm Service Agency will be used to identify field boundaries. Information from the Soil Survey may also be used to identify "potential" locations of runoff or groundwater problems. These data layers combined with a hydrologic data layer will help identify water resources and locate potential problem areas within the WQMA. Agricultural fields and livestock operations within these areas can be identified and a list of owners for contacting generated from the Land Information System parcel maps. Once the list of landowners is created, LWCD staff can conduct a records inventory search for files related to conservation planning prepared by our department or the NRCS. This initial review to determine potential compliance with the performance standards based on past or present program participation. If no records are found, or if the records are found to be out of date with existing farming operations, an on-site farm visit will be scheduled. Landowners within these areas will be contacted for compliance evaluation based on initial screening data described above.

Kenosha LWCD staff plan to conduct a minimum of 3 or more priority farm inventories annually. The number of compliance evaluations is also limited by existing program efforts and staffing levels.

Enforcement

Enforcement of actions associated with NR 151.09 and NR 151.095 compliance will be coordinated with the WDNR. If a landowner continues to remain in noncompliance with the state performance standards and/or prohibitions, or should a landowner refuse technical and/or financial assistance from the Land & Water Conservation, the LWCD will forward all information corresponding to the infraction(s) to the WDNR and will notify the landowner(s) by registered mail that they are subject to an enforcement action pursuant to NR 151.09 and NR 151.095.

NON-AGRICULTURAL PERFORMANCE STANDARDS

Goals and Workplan Objectives

Non-agricultural and urban land uses are a significant source of nonpoint pollution. To achieve the requirements of NR 151 Non-agricultural Performance Standards, the goals and objectives of this plan focus on storm water management, construction site erosion control, and sound land use planning. A general summary of the goals and workplan objectives include the following:

- Control 80 percent of sediment from construction sites.
- Control 80 percent of post-construction total suspended solids (TSS) from new developments and 40 percent from redevelopments.
- Maintain pre-development peak discharge rates for the two-year, 24-hour design storm for new developments.
- Infiltrate 90 percent of pre-development runoff volumes for new residential developments and 60 percent for nonresidential or demonstrate exemption.
- Maintain protected areas between new impervious surfaces and lakes, streams, and wetlands.
- Control petroleum runoff (visible sheen) from fueling and vehicle maintenance areas.
- Reduce construction site erosion;
- Manage storm water runoff more effectively;
- Encourage urban-density land use to be confined to and within the identified urban service areas;
- Comply with the Municipal Separate Storm Sewer System (MS4) permit requirements under NR 216 of the Wisconsin Administrative Code.

Stormwater runoff is one of the principal factors associated with nonpoint source pollution. Not only does storm water transport sediment and contaminants, but it also contributes to erosion of streambanks, and temperature fluctuations of water resources. Runoff pollution from urban lands can be the leading cause of water quality problems. Both rural and urban sediment pollution contain small bits of soil particles which

are washed into streams and lakes. Attached to the soil particles are nutrients such as phosphorus that fuels the growth of algae and weeds in bodies of water. Other pollutants from urban areas include flakes of metal from vehicles, particles from vehicle exhaust, bits of tire and brake linings, soot from smokestacks, salt, lead, zinc, pet waste, leaves and grass clippings and a variety of other chemical compounds.

Planned Actions

Kenosha County LWCD administers Chapter *17 Kenosha County Stormwater Management, Erosion Control, and Illicit Discharge Ordinance.* The County stormwater ordinance meets and exceeds the requirements and prohibitions of the NR 151 Non-agricultural Performance Standards This ordinance establishes regulatory requirements for land development and land disturbing activities aimed to minimize the threats to public health, safety, welfare, and the natural resources of Kenosha County from construction site erosion and post-construction stormwater runoff. Specific purposes are to:

- Further the maintenance of safe and healthful conditions.
- Prevent and control the adverse effects of stormwater; prevent and control soil erosion; prevent and control water pollution; protect spawning grounds, fish and aquatic life; establish erosion control and stormwater standards for building sites, placement of structures and land uses; and preserve ground cover and scenic beauty.
- Control exceedance of the safe capacity of existing drainage facilities and receiving water bodies; prevent undue channel erosion; control increases in the scouring and transportation of particulate matter; and prevent conditions that endanger property.

Kenosha County LWCD provides Stormwater Management regulation, in all unincorporated lands within the Kenosha County jurisdictional boundaries under the County stormwater management ordinance for all proposed land development activity that meet any of the following:

- Is a subdivision plat
- Any land development activity that may ultimately result in the addition of 0.5 acres or greater of impervious surfaces or that may result in land disturbing activity of one acre or greater.
- Involves the construction of any new public or private road
- Is a land development activity, regardless of size, which P&D determines is likely to cause an adverse impact to an environmentally sensitive area or other property?

In addition Kenosha County LWCD regulates construction site erosion control to all proposed land disturbing activity that meets any of the following:

- Disturbs a total land surface area of 4,000 square feet or more; or
- Involves excavation or filling, or a combination of excavation and filling, in excess of 400 cubic yards of material; or
- Is required as part of a stormwater management plan as determined County ordinance; or
- Is a land disturbing activity, regardless of size, that P&D determines is likely to cause an adverse impact to an environmentally sensitive area or other property, or may violate any other erosion control standard.

It should be noted that local erosion control ordinances do not apply to single-family home construction as these are regulated under COM 21 Wisconsin Administrative Code. By state statute, COM 21 supersedes all local ordinances. In the unincorporated areas of Kenosha County the Townships regulate erosion control on single-family home construction.

Municipal Stormwater Discharge Permits

Goals and Workplan Objectives

Administrative Rule NR 216 also contains storm water permitting requirements for communities, designed to treat discharges from municipal storm sewer systems. NR 216 requires municipalities outside urbanized areas with a population greater than 10,000 and a density over 1,000 persons per square mile to obtain a WPDES Storm water Discharge Permit. As a result of these requirements, Kenosha County, the City of Kenosha, and the Villages of Bristol, Somers, and Pleasant Prairie were required to obtain and maintain permits. Permitted municipalities are required to implement the following:

1. Provide public information and education programs relative to specific aspects of nonpoint source pollution control;

2. Conduct a municipal program for the collection and management of leaf and grass clippings and;

3. Create site-specific programs for application of lawn and garden fertilizers on municipally controlled properties with over five acres of pervious surface.

Under the requirements of Chapter NR 151, incorporated municipalities with average population densities of 1,000 people or more per square mile that are not required to obtain municipal storm water discharge permits must implement those same three requirements.

Planned Actions

In order to comply with the Municipal Separate Storm Sewer System (MS4) permit requirements under NR 216 of the Wisconsin Administrative Code, Kenosha County LWCD annually compiles the MS4 permit technical requirements relating to illicit discharge detection, BMP inspections and maintenance, pollution prevention, storm sewer system/outfall mapping, etc. LWCD staff also completes the annual WDNR report cataloging stormwater program accomplishments and ordinance administration efforts and assists in an urban nonpoint pollution educational outreach program, with the help of the Root-Pike Watershed Initiative Network and UW-Ext.

POLLUTANT LOADING ANALYSIS

Kenosha County Land and Water Conservation staff utilized the modeling procedure STEPL v.4.3 (Spreadsheet Tool for Estimating Pollutant Load) to estimate pollutant loads on the landscape over a given year. STEPL is a regression-based model with simple algorithms that calculate sediment and nutrient loads from different land uses and the load reductions that would result from the implementation of various best management practices (BMPs). Sources of input for the STEPL model include: Drainage area and land use, hydrologic soil group, metrological data from precipitation stations, known point sources, septic systems, and universal soil loss equation parameters as per land use. Outputs for the model include annual phosphorus, nitrogen and sediment loads, and applied BMP efficiencies.

In general, agriculture in Kenosha County has reached a historic low and that trend is likely continue due to ever-increasing urbanization and population growth, thus it was unnecessary to utilize more complex modeling procedures to determine pollutant loadings. In addition, agricultural data is sometimes considered proprietary, therefore, accessibility to sufficient information required by more detailed models is difficult to obtain. Taking this into account, the WDNR recommends that models be run using approximate land use conditions to create a baseline estimate of soil erosion rates and nutrient loads. Pollutant load reductions as a result of various best management practices that are installed can later be evaluated. The results of this analysis were used to estimate the total subwatershed load for nitrogen, phosphorus, and sediment and to identify areas where pollutant loading was especially high. STEPL

also includes a BMP calculator that computes the combined effectiveness of multiple management practices implemented in serial or parallel configurations (or both) in a subwatershed.

STEPL model results indicate that 2010 land use/cover in Kenosha County produces 1,012,569.7 lbs/yr of nitrogen, 242,068.9 lbs/yr of phosphorus, and 88,011.1 tons/yr of sediment, (Table 12) within the subwatersheds modeled. Cropland land uses contribute the highest load of nitrogen (396,826.9 lbs/yr: 35%) and phosphorus (90,722.9 lbs/yr: 37%). This result is expected since agricultural land uses cover over 46% of the subwatersheds modeled and is the single largest land use type. Urban areas contribute another 11% of total phosphorus. Cropland areas also contribute the 45% of the sediment load (38,619.2 tons/yr.). Institutional, commercial, and industrial areas contribute little to overall pollutant loading (note: urbanized subwatersheds were not included in this analysis).

The results of the STEPL model were further analyzed at the subwatershed HUC-12 scale, within Kenosha County. This allows for a more refined breakdown of pollutant sources and leads to the identification of priority pollutant load areas. Priority areas were selected by examining pollutant load concentration (load/acre) for each pollutant. Next, pollutant concentrations exceeding the 75% quartile were calculated resulting in the priority pollutant load areas. Table 12 and Map 19 summarize and depict the results of the subwatershed scale pollutant loading analysis. Two of the 13 subwatersheds are considered priority pollutant load areas based on the combined modeling. They included the Pike River and Pike Creek, and East Branch Root River Canal subwatersheds. These two subwatersheds contribute the highest pollutant loads of nitrogen, phosphorus, and sediment in the Kenosha County and should be considered priory areas for future management measure implementation. Both Pike and Root River subwatersheds have detailed nine key element implementation plans completed.

Appendix B reprinted from the *Pike River Watershed-Based Plan* summarizes the overall impairment reduction expected after addressing Critical and High Priority Areas. According to the pollutant reduction calculations the sediment and phosphorus reduction target would be attained by addressing critical and high priority areas. However, the nitrogen reduction target could not be currently attained by addressing only critical and high priority areas. Addressing all critical and high priority areas would achieve 82% of the reduction target goal. Additional impairment reduction targets were laid out for chlorides, habitat degradation, hydrologic flow changes, and structural flood problems.
To view the entire *Pike River Watershed-Based Plan, August 2013* visit http://www.rootpikewin.org/index.php?option=com_content&view=article&id=169&Itemid=168 .

Appendix C is reprinted from the *Restoration Plan for the Root River Watershed* and identifies the site-specific management measures for the root river watershed and the annual pollutant load reduction corresponding to Map 86 which pinpoints projects within the East Branch Root River Canal assessment area of the root river watershed. Map 86 can be found in the *Restoration Plan for the Root River Watershed* *http://www.sewrpc.org/SEWRPC/Environment/Root-River-Watershed-Restoration-Plan.htm*
The table in Appendix C provides additional and revised quantification for selected management measures available in SEWRPC Memorandum Report Number 220, *Supplemental Information Developed For The Root River Watershed Restoration Plan*, April 2015. The STEPL model was used to estimate the pollutant load reductions that could be achieved if grassed waterway projects were implemented.

Hoosier Creek subwatershed indicated high phosphorus and sediment loading. This subwatershed is part of the Hoosier Creek Drainage District. The District is proposing to dredge approximately 7600 linear feet of the subwatershed at six locations in Kenosha County. The purpose of the maintenance project to provide drainage to the areas, prevent flooding and reduce erosion.

Two large subwatersheds Palmer Creek-Fox River and Jerome Creek-Des Plaines River comprise 18,899 and 16,598 acres, respectively, they were in the top quartile of concentrations for nitrogen and

both of these subwatersheds have a large percentage of their total acreage devoted to cropland. Both were relatively low in phosphorus and sediment loading. They included Brighton Creek, and the Upper Des Plaines River subwatersheds. The Jerome Creek-Des Plaines River subwatershed is located in the Des Plains River watershed. In 2003, SEWRPC completed *Planning Report No. 44,* A Comprehensive Plan for the Des Plaines River Watershed. Specific study objectives were to reduce soil erosion in the Des Plaines River watershed through the integration of stormwater management and construction erosion-control practices in urban areas, agricultural land management practices in rural areas, and streambank erosion control measures. The Des Plaines River Watershed Plan is available at http://maps.sewrpc.org/Publications/search.asp?visit=1&keyword=des+plaines&CompType=AND&reporttype=0&yearfilter=0&Submit=Search

Spring Brook-Fox River subwatershed contributed the third highest sediment loads among the subwatersheds analyzed. The small subwatershed 1203 acres is located in the northwest corner of the county. Pollutant loading analysis indicted that 70 percent of the sediment came from cropland.

The North Mill Creek subwatershed was found to be in the top quartile of concentrations for phosphorus loading. In Kenosha County the main stem and headwaters of Mill Creek is call the Dutch Gap Canal, a heavily farmed drainageway, originally dredged in 1916-17. The *North Mill Creek-Dutch Gap Canal Watershed-Based Plan* was completed in November 2011. This plan is an EPA approved nine key element plan that estimates pollutant load reduction for implementing the recommended actions for the critical area recommendations and site-specific best management practice recommendations which are summarized in Appendix D. To view the *North Mill Creek-Dutch Gap Canal Plan* visit http://www.lakecountyil.gov/Stormwater/LakeCountyWatersheds/DesPlainesRiver/Pages/NorthMillCreek.aspx

Also of note is that the Direct Drainage Area to Lake Michigan, was modeled using both WinSLAMM and STEPL, in the *Pike River Watershed-Based Plan*, and was found to be the least contributor of overall pollutant loading. The Lake Michigan, Waukegan River-Frontal Lake Michigan, and the City of Kenosha - Direct Lake Michigan subwatersheds are direct drainage subwatersheds to Lake Michigan, in incorporated areas, which contain nearly 70% urban land use. Urban load analysis and potential load reductions are managed and maintained by the City of Kenosha and Village of Pleasant Prairie and are covered under their Municipal Stormwater Management (MS4) Permit and are outside the scope of this plan.

Estimating pollutant loads and identifying high pollutant areas, is essential to predicting the load reductions expected from proposed or in-place management measures. Without knowing the source of the pollutant and the contributing area, you cannot effectively restore and protect the subwatershed. This pollutant loading analysis provides a specific numeric estimate of loads from the various land uses in the subwatershed. It also helps guide restoration strategies, target load reduction efforts, and project future loads after BMP installation.

Table 12

TOTAL LOAD BY HUC12 SUBWATERSHED WITHIN KENOSHA COUNTY

HUC-12 Subwatershed (>60 acres)	Acres	N Load (lbs/yr)	N Load (lbs/acre)	P Load (lbs/yr)	P Load (lbs/acre)	Sediment Load (tons/yr)	Sediment Load (tons/acre)
Waukegan River-Frontal Lake Michigan[a]	1,753.00	**		**		**	
Jerome Creek-Des Plaines River	16,598.40	112,359.70	6.77	20,544.90	1.24	6,605.80	0.40
North Mill Creek (Catchment 1-37)[b]	12,770.00	72,818.00	5.70	32,852.00	2.57	5,377.00	0.42
North Branch Nippersink Creek	8,601.20	45,789.90	5.32	9,430.30	1.10	3,887.50	0.45
Channel Lake	9,556.00	49,764.10	5.21	10,178.70	1.07	4,255.10	0.45
Bassett Creek-Fox River	18,600.20	90,452.20	4.86	17,906.90	0.96	6,879.70	0.37
Brighton Creek	16,553.60	98,874.90	5.97	19,390.80	1.17	6,881.00	0.42
Kilbourn Road Ditch	11,345.10	74,057.60	6.53	15,189.60	1.34	5,519.60	0.49
Upper Des Plaines River	25,710.20	160,662.70	6.25	30,296.80	1.18	10,276.10	0.40
Hoosier Creek	4,592.90	26,858.80	5.85	6,191.40	1.35	2,962.00	0.64
Spring Brook-Fox River	1,203.00	6,357.90	5.29	1,544.70	1.28	832.2	0.69
Palmer Creek-Fox River	18,899.00	125,866.50	6.66	22,927.50	1.21	8,155.30	0.43
East Branch Root River Canal	1,463.60	14,066.35	9.61	3,012.85	2.06	1,334.31	0.91
City of Kenosha – Direct Lake Michigan[a]	15,318.50	**	**	**	**	**	**
Pike River and Pike Creek[c]	19,236.40	134,581.50	7.00	52,579.40	2.73	25,045.70	1.30
Lake Michigan[a]	104.5	**	**	**	**	**	**
TOTAL	182,305.60	1,012,510.00	6.66[d]	242,045.50	1.35[d]	88,011.10	0.64[d]

[a] *The Lake Michigan, Waukegan River-Frontal Lake Michigan, and the City of Kenosha - Direct Lake Michigan watersheds are direct drainage watersheds to Lake Michigan, in incorporated areas, that contain nearly 70% urban land use. Urban load analysis and potential load reductions are managed and maintained by the City of Kenosha and Village of Pleasant Prairie and are covered under their Municipal Stormwater Management (MS4) Permit and are outside the scope of this plan.*

[b] *North Mill Creek (Catchment 1-37) Pollutant loading data by catchment was calculated in the North Mill Creek-Dutch Gap Canal Watershed-Based Plan which used STEPL as its pollutant loading model. Twenty catchments in the North Mill Creek Watershed were considered high priority hotspots needing water quality BMP projects to reduce pollutant loading.*

[c] *Pike River and Pike Creek watersheds were combined. Pollutant loading data was calculated in the Pike River Watershed-Based Plan which used STEPL and WinSLAMM as its pollutant loading models.*

[d] *Priority pollutant load areas exceed the 75% quartile: N=6.66, P=1.35, and Sediment=0.64*

The most common nonpoint source pollutants in Kenosha County are nutrients and sediment. Agriculture (both crop production and pasture practices) is a significant source of nutrient loads to surface waters. Urban, rural residential sources, and runoff from open land areas (e.g. lawn or parkland fertilization, leaf litter/forest bed runoff) have also been identified as sources of nutrients loads, likely due to fertilizers and the septic systems associated with these land uses. Urban runoff also carries pollutants such as oil and grease, metals and pathogens such as fecal coliform. Runoff from agricultural areas of highly erodible soils with unstabilized concentrated flow paths (e.g. rill and gully areas), and construction sites with poor erosion control practices, contribute to the sediment load in both lakes and streams. Sediment loads are highest in the streams during rain events; as large portions of some subwatershed are developed, stream flows may increase, causing additional sedimentation (Table 13).

Table 13

POTENTIAL CAUSE AND SOURCES OF POLLUTION

Pollutant	Potential Cause of Pollution	Potential Source of Pollution
Total Suspended Solids (TSS)	Eroded soils and other loose debris	Streets, lawns, driveways, parking lots, soil erosion: elevated and highly varied stream flows, improper construction site management of sediment, agricultural practices in highly erodible soils, increasing land development without proper stormwater management practices
Total Nitrogen (TN)	Eroded soils, high runoff events	Applications of fertilizer, failing septic systems, sewage treatment plant discharges, livestock, nuisance geese
Total Phosphorous (TP)	Eroded soils, high runoff events	Streets, residential lawns (lawn fertilizers, grass clippings), driveways, agricultural fertilizers, soil erosion, runoff from animal raising operations, untreated stormwater and wastewater, detergents, inadequate or failing septic systems, lake sediments, nuisance geese

Pollutant loading within a subwatershed is the contribution of pollutants from the sum of point sources and nonpoint sources. Nonpoint source pollution is a primary concern related to water quality across Kenosha County due to its rural/urban setting and numerous land use practices. Based on first-hand experiences, historic water quality monitoring results, land use activities and known water quality impairments, total nitrogen, total phosphorus, and total suspended sediment has been identified as priority nonpoint source pollutants. To accomplish the goals of improving the water quality in Kenosha County these selected pollutants, shown to be the highest contributors of pollution, will be targeted for pollutant reduction and mitigation practices.

It should be noted that all computation models have assumptions and limitations and the STEPL model is designed as a planning tool. Therefore, the provided analytical results will not represent the exact pollution loads due to calibration and model limitations. In these conditions, the relative results provide very useful information for targeting and prioritizing subwatersheds that have the largest impact on water quality within the County. These areas can be targeted for Best Management Practice (BMP) implementation and will provide the greatest water quality improvement benefit. New GIS modeling tools like EVAAL (Erosion Vulnerability Assessment for Agricultural Lands) which identify vulnerable erosion sites and the AgBufferBuilder a tool for the precision design and performance assessment of buffer strips will enable LWCD staff to prioritize locations at the field level and design the most effective buffer strips and estimate their efficiency.

Planned actions to reduce pollutant loading to Kenosha County surface and groundwater may include the following: improving stream sedimentation, increased nutrient management planning and improved agricultural drainage; stormwater runoff management, construction site erosion control and a variety of best management practices to reduce soil erosion and sediment/nutrient delivery targeted at the high loading subwatersheds to improve overall water quality.

Kenosha County presently has 33,470 acres of land within the boundaries of an EPA approved nine key element implementation plan. The Lake Michigan, Waukegan River-Frontal Lake Michigan, and the City of Kenosha - Direct Lake Michigan subwatersheds are predominantly urban subwatersheds with an approximate total acreage of 17,176. Combined these subwatersheds cover about 28 percent of Kenosha County. The remainder of the land area in Kenosha County falls within the Des Plaines and Fox

River watersheds, with four and six HUC-12 subwatersheds, respectively. Future nine key element planning efforts should concentrate on these two major watersheds or adopt a staggered approach and model specific HUC-12 subwatersheds within them. Palmer Creek-Fox River, Jerome Creek-Des Plaines River, Hoosier Creek, and Spring Brook-Fox River subwatersheds were all identified as priority pollutant load areas.

This Land and Water Resource Management Plan supports the nine key element concept and will continue to assist future planning efforts. This plan itself is not consistent with the nine key elements for EPA approval due large area not yet studied (~132,000 acres), changing land use (situated in an urban squeeze between Milwaukee and Chicago), limited staff and limited funding.

EDUCATIONAL PROGRAMMING

Goals and Workplan Objectives

Developing and implementing a constructive educational program is an important component of the land and water resources management plan. A general summary of the goals and workplan objectives related to educational programming may include, but are not limited to, the following:

- Enhance the general public's appreciation and involvement in natural resource protection and restoration;
- Provide information and education (I&E) to rural landowners and farm operators on the agricultural performance standards;
- Promote learning strategies for environmental education among our youth;
- Provide outreach programs to developers, engineers, landscapers, local officials, and work groups that will increase awareness of storm water pollution impacts;
- Increase landowner and producer/operator awareness of conservation practices and programs;
- Provide information to riparian property owners and landscape contractors on the benefits of riparian buffers and shoreland protection alternatives;
- Educate landowners, agricultural supply businesses, lawn maintenance companies, and golf course superintendents on the importance of nutrient, chemical, and pest management;
- Provide information to county residents about how they can control water pollution, groundwater contamination, and control invasive species.

Planned Actions

The planned actions to meet the educational goals and workplan objectives in the agricultural and rural areas include offering seminars or short courses on nutrient and agri-chemical management principals, and developing literature for distribution to farmers on the economics of soil conservation. Certification and training courses on nutrient management planning, as well as compliance obligations set forth in the State performance standards, will be offered to landowners, agricultural cooperatives and suppliers, lawn maintenance companies, and golf course and park management personnel.

The planned actions to meet the educational goals and objectives in the nonagricultural and urban areas include offering educational sessions and workshops on the principals of sound erosion control and storm water management practices on construction sites. Residents will also be included in educational programming efforts. Specifically, residents will be provided with information on yard waste management practices designed to reduce nonpoint source pollution. This can be done through distributing lawn maintenance literature, such as proper fertilization and chemical application techniques, yard landscaping alternatives, and the proper management of leaf and grass clippings, pet waste, and household chemicals. Additionally, informational materials regarding buffer effectiveness and buffer design options will be made available to riparian property owners. This type of information will also be presented at seminars to landscape contractors, architects, park and golf course staff. Riparian buffer

demonstration sites may be established and promoted to illustrate the desirable aesthetics and environmental effectiveness of riparian buffers.

Informational and educational programming will be targeted towards Lake Michigan riparian property owners. Informational materials will be developed and distributed containing the details involved with Lake Michigan shoreline erosion processes. Additionally, material shall be provided that identifies the most appropriate methods to protect the shoreline from erosion and proper setback distances for structures from the shoreline.

It is important to utilize new and existing programs and teaching materials to develop curriculum for in-school programs that identify valuable natural resources and also identify ways to protect those resources, restoration methods, and sources of natural resource degradation, including nonpoint source pollution.

In order to implement the informational and educational program goals and workplan objectives, the following strategies and methods are part of our 10-year planned activities.

- Provide one-to-one contact with individuals, businesses, or local levels of government;
- Promote voluntary implementation of conservation practices necessary to meet the performance standards and prohibitions;
- Inform new and existing landowners about their obligation to maintain compliance with performance standards through personal contact, direct mail, newsletters, fact sheets, webpage, workshops etc.;
- Utilize new and existing programs to help implement a curriculum to inform students about natural resource issues, their function and role in the environment, and ways they can manage and restore those resources;
- Assist area youth groups in the development of outdoor classroom activities to promote land and water conservation;
- Make available internships to provide real work experience opportunities for High School and College students;
- Participate in the State of Wisconsin Environmental Poster Contest. This educational contest allows students to make posters using their creativity and artistic skills. Winning posters are advanced to regional and state competitions.
- Distribute information material during office and site visits. Provide I&E at display booths at county and lake fairs;
- Partner with lake districts and associations on shoreline protection and restoration demonstration projects and workshops. Continue to distribute lake information packets to new riparian landowners;
- Continue to distribute informational materials to homeowners on pet waste, leaf and grass clipping disposal, lawn fertilization techniques, and the problems associated with dumping chemicals directly into storm sewers;
- Promote storm drain stenciling and provide materials to schools and youth groups;
- Organize and educate local work and youth groups to identify and eliminate exotic and invasive species;
- Conduct seminars or workshops for the farming community, riparian residents, businesses, and local levels of government to include;
    - General awareness of conservation and/or runoff pollution
    - State Performance standards and manure management prohibitions
    - Nutrient management planning and soil preservation techniques
    - Land use/planning (including farmland preservation and development rights)
    - Groundwater management (including well abandonment and septic systems)
    - Urban storm water management and erosion control

  - Water conservation, rain gardens, groundwater protection.
  - Lake/river/shoreland management
  - Wetland/pond creation/enhancement/restoration
  - Woodlot/prairie/savannah management
  - Invasive species management
  - Wildlife habitat management
  - Provide informative news articles in the Ties to the Land and Compass Point newsletters; with sections focusing on different land conservation issues in the County.
- Use cable TV, radio and newspaper to deliver environmental programming and circulate opinion surveys;
- Maintain an up-to-date County land and water conservation website devoted to conservation programs, technical services, and cost-shared practices, with links to other sources of information.

INVASIVE AND NON-NATIVE SPECIES MANAGEMENT

Goals and Workplan Objectives

Non-native and invasive species can alter ecological relationships among native species and can affect ecosystem function, economic value of ecosystems, and human health. In order to more effectively control the infestation and spread of exotic and invasive animal and plant species, specific goals and workplan objectives have been identified as follows:

- Distribute informational material, answer phone and direct inquiries;
- Organize and educate local work and youth groups to identify and eliminate exotic and invasive species;
- Continue to conduct periodic workshops and presentations on non-native and invasive aquatic and terrestrial plant and animal species control;
- Assist the clean boats, clean waters volunteer program;
- Create a monitoring program to track control measures over time;
- Encourage the development and adoption of aquatic plant management plans for all inland lakes;
- Participate in Aquatic Invasive Early Detection and Response Projects;
- Supports the Clean Boats Clean Waters Program and other inspection programs.

Planned Actions

Non-native and invasive species control strategies rely heavily on information, education and communication. Therefore, our plan will include a wide range of activities to implement an effective identification, prevention, and eradication program. Kenosha County will continue to conduct Gypsy Moth suppression monitoring in all areas of the county. The emerald ash borer currently is devastating ash trees in Kenosha County. Reforestation plans that include a diverse variety of tree species is absolutely essential for a healthy ecosystem and vital for long-term forest productivity.

Kenosha County LWCD will work together with DATCP, WDNR, U.S. Forest Service, the University of Wisconsin and other state and local agencies and groups to educate the public on prevention and prepare for current and future infestation. The WDNR has recognized aquatic invasive species as a potentially serious problem in Kenosha County lakes. Where outbreaks of aquatic invasive species occur, Kenosha County LWCD, along with the WDNR will participate as a partner in their detection and eradication. Planned activities include the continuation of an ongoing program of public information and education being provided to both riparian landowners and lake users. Also, encourage lake association/districts to develop and adopt aquatic plant management plans for their individual lakes.

Invasive shrubs such as buckthorn and honeysuckle prevent the regeneration of young trees, causing long-term, serious impacts to the forestry of Kenosha County. Garlic Mustard can invade woodlands and

displace native vegetation. It spreads rapidly and can dominate the forest floor within ten years. It not only invades disturbed habitats, but readily spreads into high quality forests. Garlic mustard provides little food and habitat for wildlife. Purple Loosestrife has become an aggressive weed in our natural wetlands, shorelands, and even roadside ditches of Kenosha County. This plant spreads quickly and chokes out high-quality native wetland plant species, which consequently makes wetlands less useful for wildlife. Kenosha County LWCD will work to coordinate an annual invasive species awareness event and work with Southeastern Wisconsin Invasive Species Consortium to identify and track existing and new populations.

Aquatic invasive species pose a threat to the surface water resources of Kenosha County. These species out-compete native species and degrade habitats, by removing vegetation or limiting the biodiversity of a lake ecosystem. In addition, these species impact wildlife habitat and recreational opportunities. LWCD staff provide educational information and training opportunities for the public that focus on aquatic invasive species prevention methods, programs, and procedures. Encourage lake volunteer groups to conduct continuous in-lake monitoring efforts. Support watercraft inspection efforts for aquatic invasive species at area boat landings. Work with Lake Associations /Districts to generate more state and federal funding for prevention and control programs.

Starry stonewort has recently been discovered in southeastern Wisconsin lakes. The Starry stonewort has impacts like many invasive aquatic plants - it can reduce fish spawning habitat, outcompete other native vegetation, limit access and fragments can foul water-craft motors. Once established, the starry stonewort has proven difficult to eliminate, making prevention the most effective option. Kenosha County LWCD supports the Clean Boats Clean Waters Program and other inspection programs that are the fore front of the prevention effort. LWCD staff will provide educational information and encourage training opportunities that focus on Starry stonewort prevention and ways to stop the spread of this highly invasive species.

LAND & WATER RESOURCE MANAGEMENT WORKPLAN 2017-2026

The recommended goals, workplan objectives, and planned actions for the years 2017-2026 are presented in detail in Table 14 below.

Table 14

KENOSHA COUNTY LAND & WATER RESOURCE MANAGEMENT WORKPLAN 2017-2026

GOAL #1	**Protect and Preserve Kenosha County's Land and Water Resources (0.50 FTE and 30 percent budget/year)**		
Workplan	**Planned Actions**	**Status**	**Agency**
Conserve Kenosha County's unique natural resources in the face of increasing urbanization and resulting loss of farmland	**1) Preserve Certified Farmland Preservation Areas designated in the *Kenosha County Farmland Preservation Plan* and the *Multijurisdictional Comprehensive Plan for Kenosha County: 2035*** **2) Help prepare and distribute an annual Farm Fresh Atlas to advertise farmer's markets to support farm to table initiatives, helping connect local farmers with local buyers** **3) Implement land use planning to sustain farmland and agricultural businesses identified in the *Kenosha County Farmland Preservation Plan*:** • Recommend the preservation of open/green space to builders and developers • Promote conservation subdivisions and rural cluster development • Continue to encourage Exclusive Agricultural Zoning • Protect farmland through Land Division Ordinances • Promote agri-tourism in Kenosha County through agricultural-related special events • Protect agricultural infrastructure in Kenosha County to support farm operations • Support the Purchase of Development Rights and the Transfer of Development Rights to conserve farmland • Promote local and sustainable farm practices and farm marketing • Support Community Supported Agriculture a partnership between the farmer and the consumer to buy local, seasonal food directly from the grower 4) Advise homeowner associations on how to manage their open space, wetlands, woodlots and detention ponds 5) Continue to support acquisition and preservation of environmental corridors and important identified natural areas and critical species habitat areas 6) Encourage urban-density land use to be confined to and within the identified urban sewer service areas	**Ongoing**	**LWCD**

GOAL #1	Protect and Preserve Kenosha County's Land and Water Resources (0.50 FTE and 30 percent budget/year)		
Workplan	**Planned Actions**	**Status**	**Agency**
Implement and refine the County's shoreland/floodplain management program	**1) Enforce the County Shoreland regulations through review and issuance of 12+ stipulated shoreland permits a year** **2) Adopt and administer a shoreland zoning ordinance that meets the minimum provisions of NR 115.05 by October 2016** **3) Quantify, digitally document and photograph shoreland development, impervious surfaces and setback distances as part of a Lake Classification Plan currently in preparation** 4) Administer revisions under Act 167 to Ch. 30, Wis. Stats in regards to grading and OHWM/Navigability 5) Preserve and protect streams and watercourses impacted by new construction and redevelopment 6) Continue to monitor Lake Michigan shoreline, especially in those reaches with relatively high unprotected bluffs 7) Participate in the study of flood hazards for Lake Michigan through FEMA's Risk Mapping, Assessment	**Ongoing**	**LWCD** **SEWRPC** **FEMA**
Create, restore and enhance wetland, riverine, and wildlife habitat throughout the county	**1) Assist planning commission staff, NRCS USF&W, WIDOT and contractors with wetland mitigation, restoration, and stream relocation projects** 2) Work with landowners, WDNR, FSA, USF&W, Racine/Kenosha Land Trust and NRCS to utilize local, State and Federal program funds for wetland and riverine improvements 3) Seek funding sources for lake and river water quality protection and Total Maximum Daily Load (TMDL) planning 4) Continue to administer Kenosha County's C-1 Lowland Resource Conservancy District ordinance 5) Append Zoning ordinance to recognize and protect Environmental Corridors 6) Work together with the WDNR, NRCS USCOE and SEWRPC to resolve wetland related issues	**Ongoing**	**LWCD** **WDNR** **FSA** **NRCS** **USF&W** **Racine/ Kenosha Land Trust** **NRCS** **USCOE** **SEWRPC** **WIDOT**
Prepare, update and implement lake protection and comprehensive watershed plans	**1) Work with planning commission staff, lake association members, and outside contractors in the development of watershed management plan(s). Plans currently in progress:** • **County-wide Lake Classification Plan** **2) Implement the recently completed Nine Key Element Plans for the North Mill Creek/Dutch Gap Watershed, Root River Watershed and the Pike River Watershed** 3) Encourage native grasses, plants and bio-stabilization on shorelines, where applicable 4) Continue to partner with the USCOE, WDNR, Lake County, Cook County and SEWRPC to prepare a Des Plaines River watershed feasibility study (Phase II)	**Ongoing**	**LWCD** **USCOE** **WDNR** **SEWRPC** **Lake Assoc.** **Lake County** **Root/Pike WIN** **USCOE**
Monitor the conditional use of active and assure the reclamation of inactive nonmetallic mining sites	**1) Continue to administer Chapter 13 Kenosha County Non-Metallic Mining Reclamation Ordinance** **2) Inspect and annually certify 3 reclamation plans and conditional uses** 3) Conduct compliance inspections of reclaimed sites	**Ongoing**	**LWCD**

GOAL #1	Protect and Preserve Kenosha County's Land and Water Resources (0.50 FTE and 30 percent budget/year)		
Workplan	**Planned Actions**	**Status**	**Agency**
Promote riparian buffers along all water resources in the County	**1) Utilize SWRM cost-share to install streambank and shoreline protection** **2) Use GIS and field inspections to characterize the existing riparian buffer widths along county streams** 2) Continue to work with and form more resource partnerships to educate riparian landowners of the water quality benefits of buffers 3) Offer SWRM cost-share funds to install bio-engineered systems with vegetated buffers 4) Continue to implement CRP to protect water quality 5) Recommend alternative methods available to protect shorelines subject to low erosion intensity	**Ongoing**	**LWCD** **DATCP** **UW-Ext**
Groundwater Protection: Quality And Quantity	**1) Utilize SWRM cost-share funds to permanently abandon 3-5 unused wells annually** **2) Conduct one spring and one fall hazardous waste clean-up day each year and one electronic waste drop-off day each year** 3) Encourage the infiltration of stormwater as set forth in Chapter NR 151 of the Wisconsin Administrative Code 4) Help developers identify potential stormwater infiltration areas using field data, web based GIS mapping, and the soil survey layer 5) Incorporate SEWRPC Regional Water Supply Plan recommendation into future planning efforts 6) Work with agricultural producers to soil test farm fields and provide assistance to producers to develop nutrient management plans for farm field 7) Encourage the infiltration of stormwater and help developers identify potential stormwater infiltration areas using field data, web based GIS mapping, and the soil survey layer	**Ongoing**	**LWCD** **DATCP** **SEWRPC** **UW-Ext**

GOAL #1	Protect and Preserve Kenosha County's Land and Water Resources (0.50 FTE and 30 percent budget/year)		
Workplan	**Planned Actions**	**Status**	**Agency**
Floodplain regulation, protection and information	**1) Assist with updating floodplain zoning maps for unstudied reaches or watersheds with outdated flood studies** **2) Amend the County Zoning Ordinance to be compliant with WDNR and FEMA requirements** **3) Conduct inspections and document flood damages following a flooding event** **4) Prepare Letters of Map Amendment – Out as Shown to help residence remove their structures from the floodplain** **5) Prevent increases in flood heights that could increase flood damage and result in conflicts between property owners** **6) Discourage development in a floodplain if there is any practicable alternative to locate the activity, use or structure outside of the floodplain** **7) Continue to assist and promote the Fox River Flood Mitigation Program to voluntarily acquire and demolish residential structures and relocate displaced residents from the Fox River floodplain. All acquired property is placed in permanent open space.** **8) Administer the FEMA Community Rating System program that provides lower insurance premiums under the National Flood Insurance Program.** Elevation Certificates Maintenance — Flood Data Map Information Service — Stormwater Management Outreach Projects Requirements — Repetitive Loss Hazard Disclosure — Floodplain Management Planning Flood Protection Information — Acquisition and Relocation Open Space Preservation Program — Flood Warning Land Development Criteria — Dam Safety **9) Recommend adoption of floodland zoning regulations and participation in the Nation Flood Insurance Program to effected municipal units of government**	**Ongoing**	**LWCD FEMA WDNR Local Govt.**
Support efforts to protect and enhance our forests and woodlots	**1) Administer the Kenosha County annual tree program distributing 15,000+ trees and shrubs every spring** 2) Enforce the County C-2 Upland Resource Conservancy District ordinance 3) Work with the area forester to provide forestry assistance to landowners 4) Continue to support the Southeast Wisconsin Woodland Owners Conference 5) Support the Managed Forest Law Program	**Ongoing**	**LWCD WDNR UW-Ext**

GOAL #1	Protect and Preserve Kenosha County's Land and Water Resources (0.50 FTE and 30 percent budget/year)		
Workplan	**Planned Actions**	**Status**	**Agency**
Preservation of environmental corridors, wetlands, floodplains and other environmentally sensitive natural areas	**1) Follow planning elements recommended in the *Multi-jurisdictional Comprehensive Plan for Kenosha County: 2035* and the *Park and Open Space Plan for Kenosha County* to preserve natural areas.** Open Space Preservation • Preserve primary environmental corridors, secondary environmental corridors, and isolated natural resource areas • Preserve natural areas, critical species habitat sites, and geological areas • Protect open space lands located within project boundaries established by the State and The Nature Conservancy • Preserve and protect prime agricultural lands Outdoor Recreational Element • Continue to support our eight existing parks; Bong State Recreation Area, Brighton Dale Park and Golf Course, Bristol Woods Park, Fox River Park, Petrifying Springs Park and Golf Course, Silver Lake Park, West End Park, and Prairie Springs Park • Help acquire additional lands for West End Park and Bong State Recreation Area, develop additional facilities at Brighton Dale Park, Fox River Park, and West End Park • Implement the recently adopted *Kenosha County Comprehensive Bicycle Plan* to provide a safe and convenient network of connections between communities, parks, schools, recreation areas, and other popular destinations. • Expand our system of recreation trails for such activities as bicycling, hiking, nature study, and ski touring • Support efforts relating to the preservation of historic sites and districts throughout the County	**Ongoing**	**LWCD SEWRPC**

GOAL #2	Implement the State of Wisconsin Performance Standards to Reduce Agricultural Nonpoint Source Water Pollution (0.40 FTE and 25 percent budget/year)		
Workplan	**Planned Actions**	**Status**	**Agency**
Implementation of the State Agricultural Performance Standards and Prohibitions to protect water quality for Kenosha County farms	**1) Explain compliance responsibilities to farmers. Record farmer contacts** **2) Document landowner compliance to State Agricultural Performance Standards** **3) Conduct a minimum of 3 or more priority farm inventories annually** **4) Update parcels, acreages, and zoning certificates as properties are sold or rezoned. Keep DATCP notified of status changes** 5) Promote voluntary implementation of conservation practices necessary to meet the performance standards and prohibitions 6) Utilize GIS to map priority farms and compliance status 7) Notify landowners of compliance status and identify key problems and needed BMPs 8) Offer engineering and technical assistance cost sharing if available 9) Inspect landowners' efforts to maintain and/or implement compliant practice(s) 10) Keep landowner's notified of compliance status through the issuance of compliance certifications or schedules of compliance. Refer noncompliance to the WDNR if necessary for enforcement	**Ongoing**	**LWCD** **WDNR** **DATCP**
Provide assistance to DATCP in the administration of Chapter 91 and in other matters related to the preservation of farmland	**1) Establish Agricultural Enterprise Areas (AEA) specific areas in Kenosha County designated for potential AEA agreements. Support the implementation of the AEA agreements and aid in the application process** **2) Encourage the implementation of the Purchase of Agricultural Conservation Easements (PACE) program from willing landowners in order to preserve agricultural capacity and conserve unique agricultural resources.** 3) Develop methods to ensure nutrient management plans required by Section NR 151.07 of the Wisconsin Administrative Code are implemented throughout the County. 4) Promote agriculture and associated agricultural industries in Kenosha County and recommend additional agricultural related uses allowed in agricultural preservation districts.	**Ongoing**	**LWCD** **WDNR** **DATCP**

GOAL #2	Implement the State of Wisconsin Performance Standards to Reduce Agricultural Nonpoint Source Water Pollution (0.40 FTE and 25 percent budget/year)		
Workplan	**Planned Actions**	**Status**	**Agency**
Reduce soil erosion to tolerable rates	**1) Conduct the annual transect erosion survey to monitor cropland erosion levels and farming practices** 2) Encourage landowners to develop farm conservation plans on critical agricultural fields and develop practices as needed • Practice conservation tillage to leave 30 percent or more residue • Use no-till practices for fields in WQMA if practical • Consider less erosive crop rotation such as hay or winter wheat Contour farm if practical • Establish permanent vegetation in concentrated flow channels • Promote contour farming, contour strip cropping or field buffers to break up steeper slopes as applicable. • Rotationally graze horses and cattle where practical • Promote the Conservation Reserve Program for HEL, WQMA's, or other marginal farmland. • Encourage farm conservation plans to be followed in accordance with the Ag Performance Standards 3) Correct gully erosion with grassed waterways or appropriate best management practices.	**Ongoing**	**LWCD** **WDNR** **DATCP** **NRCS**
Manage animal waste and control livestock access to water resources in accordance with State performance standards	**1) Utilize SWRM cost-share funds to install conservation practices that improve feedlot runoff control, manure handling, or storage and other animal waste management issues** **2) Enforce the A-3 Agricultural Feedlot Zoning District ordinance** 3) Make producers aware of local, State and Federal guidelines and performance standards 4) Continue to work with dairy farmers to contain or control the discharge of milkhouse waste 5) Insure manure stack areas are located outside of WQMA 6) Install fencing to properly manage livestock and horses in areas with water resources 7) Limit manure applications on highly erodible lands and in WQMA 8) Assist farmers with management decisions such as animal location, fencing, manure stacking location, stormwater runoff, milkhouse waste or other management issues	**Ongoing**	**LWCD** **WDNR** **DATCP** **NRCS**

GOAL #2	Implement the State of Wisconsin Performance Standards to Reduce Agricultural Nonpoint Source Water Pollution (0.40 FTE and 25 percent budget/year)		
Workplan	**Planned Actions**	**Status**	**Agency**
Reduce soil and nutrient delivery rates to water resources from riparian cropland	**1) Utilize incentive to obtain voluntary compliance i.e. SWRM Cost sharing, EQIP, Notice of Discharge Grant Program, Great Lakes Restoration Initiative Grant Program and other targeted USDA-NRCS grant programs such as Conservation Reserve Program.** **2) Utilized the modeling tool STEPL to estimate pollutant loads and measure applied BMP efficiencies** **3) Utilized new GIS modeling tools like EVAAL and the AgBufferBuilder to identify vulnerable erosion sites and design effective buffer strips** 4) Study the potential of Pollutant Trading – point source funding for nonpoint source conservation practices or Adaptive Management – strategy to achieve phosphorus water quality standards in the most economically efficient manner and similar to pollutant trading. 5) Partner with the Village of Bristol to accomplish phosphorus compliance through the installation of conservation practices in the watershed. 6) Work with landowners, farmers, and agency partners to establish buffers and tillage setbacks within riparian corridors. 7) Clean out accumulated sediment from agricultural drainage ways in cooperation with the WDNR and local drainage districts, clarifying the permit process and associated sediment removal plan	**Ongoing**	**LWCD** **WDNR** **DATCP** **NRCS** **FSA**
Develop, implement, and monitor compliance of nutrient and pest management plans to protect water quality	**1) Continue to work with producers, DATCP, NRCS, UW-Ext and technical service providers to expand nutrient management and pest management planning and implementation** **2) Cost-share 400+ acres of nutrient management planning annually** **3) Send completed *Nutrient Management Plan Checklists* annually to DATCP to ensure that quality NMPs are being provided to farmers and that the progress farmers are making towards implementing NMPs is documented annually** **4) Submit randomly selected NMPs to the Quality Assurance Team for their review and constructive criticism, so that plan writers will continue to improve future plans** **5) Utilize DATCP's restriction maps during the planning process** 6) Utilize integrated management plans to reduce the amount of manure, fertilizers, and pesticides applied 7) Conduct compliance inspections on existing plans to verify implementation and assist with updating plans as needed 8) Utilize GIS to track nutrient management planned acreage along with plan years, including an expiration date requiring new soil tests and plan updates.	**Ongoing**	**LWCD** **WDNR** **DATCP** **NRCS** **UW-Ext** **TSPs**

GOAL #2	Implement the State of Wisconsin Performance Standards to Reduce Agricultural Nonpoint Source Water Pollution (0.40 FTE and 25 percent budget/year)		
Workplan	**Planned Actions**	**Status**	**Agency**
Utilize GIS technology to develop detailed mapping of important agricultural land management areas and priority farms	**1) Continue to implement a GIS tracking tool compliance to agricultural performance standards** 2) Digitally map locations of all SWRM cost-share projects CRP 3) Digitally map restricted manure application sites, all livestock operations 4) Digitally map locations of CRP contracts, NMP, and HEL farm plans and WQMAs	**Ongoing**	**LWCD** **NRCS**

GOAL #3	Implement the State of Wisconsin Performance Standards to Reduce Non-agricultural Nonpoint Source Water Pollution (0.33 FTE and 20 percent budget/year)		
Workplan	**Planned Actions**	**Status**	**Agency**
Implementation of stormwater management, related urban and State nonagricultural performance standards and prohibitions	**1) Continue to administer Chapter 17 Kenosha County Stormwater Management, Erosion Control, and Illicit Discharge Ordinance** **2) Review 5 + stormwater management plans per annum for new and redevelopment sites** 3) Inspect compliance of approved plan requirements during construction and inspect as-built stormwater systems	**Ongoing**	**LWCD**
Reduce construction site erosion	**1) Review 15+ erosion control plans per annum for new and redevelopment sites** 2) Inspect erosion control measure installation, maintenance, and removal 3) Assist contractors, developers and local building inspectors with erosion control issues 4) Recommend WDNR Conservation Practice Standards 5) Continue to respond to complaints of erosion problems and notify local building inspectors of uninstalled or unmaintained erosion control measures on single-family home construction	**Ongoing**	**LWCD**
Manage stormwater runoff more effectively	**1) Develop a cooperative agreement between the County, the WDNR and local levels of government for stormwater management permitting** 2) Work with local governments and towns to develop programs to routinely inspect, remove sediment, and otherwise maintain stormwater detention basins and other facilities 3) Encourage municipalities and towns to take responsibility for maintenance of major stormwater management systems 4) Recommend special protection to environmentally sensitive areas 5) Continue to require developers to meet special release rates for new development within the Des Plaines River watershed	**Ongoing**	**LWCD WDNR Local Govt.**
Comply with the Municipal Separate Storm Sewer System (MS4) permit requirements under NR 216 of the Wisconsin Administrative Code	**1) Complete annual MS4 permit technical requirements relating to illicit discharge detection, BMP inspections and maintenance, pollution prevention, storm sewer system/outfall mapping, etc.** **2) Complete annual WDNR reporting requirements relating to storm water program accomplishments and ordinance administration efforts** **3) Annually inspect 92 stormwater outfalls for illicit discharge** **4) Complete mandated urban nonpoint pollution educational outreach with the help of the Root-Pike Watershed Initiative Network and UW-Ext**	**Ongoing**	**LWCD WDNR UW-Ext Root/Pike WIN**

GOAL #4 Increase Information and Education Activities to Promote the Conservation of Natural Resources and the Environment (0.33 FTE and 20 percent budget/year)			
Workplan	**Planned Actions**	**Status**	**Agency**
Provide outreach programs to teachers, students, school administrators and youth groups	**1) Continue to make available programs to provide real work experience opportunities for High School or College students** • **Youth in Governance** • **At Risk Youth Empowerment** • **Youth As Resources** • **Summer Internships** • **Leadership Kenosha** **2) Make available informational brochures and fact sheets to walk-ins** **3) Provide and keep up-to-date the information and education page on the county conservation website** **4) Continue to participate in the annual State of Wisconsin Environmental Poster Contest** 5) Use radio, newspaper, and cable TV to deliver environmental programming 6) Utilize new and existing programs to help implement a curriculum to inform students about natural resource issues, their function and role in the environment, and ways they can manage and restore those resources 7) Assist area youth groups in the development of outdoor classroom activities to promote land and water conservation	**Ongoing**	**LWCD** **UW-Ext** **WI Land + Water** **Youth Groups**
Provide outreach programs to developers, engineers, landscapers, local officials, and work groups that will increase awareness of stormwater pollution impacts	**1) Host one annual workshop presentation on stormwater and erosion control BMP's** 2) Promote environmentally sensitive land development designs i.e. rain gardens and infiltration swales 3) Educate homeowner's associations in charge of stormwater basin management and maintenance 4) Provide information to developers about nonagricultural performance standards and prohibitions	**Ongoing**	**LWCD** **UW-Ext**
Educate landowners, agricultural supply businesses, lawn maintenance companies, and park and golf course superintendents and others on the importance of nutrient chemical management	**1) Organize one annual nutrient management planning certification, update or revision training course** **2) Promote six UW Ext Landscape and Grounds Maintenance short-course** 3) Work with area coops and other suppliers to develop seminars targeted to nutrient and agri-chemical management and regulations, as well as area lawn companies, golf course and park superintendents	**Ongoing**	**LWCD** **UW-Ext** **TSPs**

GOAL #4 Increase Information and Education Activities to Promote the Conservation of Natural Resources and the Environment (0.33 FTE and 20 percent budget/year)			
Workplan	**Planned Actions**	**Status**	**Agency**
Increase landowner and producer/operator awareness of conservation practices and programs	**1) Continue to provide a quarterly newsletter *Ties to the Land* to 5200+ landowners and producers** **2) Distribute a Planning & Development newsletter *Compass Point* to local municipal offices, libraries and web access** **3) Host one Annual Rural Landowner Conference at the Kenosha County Center each November** **4) Host periodic Southeast Area Land & Water Conservation Association summer bus tours** 5) Promote voluntary implementation of conservation practices necessary to meet the performance standards and prohibitions 6) Partner with FSA, NRCS and neighboring counties to sponsor a bus tour that showcases local conservation projects 7) Help support a Dairy Breakfast field day annually to promote dairy farming 8) Distribute informational material during office and site visits 9) Use direct mailings to contact priority farms	**Ongoing**	**LWCD UW-Ext FSA NRCS Local Govt.**
Maintain a Land & Water Conservation website	**1) Maintain an up-to-date website on conservation programs, technical services, stormwater regulation, tree program, and cost-shared practices, etc.** **2) Provide a specific web page that describes the Wisconsin Working Lands Initiative with links to fact sheets and tax credit eligibility and compliance requirements** **3) Keep current and archive, plans, ordinances, newsletters and permit requirements/forms and events** **4) Present training related to the County's GIS, available layers, and land information web portal at local workshops and conferences** 5) List up-to-date links to resource partners, lake associations/districts, local grass roots groups, conservation and wildlife clubs, local, State and Federal agencies 6) Maintain an interactive mapping portal for access to Certified Farmland Preservation Areas, Agricultural Enterprise Areas, parcels, topography, public land survey system, roads, water bodies, zoning, soils, wetlands, floodplains, shoreland, aerial photography, etc.	**Ongoing**	**LWCD**

GOAL #4 Increase Information and Education Activities to Promote the Conservation of Natural Resources and the Environment (0.33 FTE and 20 percent budget/year)			
Workplan	**Planned Actions**	**Status**	**Agency**
Provide information to riparian property owners and local landscape contractors on the benefits shoreland stewardship practices	**1) Distribute by direct mail 20+ lake information packets to new riparian landowners** **2) Provide support to lake district/associations in developing lake protection and aquatic plant management plans** 3) Hold seminars targeted towards landscape contractors on the effectiveness of riparian buffers and potential design options for residential and business situations 4) Assist in developing demonstration sites to illustrate sound riparian land management for buffer establishment 5) Partner with lake districts and associations on shoreline protection and restoration demonstration projects and workshops 6) Make available informational and educational programming targeted towards riparian property owners	**Ongoing**	**LWCD Lake Districts/Assoc.**
Provide information to the county residents about how they can control water pollution and groundwater contamination	**1) Conduct one annual workshop presentation to promote water conservation, rain gardens, groundwater protection, etc.** **2) Continue to provide well water test kits** **3) Promote cost-share funds to permanently abandon unused wells** **4) Coordinate one semi-annual hazardous waste clean-up day** **5) Coordinate one semi-annual electronic waste clean-up day** **6) Continue to provide one annual Ag chemical waste drop-off day** **6) Continue to partner with the Root-Pike Watershed Initiative Network and UW-Extension in offering six Greener Yards, Cleaner Waters workshops, newsletter distribution and Sparkles the Water Spaniel - Respect Our Waters advertising campaign** 7) Distribute informational materials to homeowners on pet waste, leaf and grass clipping disposal, lawn fertilization techniques, and problems associated with dumping chemicals directly into storm sewers 8) Promote storm drain stenciling and provide materials to schools and youth groups	**Ongoing**	**LWCD UW-Ext Root/Pike WIN DATCP**
Provide information to county residents about how they can control exotic and invasive species	**1) Conduct one workshop to educate local work and youth groups on how to identify and eliminate exotic and invasive species** 2) Assist with Clean Boats, Clean Waters Volunteer program 3) Utilize and assist with the SEWISC inventory and monitoring program	**Ongoing**	**LWCD SEWISC WDNR**

GOAL #5 Promote and Support Invasive and Nonnative Species Management and Control in Kenosha County (0.10 FTE and 5 percent budget/year)			
Workplan	**Planned Actions**	**Status**	**Agency**
Control the infestation of terrestrial and aquatic nonnative and invasive plant and animal species	**1) Conduct one annual workshop or presentations on nonnative and invasive plant and animal species control** **2) Continue to partner with Southeastern Wisconsin Invasive Species Consortium and support their ongoing roadside invasive species survey** **3) Provide a specific web page dedicated to pest management identification, classification and control with links to fact sheets and web resources** **4) Provide information on Emerald Ash Borer identification, detection, quarantine, and control techniques** 5) Continue to coordinate the Gypsy Moth suppression program 6) Continue to support the Slow the Spread by Boat and Tread! Poster Contest for 4th and 5th graders 7) Distribute informational material, answer phone and direct inquiries 8) Organize and educate local work and youth groups to identify and eliminate nonnative and invasive species, assist the clean boats, clean waters volunteer program, and support purple loosestrife biological control 9) Encourage the development and adoption of aquatic plant management plans for all inland lakes 10) LWCD staff will provide educational information and encourage training opportunities that focus on Starry stonewort prevention and ways to stop the spread of this highly invasive species.	**Ongoing**	**LWCD UW-Ext SEWISC WDNR Lake Districts/Assos.**

NOTES: All goals are of equal priority. Workplan objectives for each goal are listed in priority order from highest to lowest. Planned Actions with measurable benchmarks are indicated in **bold**.

Agency acronyms used in this table are defined below:

DATCP = Wisconsin Department of Agriculture, Trade and Consumer Protection
WDNR = Wisconsin Department of Natural Resources
FSA = USDA Farm Services Agency
LWCD = Kenosha County Land & Water Conservation Division
NRCS = USDA Natural Resources Conservation Service
TSP = Technical Service Provider
SEWRPC = Southeastern Wisconsin Regional Planning Commission
USCOE = United States Army Corps of Engineers
USF&W = United States Department of Agriculture–Fish &Wildlife Services
UW-Ext = University of Wisconsin-Extension
SEWISC = Southeastern Wisconsin Invasive Species Consortium
Root/Pike WIN = Root-Pike Watershed Initiative Network
WIDOT = Wisconsin Department of Transportation
FEMA = Federal Emergency Management Administration
WI Land + Water = Wisconsin Land and Water Conservation Association

MONITORING AND EVALUATION

This section addresses the strategy and framework for both water quality monitoring and briefly summarizes the plan for progress and evaluating the effectiveness of the Land and Water Resource Management Plan. The Kenosha County LWRMP is intended to be a working document that will be reviewed annually by the LWCC and LWCD to track progress in accomplishing the goals and actions of the Work Plan. Monitoring and evaluation of specific resource issues can be accomplished in many different ways. Some of the methods to track the progress of the LWRMP are:

Performance Standards and Prohibitions Monitoring and Evaluation

GIS technology will continue to be used as a primary tool to track and monitor landowner compliance with the performance standards and prohibitions. In addition, all data regarding landowner compliance with the performance standards and prohibitions will be kept in hard copy format in the landowner file. The County has also adopted a parcel-based land management software package called Trakit. Trakit streamlines and automates permitting, managing inspections, regulating land use, and tracking projects and compliance. Trakit integrates GIS and a variety of datasets for managing, analyzing, and displaying all forms of geographically referenced information providing a graphical view of land use through the power of spatial analysis, overlay data maps and aerial photos.

Water Quality Monitoring

In accordance with Chapters NR 115 (shoreland regulations) and NR 116 (floodplain regulations) of the *Wisconsin Administrative Code*, Kenosha County LWCD administers the shoreland and floodplain zoning ordinance which restricts uses in wetlands and limits the uses allowed in the 100-year floodplain to protect wetland function, prevent damage to structures and property and to preserve floodwater conveyance areas and the storage capacity of floodplains. The ordinance also limits the removal of vegetation and other activities in shoreland areas and requires structures to be set back a minimum of 75 feet from navigable waters.

Citizen volunteers are monitoring lakes through the Citizen Lake Monitoring program. There are 10 lakes monitored routinely for clarity and for water chemistry (phosphorus and chlorophyll). Kenosha County has seven active lake associations, nine active lake districts and assorted lake beach, clubs and friends groups that manage and monitor lake use and water quality. Lake management activities may include: grant writing, monitoring - aquatic plants, water chemistry, water clarity, aquatic invasive species control, aquatic plant management - chemical control, aquatic plant management – harvesting, boat patrols, fish stocking, newsletters, boating, pier, and septic ordinances, shoreland restoration/protection. Kenosha County LWCD supports these monitoring and management programs and will continue to encourage lake associations and lake property owners to voluntarily participate in these programs. Kenosha County LWCD with the help of SEWRPC is nearing completion of a Lake Classification Plan. The plan will update the County lake shoreline planimetric data of buildings and other structures, hydrology, walkways, and any other features and calculate setback distances, shoreline length, and impervious surfaces. Information will also be gathered on the distribution and extent of shoreline protection and the potential for shoreland mitigation projects. Such information will provide a baseline snapshot and the opportunity to include innovative or expanded mitigation concepts beyond the minimal buffer restoration.

Pollutant Loading

Nutrient loading can adversely affect water quality by promoting excessive plant growth. In order to quantify nutrient loading Kenosha County LWCD utilized the modeling tool STEPL to estimate pollutant loads and measure applied BMP efficiencies. Future use of new GIS modeling tools like EVAAL and the AgBufferBuilder will identify vulnerable erosion sites and guide the design of more effective buffer strips.

Nutrient Management

In cooperation with DATCP, Kenosha County will monitor and measure nutrient management progress by tracking nutrient management plan (NMP) checklists. NMP checklists will be annually returned to DATCP for all cost-shared plans. Periodic, random, plan reviews will help insure planner competencies and compliant implementation.

Annual Reporting/Spot-Checks

As required, Kenosha County will report to DATCP and WDNR on progress towards implementation of the performance standards and prohibitions as well as other soil and water resource activities. In addition, DATCP and NRCS conduct annual engineering and conservation planning spot-checks to ensure compliance with all applicable technical standards.

The Kenosha County Land and Water Resource Management Plan provides a framework for local/state/federal conservation program implementation efforts. It is a working document that will utilize existing partnerships to achieve the goals and objectives identified within this plan. The availability of funding for staff and cost sharing will determine the progress in achieving the goals and objectives of this plan. Ultimately, implementation of this plan will protect and improve the valuable natural resources of Kenosha County as well as maintain the vision of preserving Kenosha County's dwindling rural landscape.

ESTIMATED COSTS OF PLAN IMPLEMENTATION

Since this plan does not have the authority to establish county budget items, the estimated costs provided below are solely intended to satisfy state LWRM planning requirements and do not in any way represent anticipated Kenosha County LWCD budgets. It is also assumed that no additional staff resources will be made available to implement this plan beyond what is currently allocated to land conservation programs in the County (approximately 1.66 full time employees). The cost estimates contained in Table 15 are based on average annual costs to maintain existing program efforts and staffing levels.

The cost-sharing estimates in Table 15 are based on a statutory requirement of 70 percent cost-sharing and are dependent on the need for landowners to comply with the state performance standards described earlier in this chapter. Crop erosion control has greatly improved in Kenosha County owing to the widespread practice of conservation tillage and sowing of herbicide resistant field crops. Also Kenosha County has only a few livestock operations remaining. Therefore, compared to other Wisconsin counties, the costs to meet these requirements should be nominal. Kenosha County has, however, been under intensive agriculture for over a hundred years and many of its streams have accumulated sediment throughout that period. Average salary increases and inflationary costs are included in the increases shown each year. Currently all cost-share funding is acquired from Federal,
State, and additional grant sources. Kenosha County LWCD will continue to apply for grants to supplement those funds. The table assumes that Kenosha County's current budgeted staffing level of 1.66 full-time employees is maintained, and it assumes stable segregated and bonding cost-share funds by the State. Conservation practices, such as diversions, riparian buffers, filter strips and building projects such as manure storage facilities, concrete barnyards and roofed feedlots are considered "hard practices". Cropping practices, such as nutrient management and conservation tillage, are known as "soft practices." The projected cost-share needs for installing hard and soft best management practices over the next ten years is only an approximate estimate due to uncertain funding levels, changing land use and farm economy, and increasing practice installation costs.

Table 15

SUMMARY OF PLAN OF WORK COSTS FOR KENOSHA COUNTY

LAND AND WATER RESOURCES MANAGEMENT PLAN 2017-2026

Program Element	PLAN IMPLEMENTATION YEAR					Total
	2017	2018	2019	2020	2021	
Salary and Benefits[a]	$169,000	$170,690	$172,397	$174,121	$175,862	$862,070
Operating Expenses[a]	$15,000	$15,150	$15,302	$15,455	$15,610	$76,517
Landowner Cost-Share Hard Practices[b]	$75,000	$75,000	$75,000	$75,000	$75,000	$375,000
Landowner Cost-Share Soft Practices[b]	$15,000	$15,000	$15,000	$15,000	$15,000	$75,000
Total Program	$274,000[a]	$275,840[b]	$277,699[b]	$279,576[b]	$281,472[b]	$1,388,587

Program Element	PLAN IMPLEMENTATION YEAR					Total	Ten-Year Total Costs
	2022	2023	2024	2025	2026		
Salary and Benefits[a]	$177,621	$179,397	$181,191	$183,003	$184,833	$906,045	$1,768,115
Operating Expenses[a]	$15,766	$15,924	$16,083	$16,244	$16,406	$80,423	$156,940
Landowner Cost-Share Hard Practices[b]	$75,000	$75,000	$75,000	$75,000	$75,000	$375,000	$750,000
Landowner Cost-Share Soft Practices[b]	$15,000	$15,000	$15,000	$15,000	$15,000	$75,000	$150,000
Total Program	$283,387[a]	$285,321[b]	$287,274[b]	$289,247[b]	$291,239[b]	$1,436,468	$2,825,055

[a]*Anticipate 1 percent annual increases for salaries, benefits, and operating expenses.*

[b]*The costs provided by landowners and other grant recipients would be approximately $270,000*

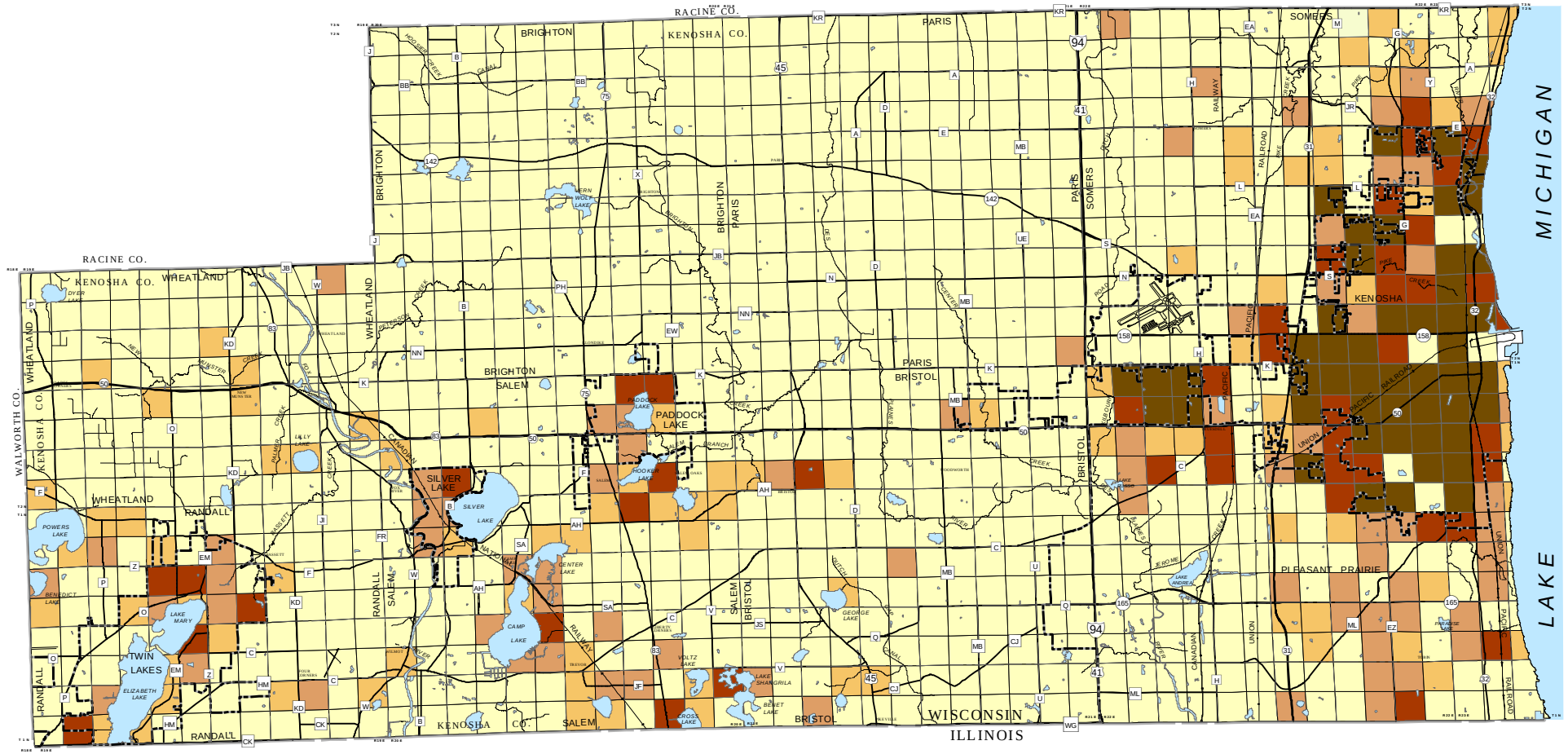
The procedures and cost estimates outlined in this chapter represent the best estimates of the LWCD at the time of plan preparation and are all subject to change. No attempt is made to identify the source of funding beyond the assumptions noted above. All of the estimated costs are subject to the annual budget processes at the county, state and federal levels. The LWCD will make every attempt to take advantage of the wide array of grants and partnerships that may be available through public or private sources to implement this plan.

* * * * *

LIST OF MAPS

Map 1

POPULATION DISTRIBUTION IN KENOSHA COUNTY: 2010



PERSONS PER U.S. PUBLIC LAND SURVEY ONE-QUARTER SECTION

- LESS THAN 100
- 100 - 249
- 250 - 499
- 500 - 999
- 1,000 OR GREATER

N

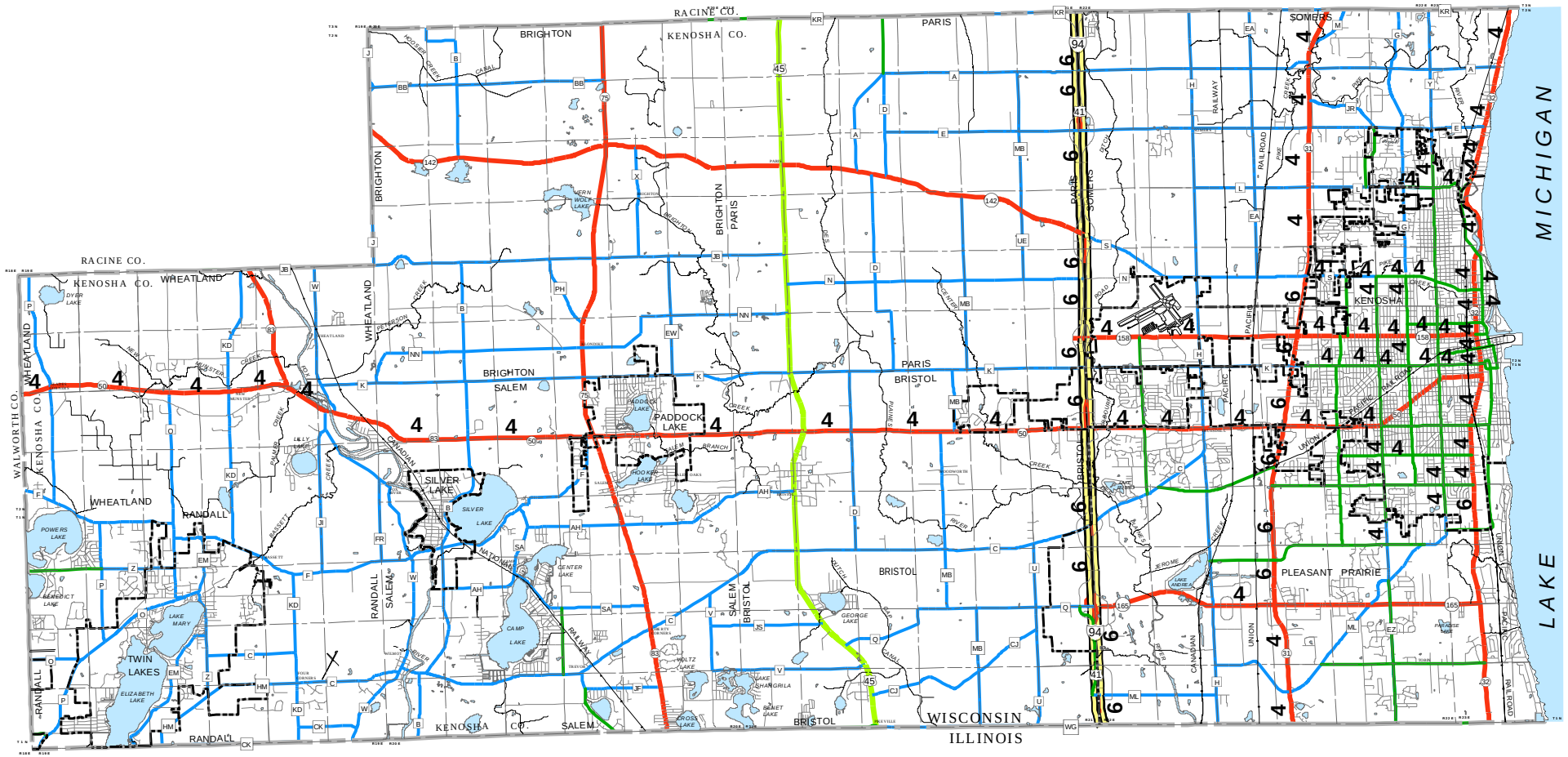
0 2.5 5 Miles

Source: U.S. Bureau of the Census, Kenosha County Planning & Development, and SEWRPC.

Map 1

Map 2

ARTERIAL STREETS AND HIGHWAYS IN KENOSHA COUNTY: 2014



- INTERSTATE HIGHWAY
- US HIGHWAY
- STATE TRUNK HIGHWAY
- COUNTY TRUNK HIGHWAY
- LOCAL ARTERIAL
- LOCAL STREETS AND ROADS
- 4 — NUMBER OF LANES (TWO WHERE UNNUMBERED)

N

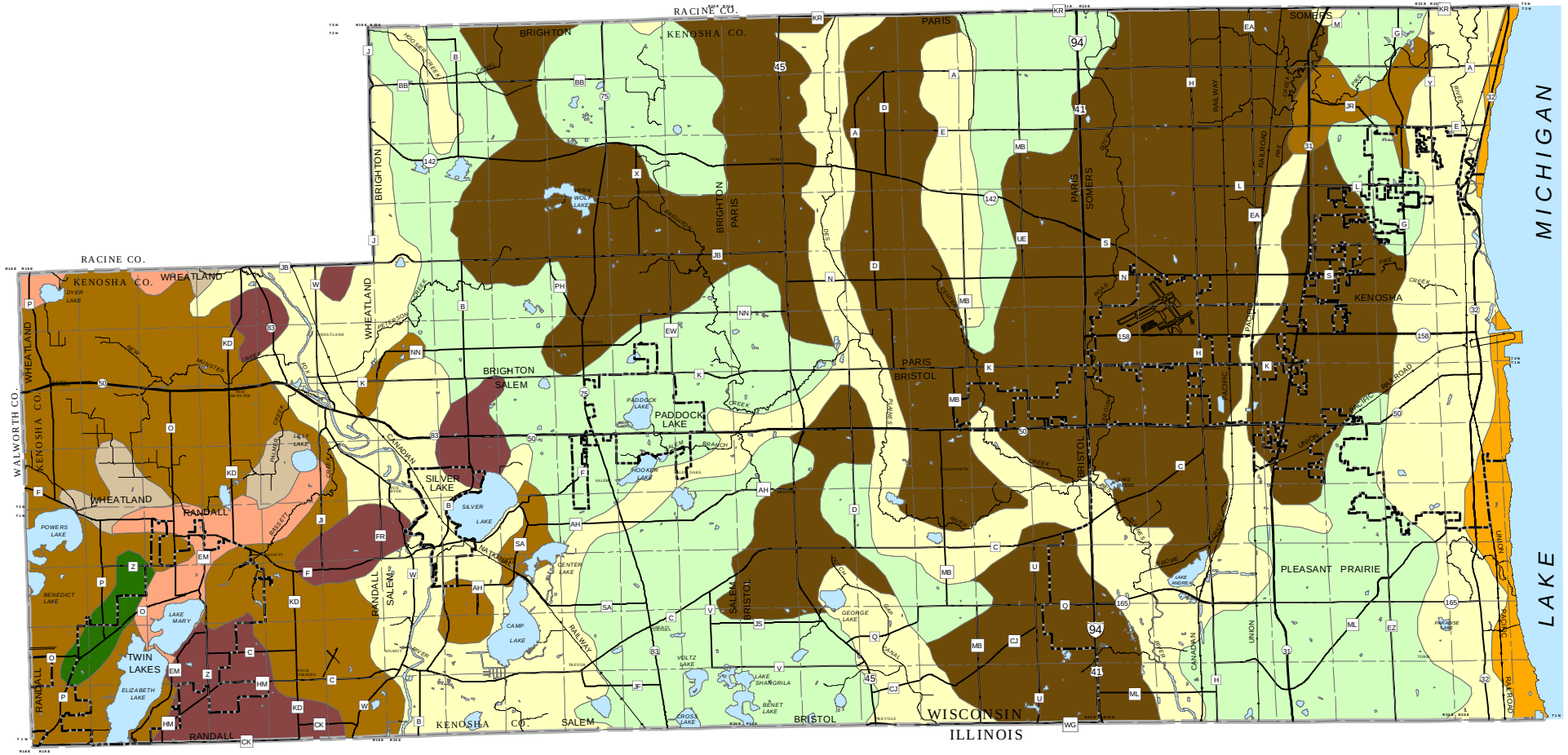
0 2.5 5 Miles

Source: Kenosha County Planning & Development.

Map 2

Map 3

GENERAL SOIL ASSOCIATIONS IN KENOSHA COUNTY



Map 3

- BOYER - GRANBY ASSOCIATION
- CASCO - RODMAN ASSOCIATION
- FOX - CASCO ASSOCIATION
- HEBRON - MONTGOMERY - AZTALAN ASSOCIATION
- HOUGHTON - PALMS ASSOCIATION
- MIAMI ASSOCIATION
- MORLEY - BEECHER - ASHKUM ASSOCIATION
- VARNA - ELLIOTT - ASHKUM ASSOCIATION
- WARSAW - PLANO ASSOCIATION

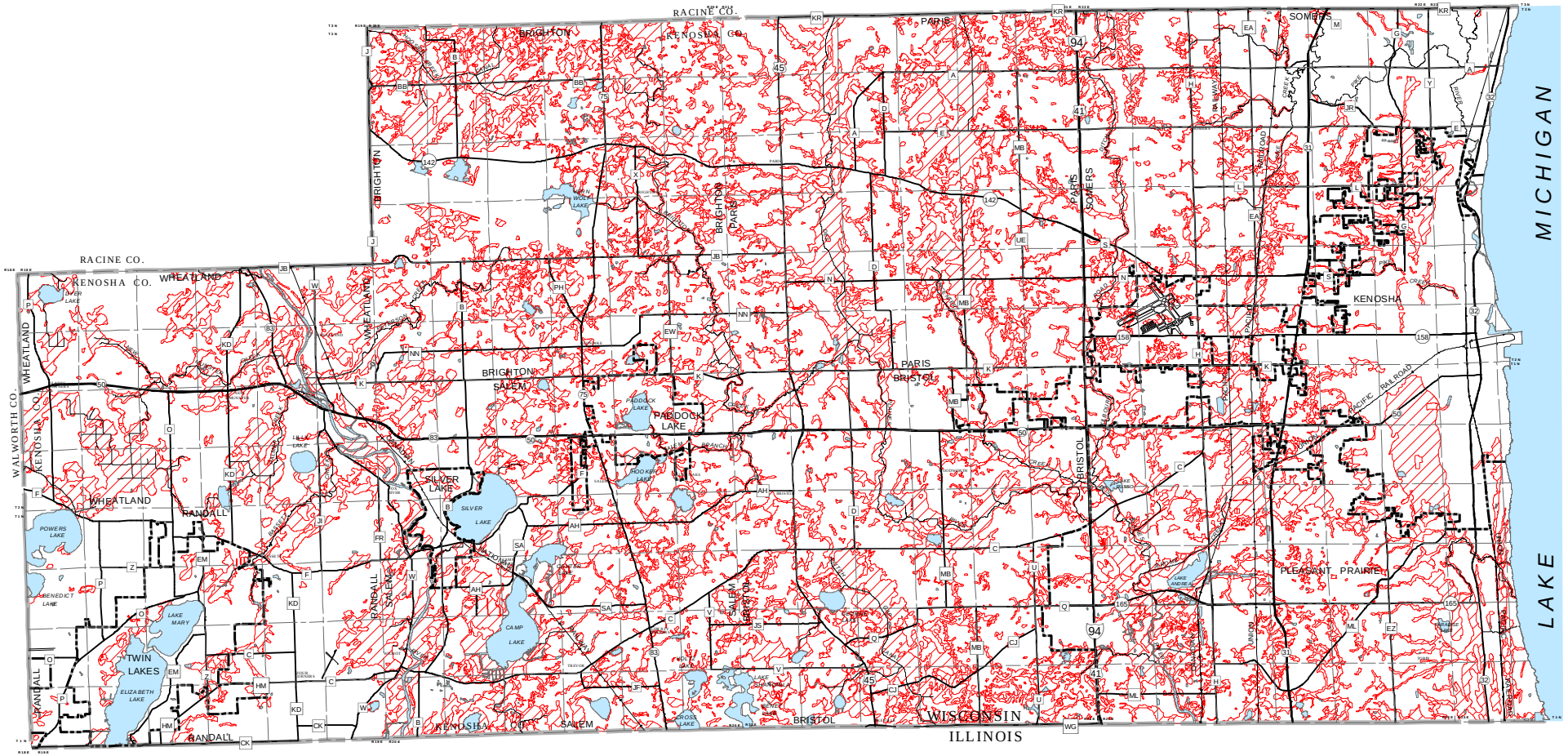
N

0 2.5 5 Miles

Source: Kenosha County Planning & Development & USDA NRCS.

Map 4

HYDRIC SOILS IN KENOSHA COUNTY



HYDRIC SOIL

N

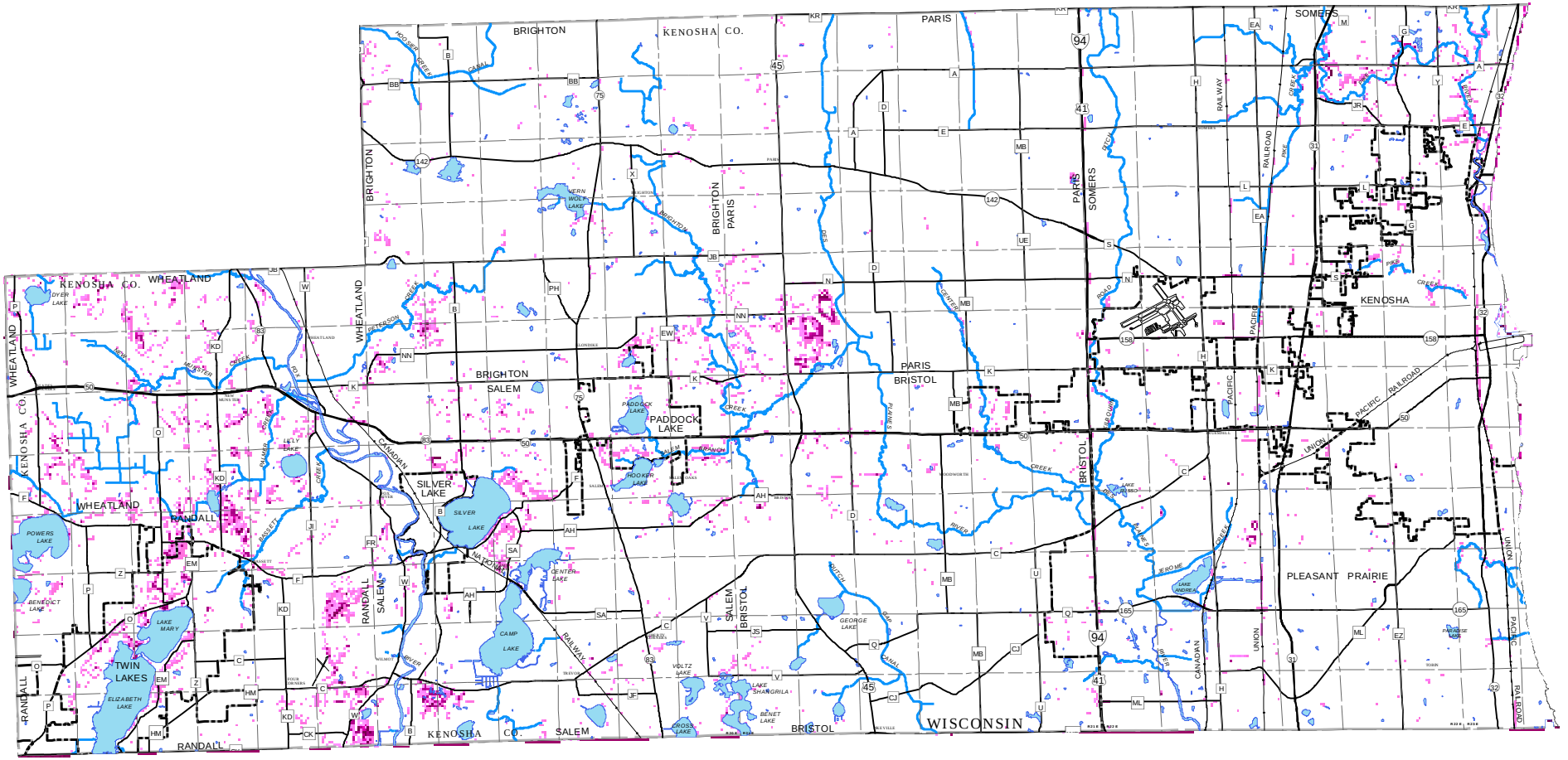
0 2.5 5 Miles

Source: Kenosha County Planning & Development and USDA NRCS.

Map 4

Map 5

SLOPE ANALYSIS FOR KENOSHA COUNTY



Map 5

- SLOPE RANGING FROM 0 TO 6 PERCENT
- SLOPE RANGING FROM 6 TO 12 PERCENT
- SLOPE RANGING FROM 12 TO 18 PERCENT
- SLOPE OF 18 PERCENT OR GREATER

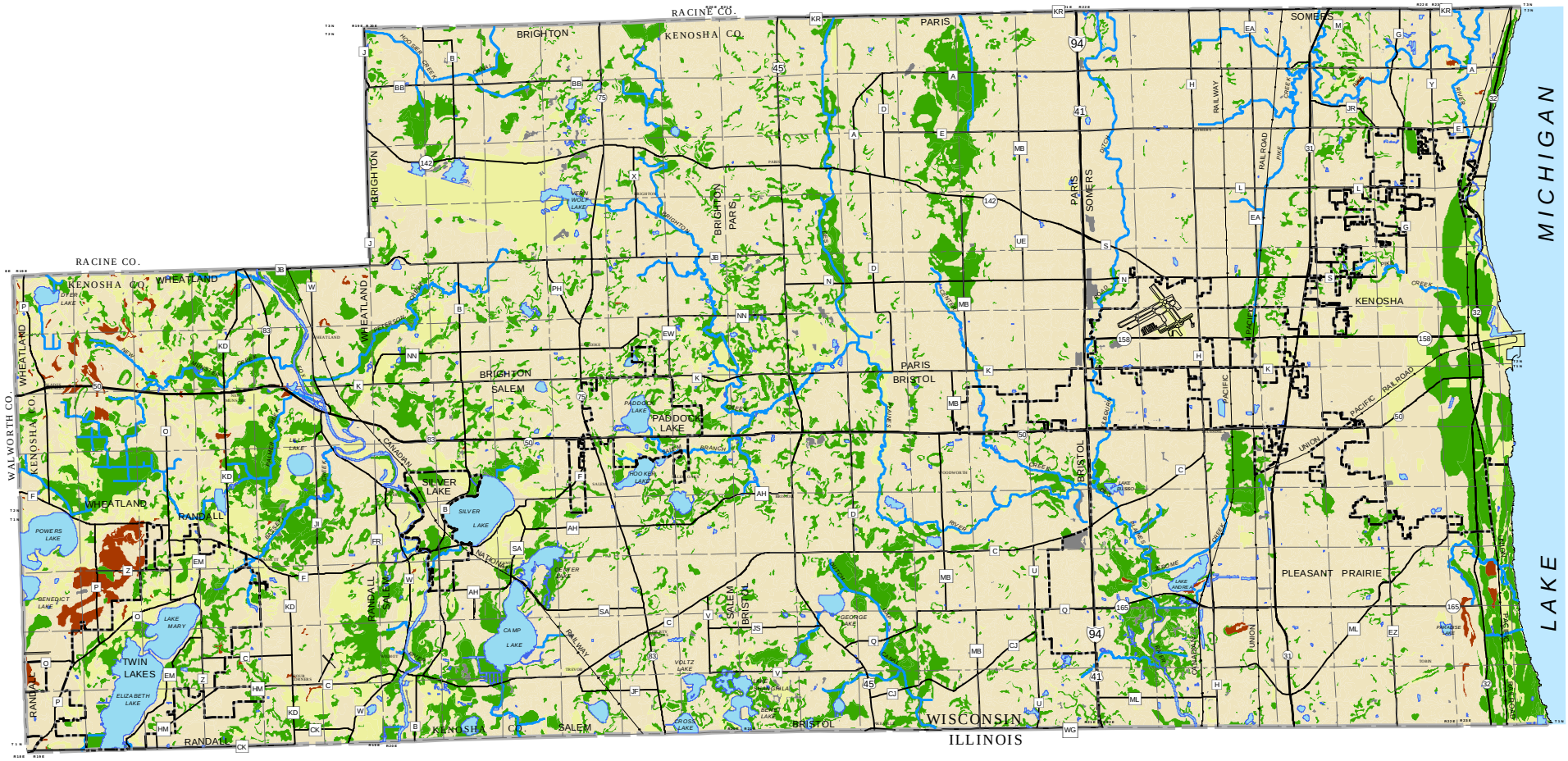
N

0 2.5 5 Miles

Source: Kenosha County Planning & Development based on 2010 LiDAR Data

Map 6

AGRICULTURAL SOIL CAPABILITY CLASSES IN KENOSHA COUNTY



Map 6

CLASS I

CLASS II

CLASS III

CLASS IV, V, VI, VII, AND VIII

AREAS FOR WHICH DATA IS NOT AVAILABLE FROM THE SOIL SURVEY

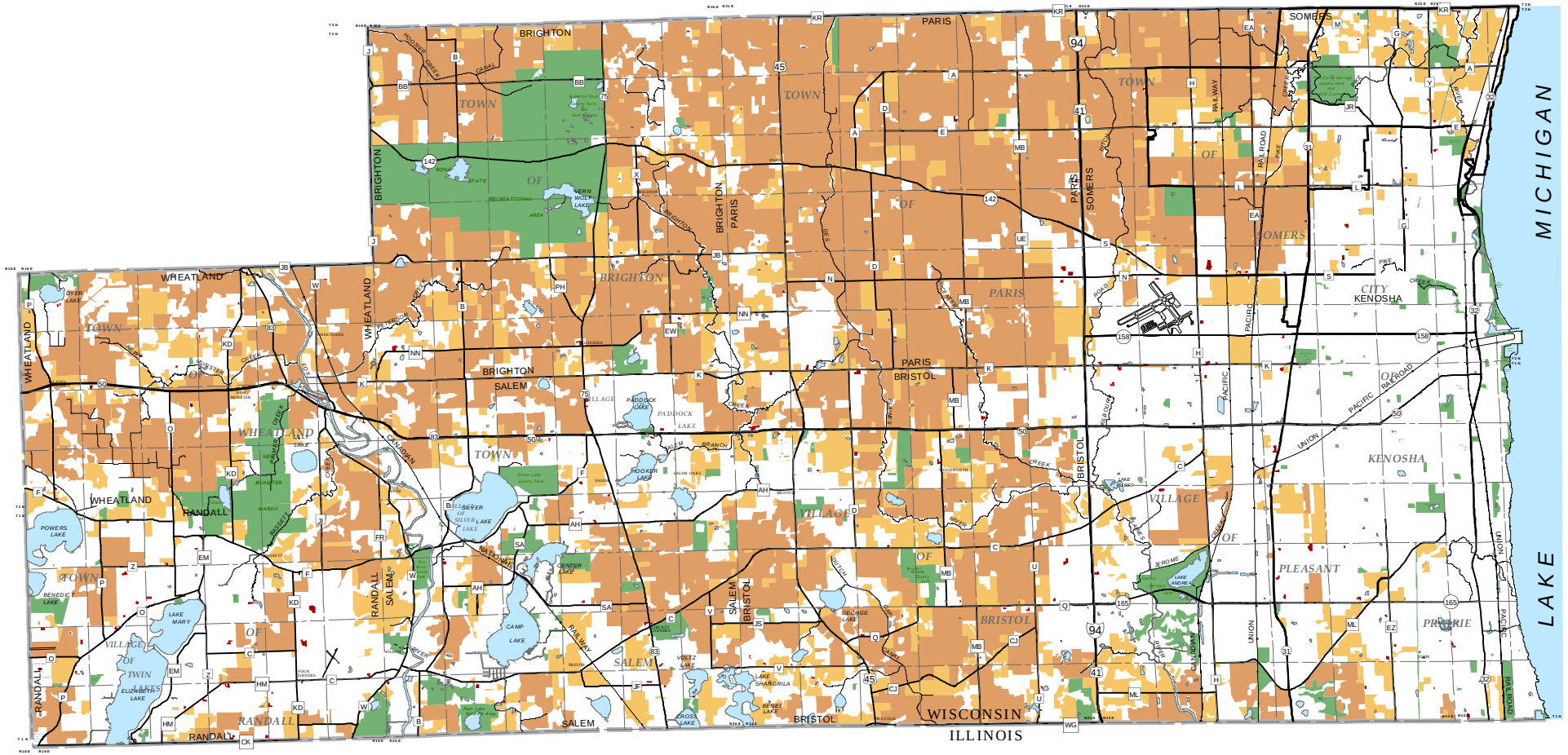
N

0 2.5 5 Miles

Source: Kenosha County Planning & Development, USDA NRCS, and SEWRPC.

Map 7

EXISTING AGRICULTURAL LANDS IN KENOSHA COUNTY: 2015



- AGRICULTURAL PRESERVATION ZONING DISTRICT
- GENERAL AGRICULTURAL ZONING DISTRICT
- PARK AND RECREATIONAL LAND
- FARM BUILDINGS

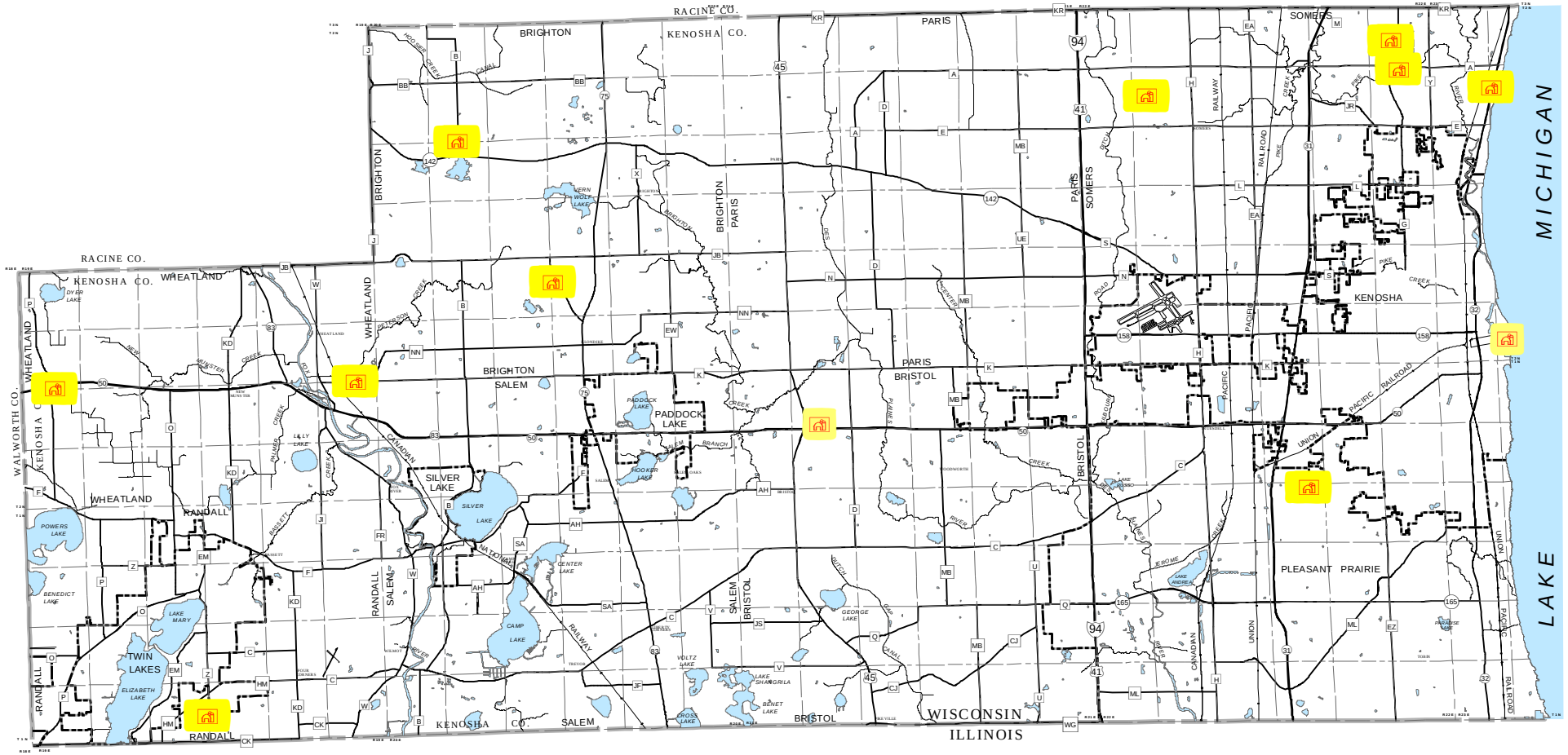
0 2.5 5 Miles

Source: Kenosha County Planning & Development

Map 7

Map 8

COMMUNITY SUPPORTED AGRICULTURE IN KENOSHA COUNTY: 2015a



Map 8

COMMUNITY SUPPORTED AGRICULTURE

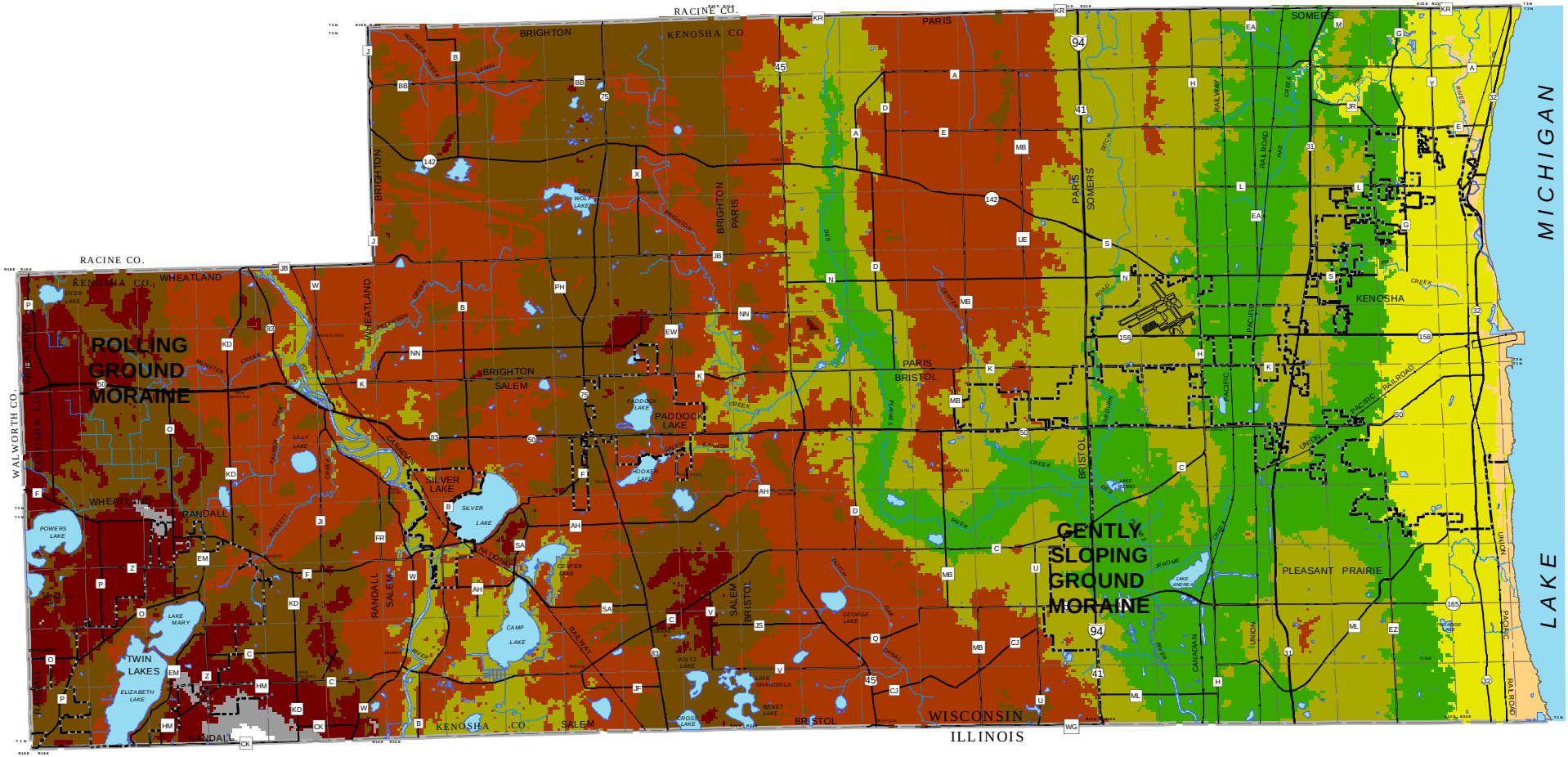
a THIS MAP PROVIDES A GENERAL REFERENCE AND IS NOT INTENDED FOR NAVIGATION. PLEASE CONSULT THE 2011 FARM FRESH ATLAS FOR CONTACT INFORMATION OR DIRECTIONS VISIT www.farmfreshatlas.org/southeast

Source: Kenosha County Planning & Development and 2015 Farm Fresh Atlas

0 2.5 5 Miles

Map 9

GENERALIZED TOPOGRAPHIC CHARACTERISTICS IN KENOSHA COUNTY



Map 9

ELEVATION IN FEET ABOVE NATIONAL GEODETIC VERTICAL DATUM

580 - 600	700 - 750	850 - 900
600 - 650	750 - 800	900 - 950
650 - 700	800 - 850	950 - 990

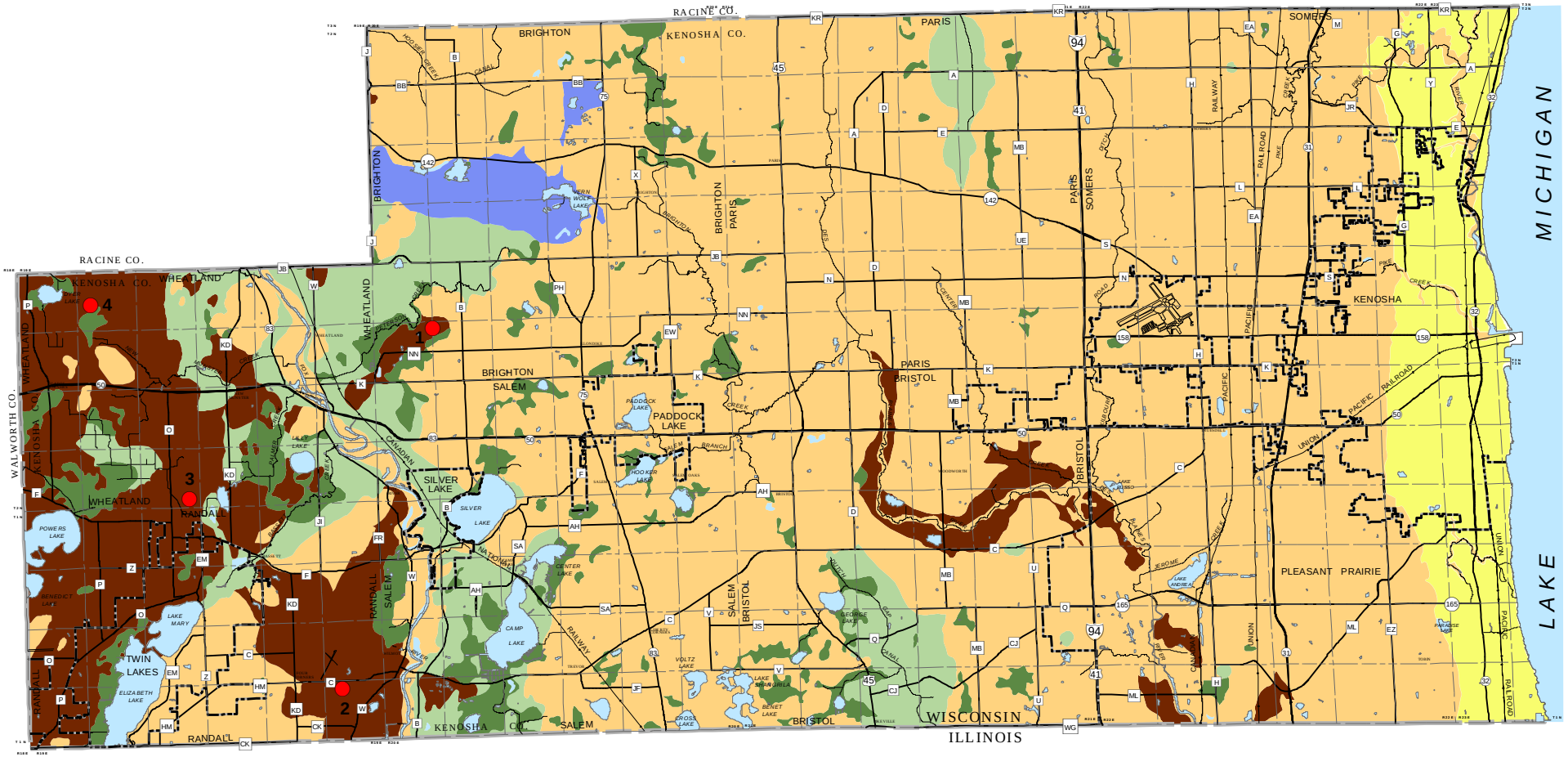
N

0 2.5 5 Miles

Source: Kenosha County Planning & Development based on 2010 LiDAR Data

Map 10

POTENTIAL SOURCES OF SAND, GRAVEL, CLAY, AND PEAT AND NONMETALLIC MINING SITES IN KENOSHA COUNTY



Map 10

OUTWASH DEPOSITS
Highest potential for significant deposits of gravel and coarse to medium sand

GLACIAL TILL
May contain locally economic deposits of sand and gravel, but generally consists of poorly sorted clayey, silty to sandy material with boulders and cobbles. Resource potential medium to low

GLACIAL LAKE DEPOSITS
Predominantly clay and silt. Not a potential source for sand and gravel, but may contain clay deposits useful for constuction

PEAT AND ORGANIC SEDIMENT
Not a potential source for sand and gravel, but may contain economic deposits of peat

MODERN STREAM SEDIMENT
May contain local concentrations of sand and gravel, but environmental issues make development impractical. Not considered a significant future resource

LAKE MICHIGAN BEACH SEDIMENT
Generally thin sand and some gravel overlying till. Not considered a significant resource

SURFACE WATER

NONMETALLIC MINING SITE

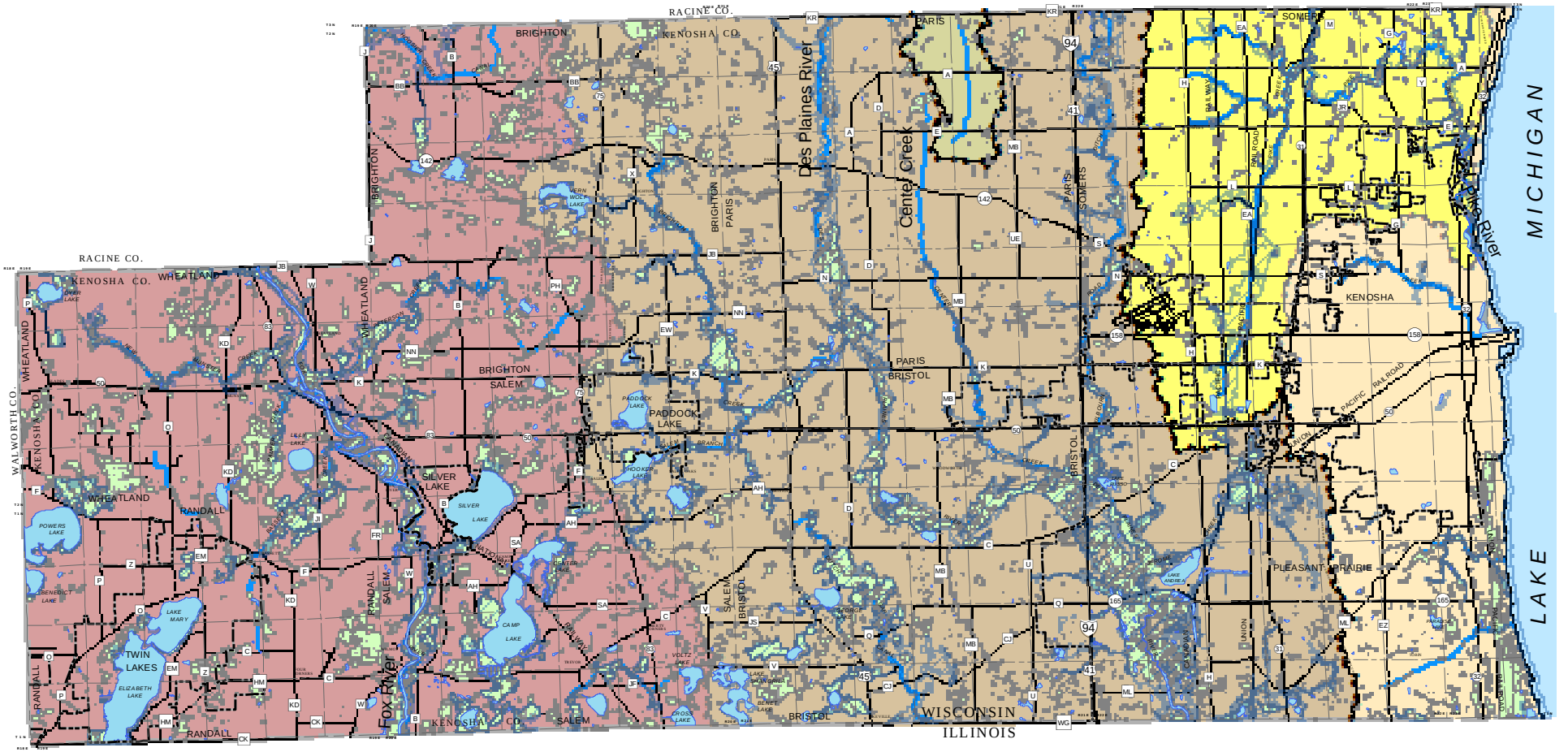
7 REFERENCE NUMBER (SEE TABLE 8)

0 2.5 5 Miles

Source: Wisconsin Geological and Natural History Survey, Kenosha County Planning & Development, and SEWRPC.
Interpretation by Bruce A. Brown, P.G. Data compilation by Michael L. Czechanski, 2006

Map 11

SURFACE WATERS, WETLANDS, FLOODPLAINS, AND MAJOR WATERSHEDS IN KENOSHA COUNTY



MAJOR WATERSHEDS

- DESPLAINES RIVER
- FOX RIVER
- PIKE RIVER
- ROOT RIVER
- DIRECT DRAINAGE TRIBUTARY TO LAKE MICHIGAN

- SPECIAL FLOOD HAZARD AREA
- WETLANDS (WDNR 2010 INVENTORY)
- SURFACE WATER
- MAJOR WATERSHED
- SUBCONTINENTAL DIVIDE

N

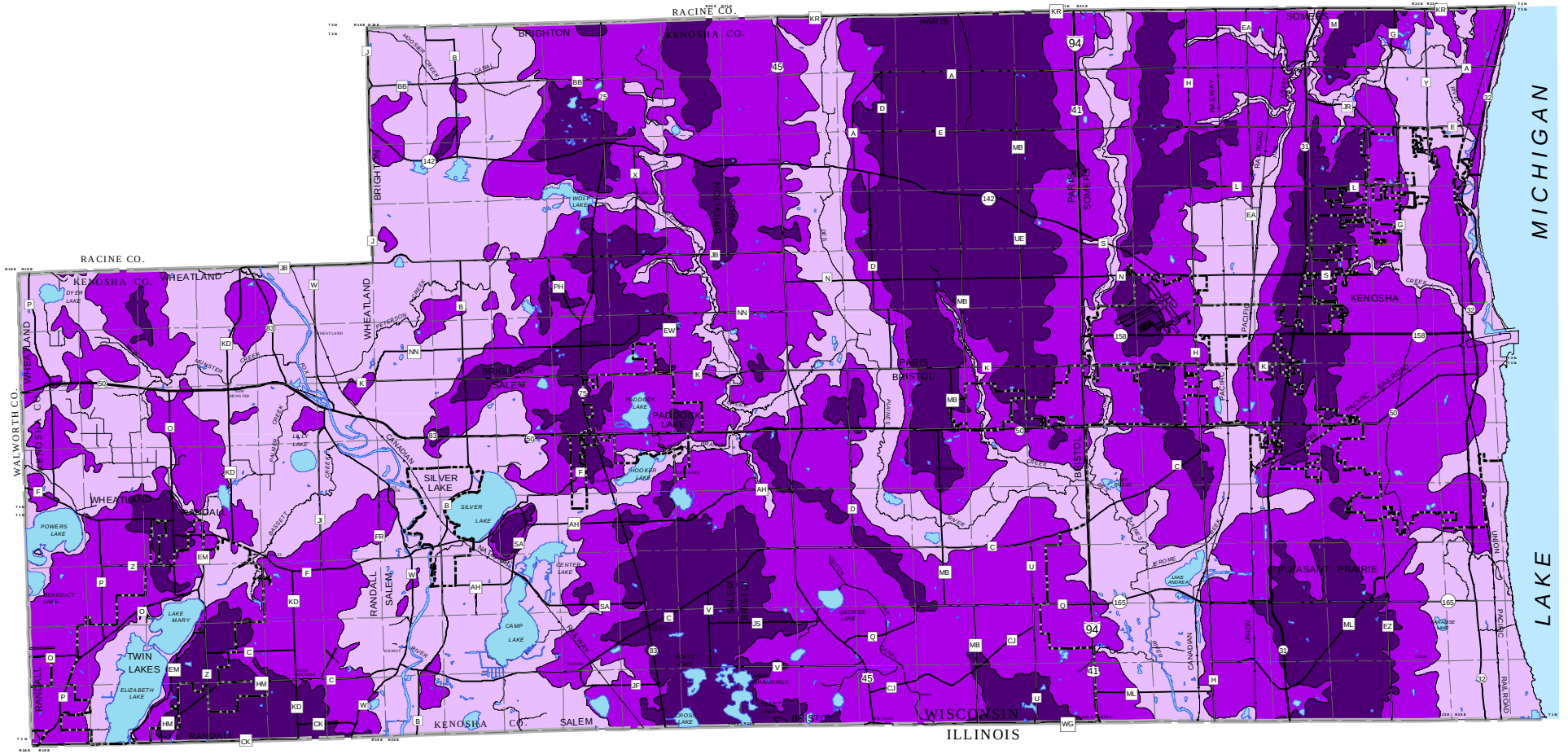
0 2.5 5 Miles

Source: FEMA, WDNR, Kenosha County Planning & Development, and SEWRPC

Map 11

Map 12

DEPTH TO SEASONAL HIGH GROUNDWATER TABLE IN KENOSHA COUNTY



Map 12

DEPTH IN FEET

- 0 - 25
- 25 - 50
- GREATER THAN 50
- SURFACE WATER

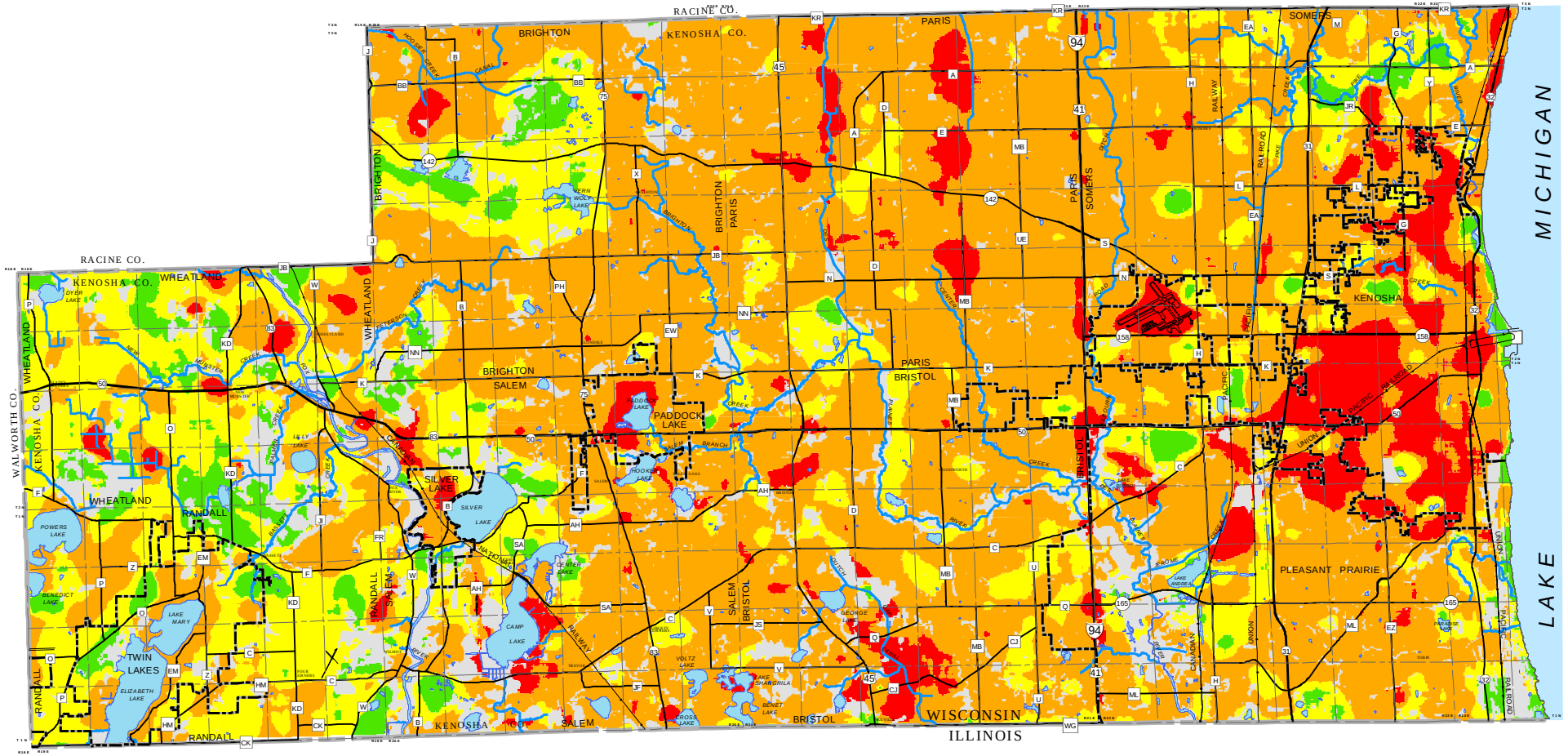
Source: University of Wisconsin - Extension, Wisconsin Geological and Natural History Survey, Kenosha County Planning & Development, and SEWRPC.

N

0 2.5 5 Miles

Map 13

GROUNDWATER RECHARGE POTENTIAL IN KENOSHA COUNTY



Map 13

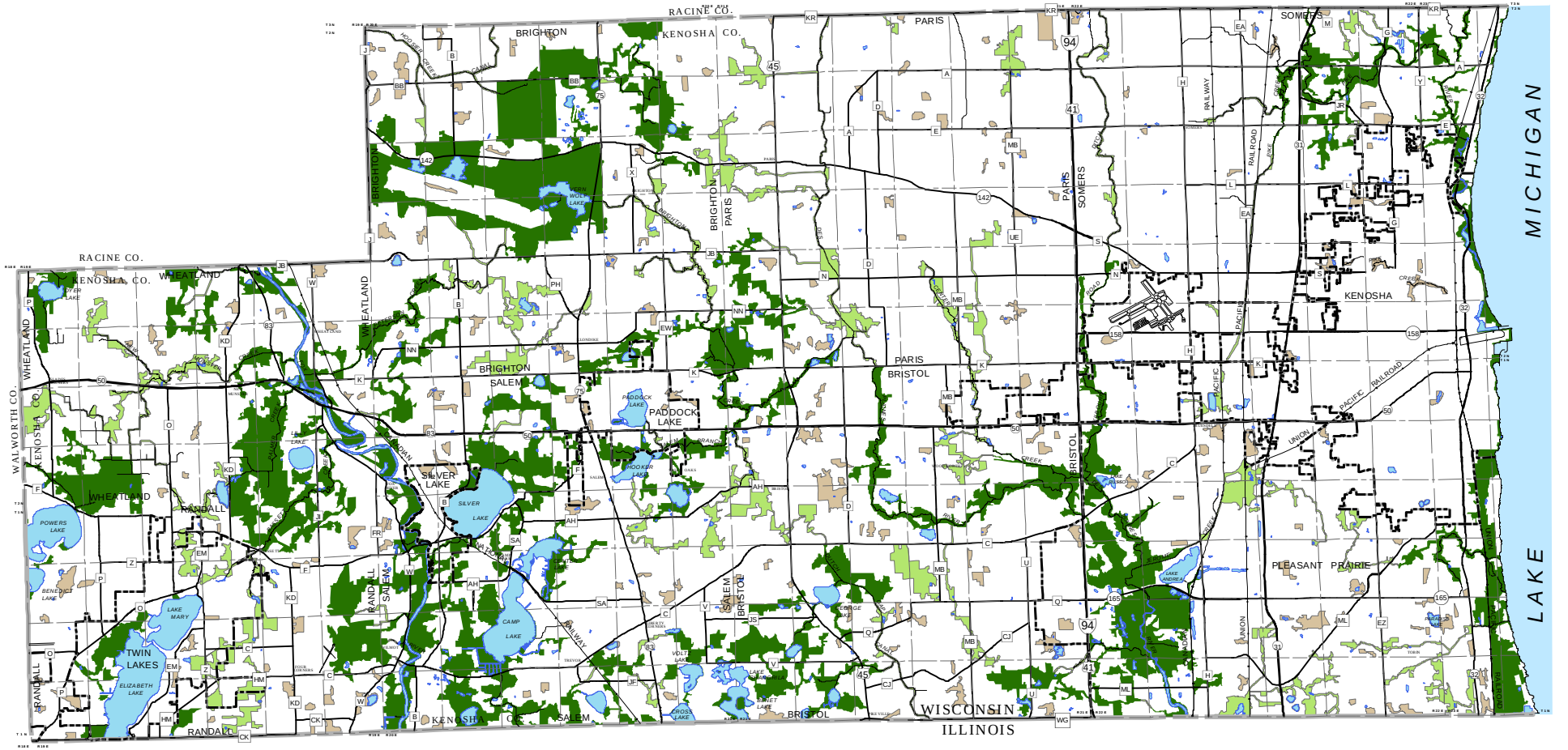
- VERY HIGH
- HIGH
- MODERATE
- LOW
- UNDETERMINED

Source: Wisconsin Geological and Natural History Survey, Kenosha County Planning & Development and SEWRPC.

0 2.5 5 Miles

Map 14

ENVIRONMENTAL CORRIDORS AND ISOLATED NATURAL RESOURCE AREAS IN KENOSHA COUNTY: 2010



Map 14

PRIMARY ENVIRONMENTAL CORRIDORS

SECONDARY ENVIRONMENTAL CORRIDORS

ISOLATED NATURAL RESOURCE AREA

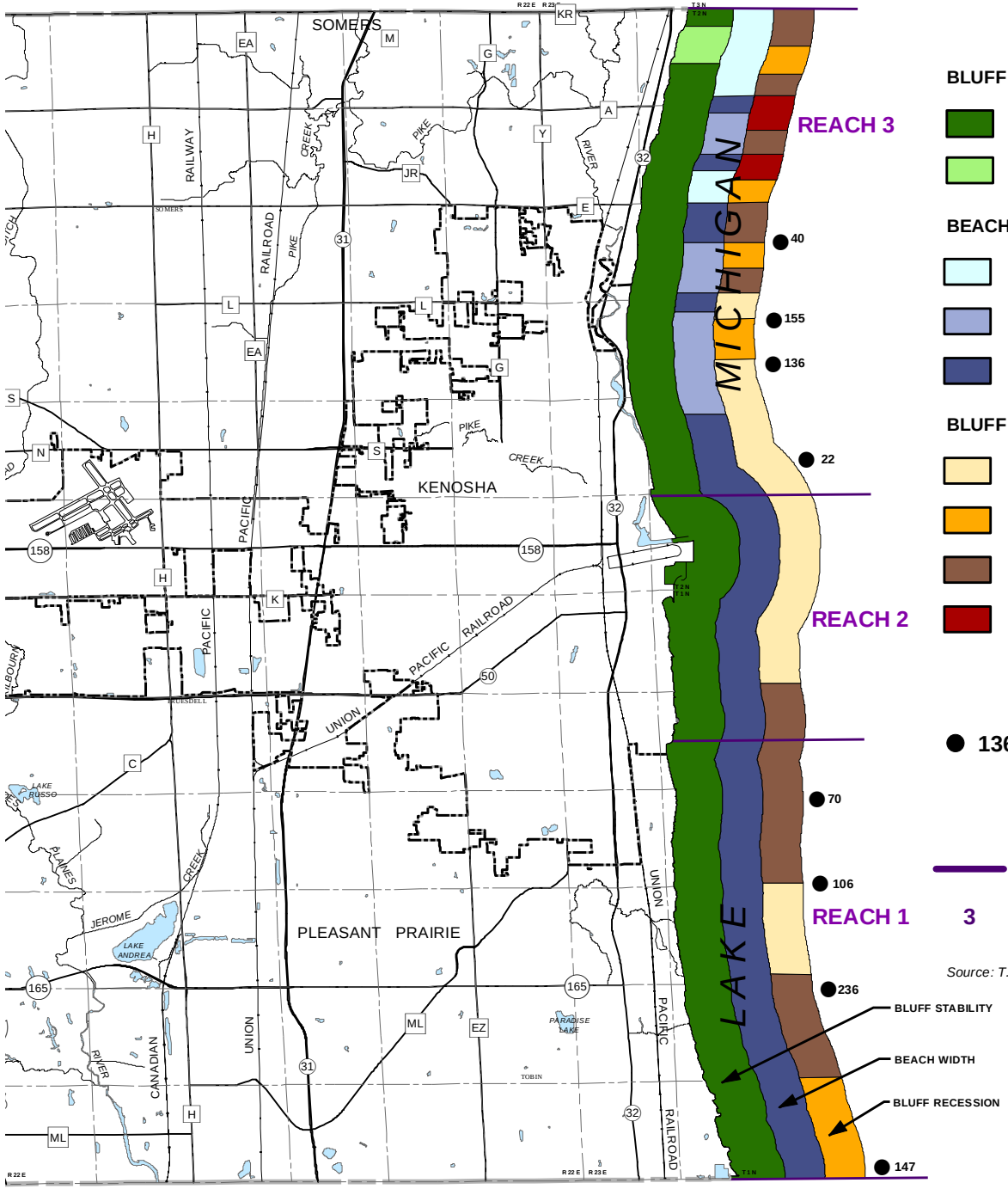
SURFACE WATER

Source: Kenosha County Planning & Development and SEWRPC.

N

0 2.5 5 Miles

Map 15
LAKE MICHIGAN SHORELINE EROSION AND BLUFF STABILTY ANALYSIS FOR KENOSHA COUNTY: 1995



BLUFF STABILITY

- STABLE
- UNSTABLE

BEACH WIDTH

- LESS THAN 20 FEET
- 20 - 50 FEET
- GREATER THAN 50 FEET

BLUFF RECESSION

- LESS THAN 0.5 FOOT PER YEAR
- 0.5 - 1 FOOT PER YEAR
- 1.1 - 2.0 FEET PER YEAR
- GREATER THAN 2 FEET PER YEAR

● **136** APPROXIMATE DISTANCE IN FEET FROM SHORELINE TO FIVE - FOOT BATHYMETRIC DEPTH AT INDICATED LOCATIONS

EROSION ANALYSIS REACH LIMITS

3 EROSION ANALYSIS REACH NUMBER

Source: T.B. Edil, D.M. Mickelson, J.A. Chapman, Kenosha County Planning & Development and SEWRPC.

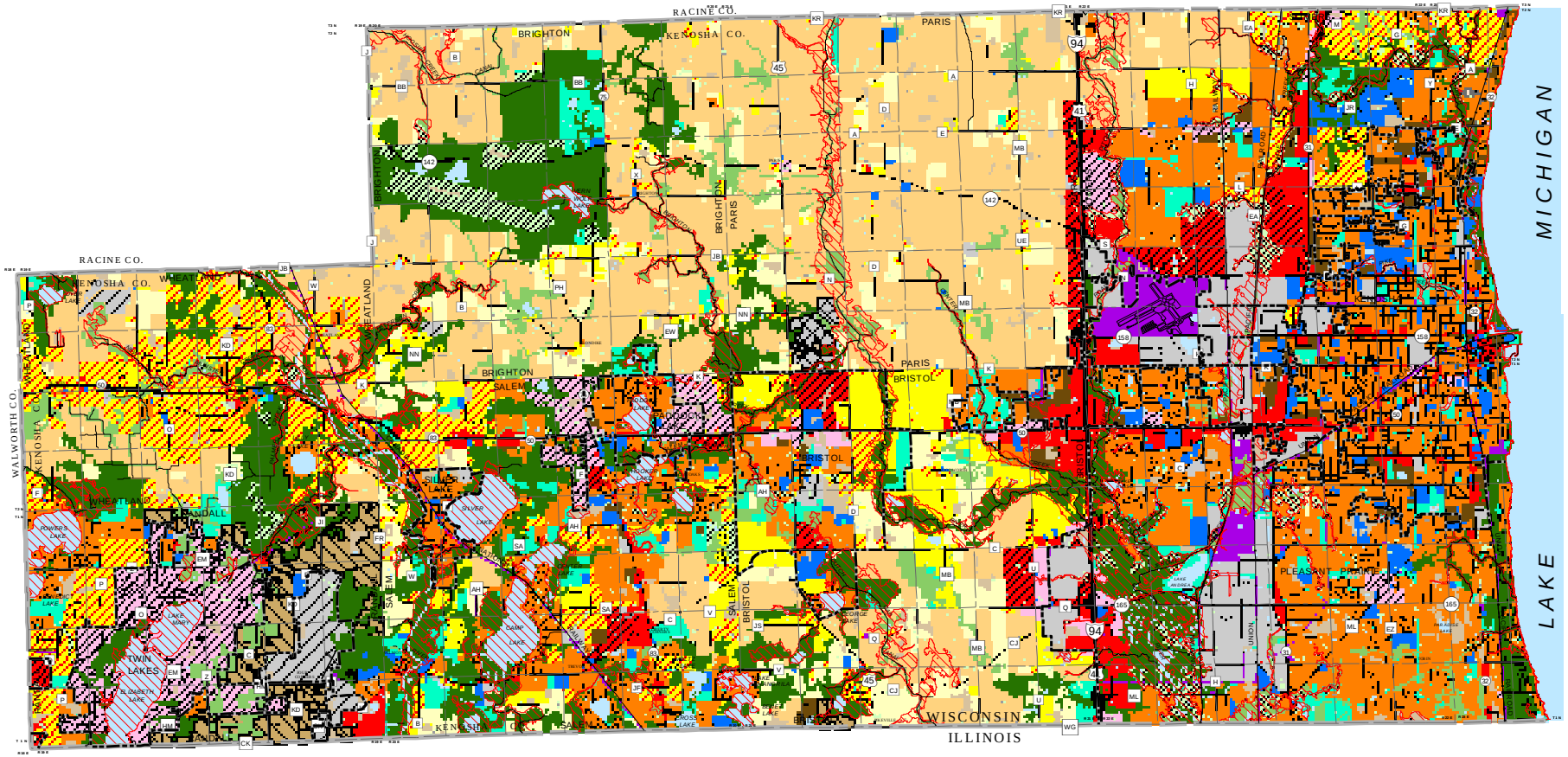
N

0 1 2 Miles

Map 15

Map 16

RECOMMENDED LAND USE PLAN MAP FOR KENOSHA COUNTY: 2035



Map 16

- FARMLAND PROTECTION
- GENERAL AGRICULTURAL AND OPEN LAND
- RURAL-DENSITY RESIDENTIAL
- AGRICULTURAL AND RURAL-DENSITY RESIDENTIAL
- SUBURBAN-DENSITY RESIDENTIAL
- MEDIUM-DENSITY RESIDENTIAL
- HIGH-DENSITY RESIDENTIAL
- MIXED USE
- COMMERCIAL
- OFFICE/PROFESSIONAL SERVICES
- INDUSTRIAL
- BUSINESS/INDUSTRIAL PARK
- GOVERNMENTAL AND INSTITUTIONAL
- PARK AND RECREATIONAL
- STREET AND HIGHWAY RIGHT-OF-WAY
- OTHER TRANSPORTATION, COMMUNICATION, AND UTILITY
- EXTRACTIVE
- LANDFILL
- PRIMARY ENVIRONMENTAL CORRIDOR
- SECONDARY ENVIRONMENTAL CORRIDOR
- ISOLATED NATURAL RESOURCE AREA
- OTHER CONSERVANCY LAND TO BE PRESERVED
- NONFARMED WETLAND OUTSIDE ENVIRONMENTAL CORRIDOR, ISOLATED NATURAL RESOURCE AREA, AND OTHER CONSERVANCY LAND TO BE PRESERVED
- SURFACE WATER
- FARMED WETLAND (OVERLAY)
- 100-YEAR FLOODPLAIN (OVERLAY)

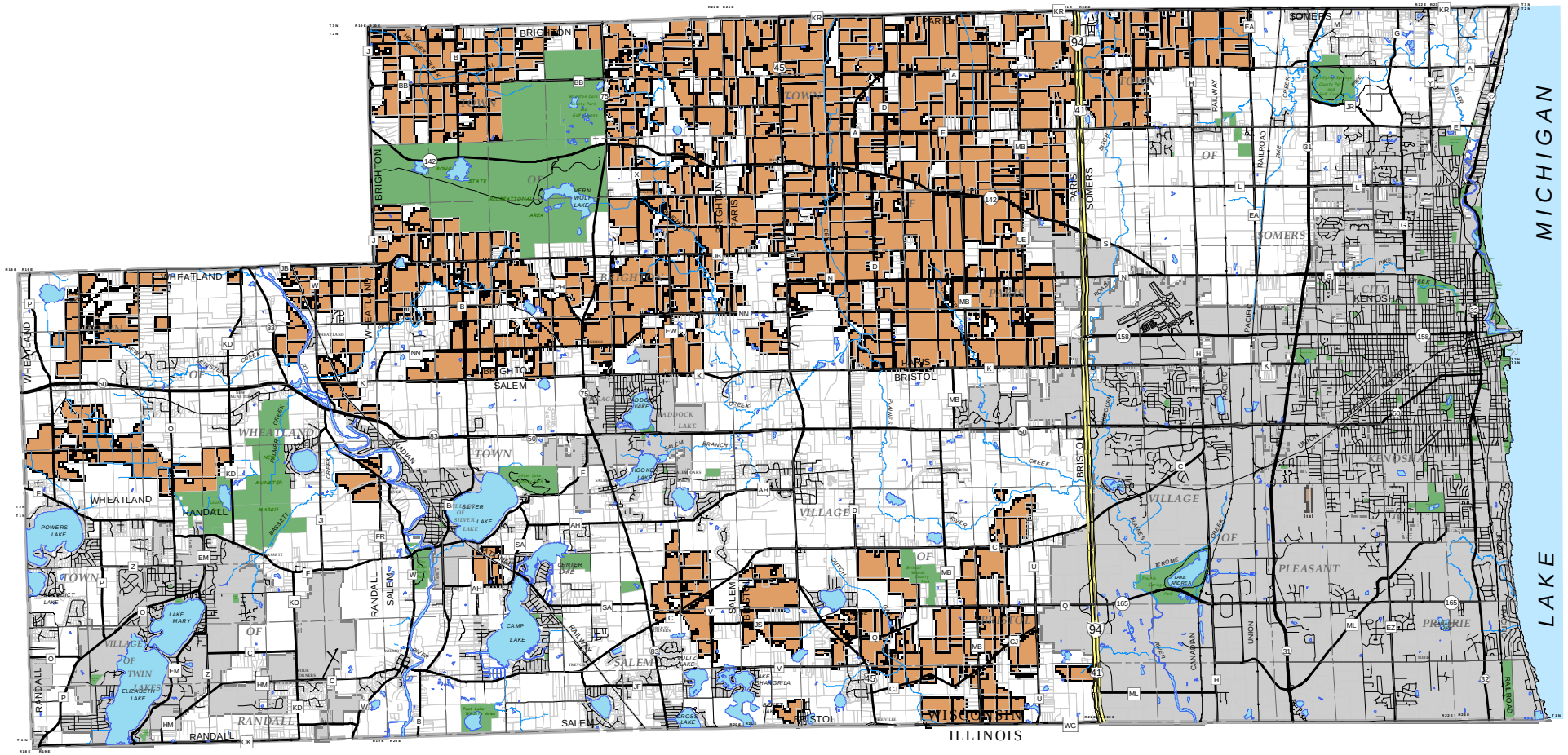
N

0 2.5 5 Miles

Source: WDNR, FEMA, Local Governments, Kenosha County Planning & Development, and SEWRPC.

Map 17

FARMLAND PRESERVATION PLAN MAP FOR KENOSHA COUNTY



Map 17

FARMLAND PRESERVATION AREAS

EXCLUDED INCORPORATED AREAS (without farmland preservation zoning)

PARK AND RECREATIONAL LAND

SURFACE WATER

AREA EXCLUDED FROM FARMLAND PRESERVATION

PARCEL LINES

INTERSTATE HIGHWAY

U.S., STATE AND COUNTY HIGHWAY

LOCAL STREETS AND ROADS

RAILWAY

CIVIL DIVSION BOUNDARY

SECTION LINES

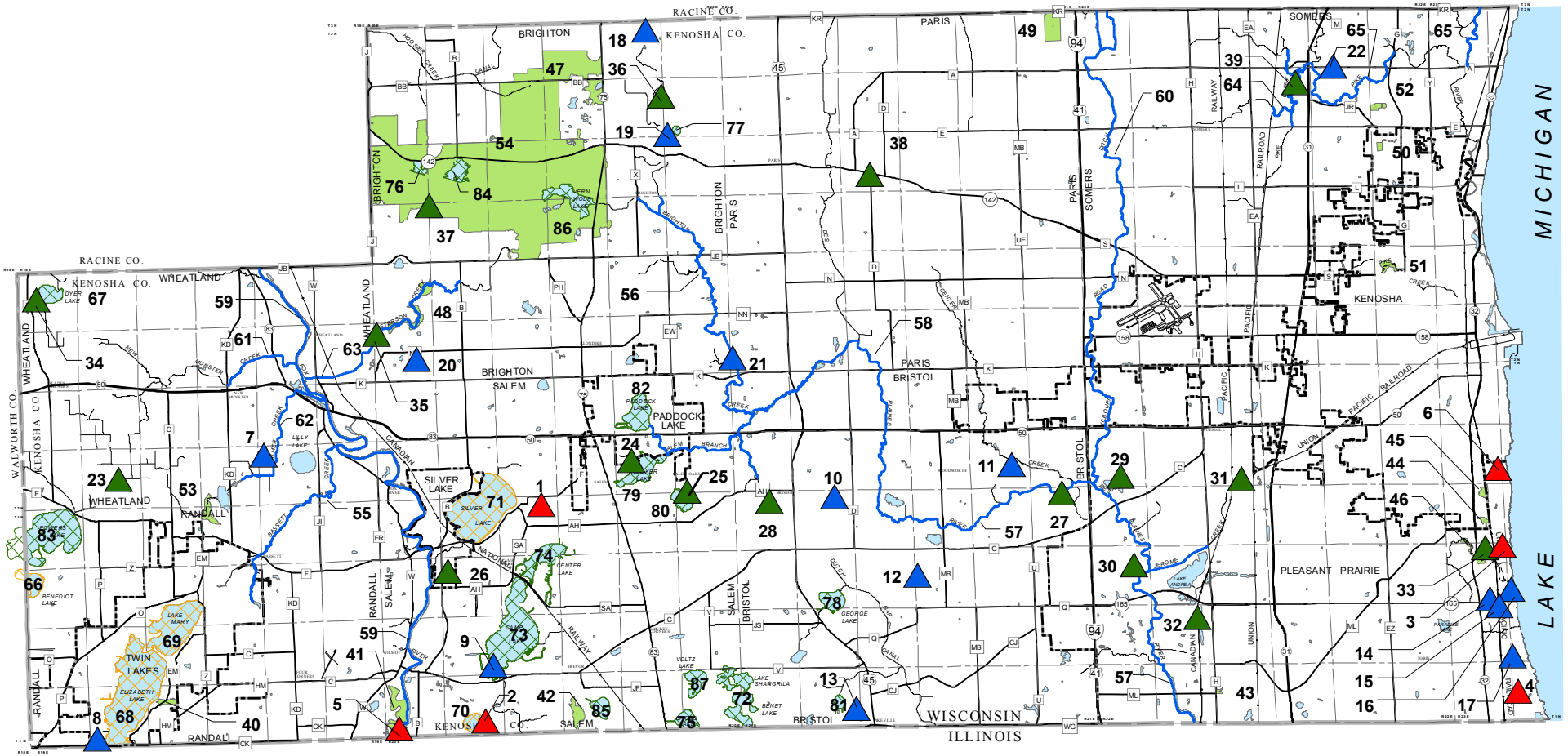
N

0 2.5 5 Miles

Map produced and municipal and parcel boundaries current as of July 1, 2013.
Source: Kenosha County Planning & Development. All information subject to errors and omissions and is not certified by Kenosha County.
The Farmland Preservation Plan map supersedes the County Comprehensive Plan and any inconsistencies between the two plans would be resolved in favor of the Farmland Preservation Plan, with respect to the delineation and location of farmland preservation areas and farmland protection recommendations.

Map 18

NATURAL AREAS, CRITICAL SPECIES SITES, AND AQUATIC HABITAT SITES IN KENOSHA COUNTY



Map 18

- NATURAL AREA OF STATEWIDE OR GREATER SIGNIFICANCE (NA-1)
- NATURAL AREA OF COUNTYWIDE OR REGIONAL SIGNIFICANCE (NA-2)
- NATURAL AREA OF LOCAL SIGNIFICANCE (NA-3)
- 39 REFERENCE NUMBER (SEE TABLE I3)
- AQUATIC LAKES OF COUNTYWIDE OR REGIONAL SIGNIFICANCE (AQ-2)
- AQUATIC LAKES OF LOCAL SIGNIFICANCE (AQ-3)
- AQUATIC RIVERS OR STREAMS OF LOCAL SIGNIFICANCE (AQ-3)
- 87 REFERENCE NUMBER (SEE TABLE 15)
- CRITICAL SPECIES HABITAT SITE OUTSIDE A NATURAL AREA
- 54 REFERENCE NUMBER (SEE TABLE 14)

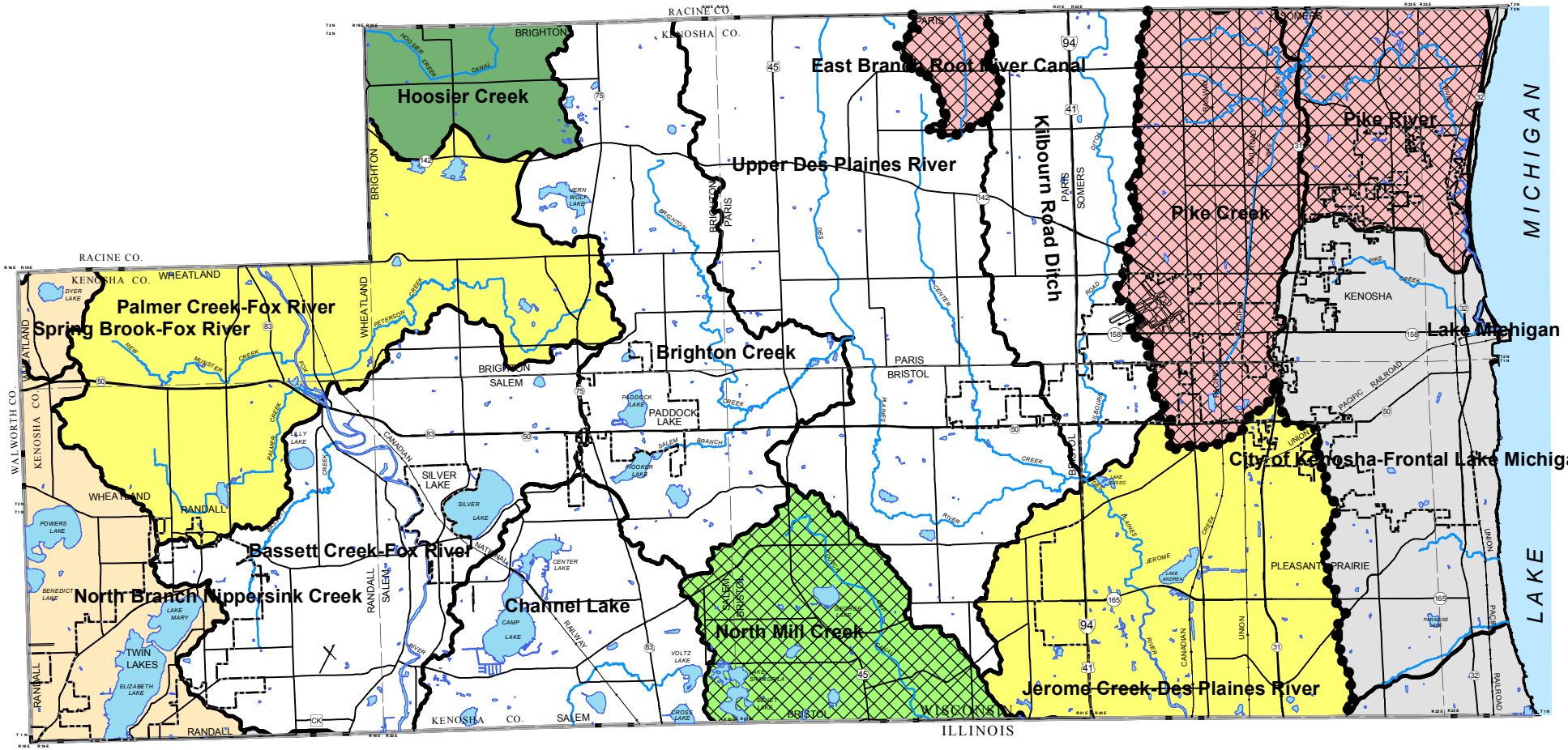
Source: WDNR, Kenosha County Planning & Development, and SEWRPC

N

0 2.5 5 Miles

Map 19

POLLUTANT LOAD HIGH PRIORITY HUC12 WATERSHEDS WITHIN KENOSHA COUNTY



POLLUTANT SOURCE

- NITROGEN, PHOSPHORUS & SEDIMENT
- PHOSPHORUS & SEDIMENT
- PHOSPHORUS
- NITROGEN
- SEDIMENT

- APPROVED 9 KEY ELEMENT PLAN
- NOT INCLUDED IN STEPL MODEL
- SURFACE WATER
- SUBCONTINENTAL DIVIDE

N

0 2.5 5 Miles

Source: Kenosha County Planning & Development, and USGS

Map 19

ACRONYMS AND GLOSSARY

ACRONYMS

BMP	Best Management Practice
CAC	Citizen Advisory Committee
CRP	Conservation Reserve Program
DATCP	Department of Agriculture, Trade and Consumer Protection
EPA	Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
FEMA	Federal Emergency Management Administration
FPP	Farmland Preservation Program
FSA	USDA Farm Service Agency
GIS	Geographical Information Services
HEL	Highly Erodible Land
I&E	Information and Education
LWCC	Land & Water Conservation Committee
LWCD	Land & Water Conservation Division
LWRMP	Land and Water Resource Management Plan
MOU	Memorandum of Understanding
NMP	Nutrient Management Plan
NPS	Nonpoint Source Pollution
NRCS	USDA Natural Resources Conservation Service
PDR	Purchase of Development Rights
RC&D	Resource Conservation and Development
Root/Pike WIN	Root-Pike Watershed Initiative Network
SEWISC	Southeastern Wisconsin Invasive Species Consortium
SEWRPC	Southeastern Wisconsin Regional Planning Commission
SWRM	Soil and Water Resource Management
"T"	Tolerable Soil Loss Rate
TSP	Technical Service Provider
USCOE	United States Army Corp of Engineers
USDA	United States Department of Agriculture
USF&W	United States Fish and Wildlife Service
UW-Ext	University of Wisconsin-Extension
WDNR	Wisconsin Department of Natural Resources
WDOT	Wisconsin Department of Transportation
WHIP	Wildlife Habitat Incentive Program
WI Land+Water	Wisconsin Land and Water Conservation Association
WRP	Wetland Reserve Program
WQMA	Water Quality Management Area

303(d) List – The 303(d) list is prepared by the WDNR under requirements of section 303(d) of the Clean Water Act and identifies waters which are not meeting water quality standards, including both water quality criteria for specific substances and their designated uses.

ATCP 50 – The chapter of Wisconsin's Administrative Code that implements the Land and Water Resource Management Program as described in Chapter 92 of the Wisconsin Statutes.
Best Management Practices (BMPs) – The most effective practice or combination of practices for reducing nonpoint source pollution to acceptable levels.

Chapter 92 – Portion of the Wisconsin Statutes outlining the soil and water conservation, agricultural shoreland management, and animal waste management laws and policies of the State.

Citizen Advisory Committee – A group of citizens formed to assist in the development and/or revisions to the Land & Water Resource Management Plan through recommendations to the Kenosha County Land& Water Conservation Committee.

Conservation Reserve Program (CRP) – A provision of the Federal Farm Bill that takes eligible cropland out of production and puts that land into grass or tree cover for 10 to 15 years.
.
Department of Agriculture, Trade and Consumer Protection (DATCP) – The State agency responsible for establishing statewide soil and water conservation policies and administering the State's soil and water conservation programs. The DATCP administers State cost-share funding for a variety of LWCC operations, including support for staff, materials and conservation practices.

Environmental Protection Agency (EPA) – The agency of the Federal government responsible for carrying out the nation's pollution control laws. It provides technical and financial assistance to reduce and control air, water, and land pollution, and is responsible for administering the Clean Water Act.

Environmental Quality Incentives Program (EQIP) – Federal program to provide technical and cost-sharing assistance to landowners for water quality protection. The program focuses on whole farm planning to reduce nonpoint source pollution.

Eutrophication – The process by which a body of water becomes enriched in dissolved nutrients (such as phosphorus) that stimulate the growth of aquatic plant life usually resulting in the depletion of dissolved oxygen.

Farm Service Agency (FSA) - The FSA is under the direction of the United Stated Department of Agriculture (USDA) and is responsible for serving all farmers, ranchers, and agricultural partners through the delivery of effective, efficient agricultural programs.

Geographic Information Systems (GIS) – A computerized system of maps and layers of data about land including soils, land cover, topography, field boundaries, roads and streams, zoning and land use, etc

Highly Erodible Land (HEL) – Lands that are over 6 percent in grade. According to the NRCS, a farm field is considered to be HEL if more than one third of that field has land slopes that exceed 6 percent.

Land & Water Conservation Committee (LWCC) – The portion of the Kenosha County government that is empowered by Chapter 92 of the Wisconsin Statutes to conserve and protect the County's soil, water and related natural resources.

Natural Resources Conservation Service (NRCS) – The NRCS is under the direction of the United States Department of Agriculture (USDA) and is responsible for soil survey inventory and information, farm conservation planning, and providing technical assistance to landowners regarding best management practices.

Nonpoint Source Pollution (NPS) – Pollution resulting from many small and diffuse sources, unlike point source pollution, which results from one identifiable source. Soil erosion, livestock waste, stormwater runoff, nutrients such as nitrogen and phosphorus, and other pollutants are all examples of nonpoint source pollution.

Resource Conservation and Development (RC&D) - USDA program that focuses on utilizing and conserving natural resources for economic development, administered by NRCS.

Southeastern Wisconsin Regional Planning Commission (SEWRPC) – A non-regulatory governmental organization providing regional planning services to the seven-county Southeastern Wisconsin Region. These services include land use planning, transportation, environmental (wetlands, floodplain, soils, and lake management), economic development, communication, and GIS.

Tolerable Soil Loss (T) – Tolerable soil loss refers to the maximum allowable soil loss rate (tons/acre/year) for individual soil types. This rate refers to the amount of soil loss that can occur annually while the soil still remains agriculturally productive. It does not refer to the time it takes to naturally regenerate the soil.

United States Department of Agriculture (USDA) – Branch of Federal government with responsibilities in the areas of food production, forestry, and wildlife and fisheries.

University of Wisconsin-Extension (UW-Ext) – The local outreach branch of the University of Wisconsin that is responsible for formal and informal educational programs throughout the State.

Water Quality Management Area (WQMA) – The area that is within 300 feet of a navigable stream or river or 1,000 feet from a lake. In addition WQMAs also include lands adjacent to ponds, or areas that are susceptible to groundwater contamination, such as a wetland, sinkhole, or an area that is shallow to bedrock.

Watershed – The geographic area which drains to a particular river, stream, or waterbody.

Wetlands Reserve Program (WRP) – A provision of the Federal Farm bill that compensates landowners for voluntarily restoring and protecting wetlands on their property that had been in agricultural production.

Wildlife Habitat Incentives Program (WHIP) – Federal program to help provide technical and cost-share assistance to landowners to help improve wildlife habitat.

Wisconsin Department of Natural Resources (WDNR) – The State agency responsible for managing State owned lands and protecting public waters of the State. The WDNR also administers programs to regulate, guide and assists land conservation programs within individual counties, as well as landowners in managing land, water, fish, and wildlife.

Wisconsin Land & Water Association – Membership organization that represents the state's 72 County Land & Water Conservation Committees, Departments and their employees.

APPENDIX A

TABLE 1

NATURAL AREAS IN KENOSHA COUNTY

Number on Map 18	Area Name	Classification Code[b]	Location	Ownership	Size (acres)	Description and Comments
1	Silver Lake Bog State Natural Area	NA-1 (SNA, RSH)	T1N, R20E, Section 16; Town of Salem	Silver Lake Sportsmen's Club and other private	18	Lacking many of the typical northern bog species, this area nevertheless remains one of the better acid bogs in the Region. Few bogs of this quality occur this far south. Typical species include tamarack, pitcher plant, round-leaved sundew, cranberry, winterberry, and bog buckbean
2	Peat Lake State Natural Area	NA-1 (SNA)	T1N, R20E, Section 32; Town of Salem	Department of Natural Resources and private	140	One of the few undeveloped lakes in Kenosha County, isolated from roads and houses. Shallow and somewhat alkaline, it is bordered by a wide belt of shallow marsh and sedge meadow. Important nesting and feeding refuge for waterfowl. Site also contains a colony of the rare bird species black tern
3	Carol Beach Low Prairie and Panné State Natural Area	NA-1 (SNA, RSH)	T1N, R23E, Sections 18 and 19; Village of Pleasant Prairie	Department of Natural Resources, Village of Pleasant Prairie, and private	40	A rich low prairie and calcareous fen on dune-and-swale topography. A number of rare plant species, including the State-designated endangered smooth phlox (Phlox glaberrima), are present
4	Chiwaukee Prairie State Natural Area	NA-1 (SNA, RSH)	T1N, R23E, Sections 31 and 32; Village of Pleasant Prairie	Department of Natural Resources, The Nature Conservancy, University of Wisconsin-Parkside, and other private	308	Extremely rich prairie and marsh on gentle swell-and-swale topography created when the level of glacial Lake Michigan was lowered in stages. The resulting different micro-environments help support great species diversity. Over 400 plant species have been documented in the prairie, some of which are very rare in the State. Scattered oaks in portions of the site give it a savanna-like aspect locally. An incomparable site, it is a National Natural Landmark
5	Stopa Fen	NA-1 (RSH)	T1N, R20E, Section 31; Town of Salem	Wilmot Ski Hill	9	High-quality fen with both seeping and bubbling springs, located adjacent to the Fox River. A large number of unusual species are present, such as beaked spike-rush (Eleocharis rostellata), tussock bulrush (Scirpus cespitosus), Ohio goldenrod (Solidago ohioensis), false asphodel (Tofieldia glutinosa), and common bog arrow-grass (Triglochin maritimum).
6	Kenosha Sand Dunes and Low Prairie	NA-1 (RSH)	T1N, R23E, Sections 7 and 8; City of Kenosha and Village of Pleasant Prairie	City of Kenosha, Department of Natural Resources, and private	99	One-half mile of Lake Michigan frontage containing well-developed dunes and dune succession patterns (fore dunes to swale to wet prairie). The dunes are disturbed by off-road vehicle use, and the shore has been riprapped. An ancient hardwood forest lies beneath the dunes. This is one of the few dune systems in Southeastern Wisconsin. Several uncommon species are present, including sea rocket (Cakile edentula), sand reed (Calamovilfa longifolia), seaside spurge (Euphorbia polygonifolia), common bugseed (Corispermum hyssopifolium), smooth phlox (Phlox glaberrima), and marsh blazing-star (Liatris spicata)

TABLE 1 (CONTINUED)

Number on Map 18	Area Name	Classification Code[a]	Location	Ownership	Size (acres)	Description and Comments
7	New Munster Shrub-Carr and Tamarack Relict	NA-2 (SNA, RSH)	T1N, R19E, Sections 2, 3, 10, 11; Town of Wheatland	Department of Natural Resources and private	384	Wetland complex of shrub-carr, sedge meadow, relict tamaracks, and stream, with an upland dry-mesic wooded island. Site is recovering from past disturbance. Some northern relicts, such as winterberry, yellow birch, and starflower are present. Many species of nesting birds use the area
8	Elizabeth Lake Lowlands	NA-2	T1N, R19E, Section 31; Town of Randall T1N, R19E, Section 32; Village of Twin Lakes	Private	48	Good-quality wetland complex at the southwest end of Elizabeth Lake, consisting of sedge meadow, shallow marsh, and shrub-carr. The wetland continues south into Illinois
9	Camp Lake Marsh	NA-2	T1N, R20E, Sections 20, 21, 28, 29, 32, 33; Town of Salem	Department of Natural Resources, Kenosha County, Town of Salem, and private	293	Deep and shallow marsh dominated by cattails and soft-stem bulrush. The lake itself is especially rich in aquatic plant species, including a large population of ditch-grass (Ruppia maritima), a coastal plain plant of brackish waters. The marsh has been extensively ditched. Site also contains a colony of the rare bird species black tern
10	Merkt Woods	NA-2	T1N, R21E, Sections 8 and 17; Town of Bristol	Private	91	A relatively large, good-quality dry-mesic woods, dominated by oaks but with numerous smaller ashes, basswoods, and yellow bud hickories. The ground flora is diverse. One of the larger intact woods in this part of the Region
11	Benedict Prairie	NA-2 (RSH)	T1N, R21E, Section 11; Town of Bristol	University of Wisconsin-Milwaukee	6	A small, but rich, wet-mesic to mesic prairie remnant located along an abandoned railway right-of-way. The site is burned periodically to reduce weedy invaders
12	Bristol Woods	NA-2 (RSH)	T1N, R21E, Sections 21 and 22; Town of Bristol	Kenosha County and private	181	The largest block of woods remaining in this part of the Region. This is a rich and diverse xeric to dry-mesic woods that is recovering from past grazing and selective cutting. Important as nesting habitat for forest-interior- breeding birds
13	Mud Lake Sedge Meadow	NA-2 (RSH)	T1N, R21E, Sections 32 and 33; Town of Bristol	Town of Bristol and private	55	Good-quality wetland complex consisting of shallow marsh, sedge meadow, low prairie, fresh (wet) meadow, and shrub-carr. Species diversity is good, including a number of uncommon ones
14	104th Street Mesic Prairie	NA-2 (RSH)	T1N, R23E, Section 19; Village of Pleasant Prairie	Department of Natural Resources and private	10	Good-quality patch of mostly mesic prairie, with good species diversity. Critical plant species are present
15	Carol Beach Prairie	NA-2 (RSH)	T1N, R23E, Sections 19, 20, 29, 30; Village of Pleasant Prairie	Department of Natural Resources, Village of Pleasant Prairie, and private	71	A rich complex of low to dry prairie, with fresh (wet) meadow, sedge meadow, shrub-carr, and shallow marsh communities on dune-and-swale topography. Critical plant species are present
16	Barnes Creek Dunes and Panné	NA-2 (RSH)	T1N, R23E, Section 20; Village of Pleasant Prairie	Village of Pleasant Prairie, Department of Natural Resources, and private	9	An unusual mixture of dry prairie and calcareous fen plant species on dune-and-swale topography, adjacent to Barnes Creek. Several critical species are present
17	Tobin Road Prairie	NA-2 (RSH)	T1N, R23E, Sections 29 and 30; Village of Pleasant Prairie	Department of Natural Resources and private	14	A portion of the northern Chiwaukee Prairie area containing rich low and dry prairies on dune-and-swale topography

TABLE 1 (CONTINUED)

Number on Map 18	Area Name	Classification Code[a]	Location	Ownership	Size (acres)	Description and Comments
18	Schroeder Road Marsh	NA-2	T2N, R20E, Sections 1 and 2; Town of Brighton	Private	111[b]	Large wetland area of shallow cattail marsh and sedge meadow that extend into Racine County. Perimeter has been disturbed but interior is intact.
19	Friendship Lake Marsh	NA-2	T2N, R20E, Sections 11, 12, 13, 14; Town of Brighton	Private	119	Large cattail marsh and sedge meadow surrounding a small, but good-quality, kettle lake. Valuable feeding and nesting habitat for a variety of marshland birds. Recent shoreline construction activities have lowered the ecological value
20	CTH NN Sedge Meadow	NA-2	T2N, R20E, Section 31; Town of Brighton	Private	61	Good-quality sedge meadow, with little evidence of past disturbance and few exotic species. A good example of this community type
21	Harris Marsh and Oak Woods	NA-2	T2N, R20E, Section 36; Town of Brighton T2N, R21E, Section 31; Town of Paris T1N, R20E, Section 1; Town of Salem	University of Wisconsin-Parkside and private	225	A large, good-quality marsh adjacent to Brighton Creek. A grazed former oak opening forms the eastern upland border
22	Petrifying Springs Woods	NA-2 (RSH)	T2N, R22E, Sections 2 and 11; Town of Somers	Kenosha County, University of Wisconsin-Parkside, and private	145	A rich southern mesic to dry-mesic hardwood forest dominated by white and red oaks, white ash, sugar maple, and basswood. The undulating topography is covered by a very diverse spring flora, including a large population of twinleaf (Jeffersonia diphylla), a State-designated species of special concern. One of the better woodland areas remaining in Southeastern Wisconsin
23	Powers Lake Tamarack Relict	NA-3	T1N, R19E, Sections 8 and 9; Town of Wheatland	Twin Lakes Sportsmen's Club and other private	152	A large but disturbed wetland complex of marsh, sedge meadow, shrub-carr, and relict tamaracks. Agricultural use on the periphery has adversely affected the area
24	Hooker Lake Marsh	NA-3	T1N, R20E, Section 11; Town of Salem	Department of Natural Resources	47	Deep and shallow cattail marsh on the northwest side of Hooker Lake
25	Montgomery Lake Marsh	NA-3	T1N, R20E, Sections 12 and 13; Town of Salem	Town of Salem and private	47	Cattail-dominated deep and shallow marsh bordering Montgomery Lake
26	CTH B-CTH AH Sedge Meadow	NA-3	T1N, R20E, Section 20; Town of Salem	Private	12	Located near the intersection of CTH B and CTH AH, this small but good-quality sedge meadow contains a large number of native species. Disturbance is limited to the wetland borders
27	Des Plaines River Wetlands	NA-3	T1N, R21E, Sections 12, 13, 14; Town of Bristol	Private	66	A one-mile stretch of the Des Plaines River west of IH 94. Wetlands include sedge meadow, shallow marsh, and lowland hardwoods
28	Salem Road Marsh	NA-3	T1N, R21E, Section 18; Town of Bristol	Conservation Club of Kenosha	27	Shallow, cattail-dominated marsh
29	Lake Russo Prairie Remnant	NA-3 (RSH)	T1N, R22E, Section 7; Village of Pleasant Prairie	Private	6	A small, moderate- to good-quality wet-mesic prairie remnant that is suffering disturbance by local residents
30	Des Plaines River Lowlands	NA-3 (RSH)	T1N, R22E, Sections 17, 18, 19, 20; Village of Pleasant Prairie	Village of Pleasant Prairie and private	413	Extensive wetland and upland complex along the Des Plaines River, significant because of its open space and wildlife habitat. Contains xeric oak woods, mesic and wet-mesic prairie, fresh (wet) meadow, and riverine forest. The State-designated endangered prairie white-fringed orchid (Platanthera leucophaea) has been found here

TABLE 1 (CONTINUED)

Number on Map 18	Area Name	Classification Code[a]	Location	Ownership	Size (acres)	Description and Comments
31	Bain Station Railroad Prairie	NA-3 (RSH)	T1N, R22E, Section 9; Village of Pleasant Prairie	Des Plaines Wetland Conservancy	5	A small, moderate- to good-quality mesic to wet-mesic prairie remnant along an abandoned railway right-of-way. Dominated by big bluestem, Indian grass, prairie dock, and goldenrods
32	Pleasant Railroad Prairie	NA-3 (RSH)	T1N, R22E, Sections 29 and 32; Village of Pleasant Prairie	Des Plaines Wetland Conservancy	5	Discontinuous remnants of the once-extensive wet-mesic prairie of southern Kenosha County, bordering double tracks. Small patches are of good quality, containing some regionally uncommon species
33	Carol Beach Estates Prairie	NA-3 (RSH)	T1N, R23E, Section 19; Village of Pleasant Prairie	Private	7	A rich wet to wet-mesic prairie on sandy soils that is threatened by shrub invasion. Critical plant species are present
34	Dyer Lake Sedge Meadow	NA-3	T2N, R19E, Section 30; Town of Wheatland	Kenosha Boy Scouts and other private	40	Good-quality wetland complex on west side of Dyer Lake. Consists of sedge meadow, shrub-carr, and deep and shallow marsh. The site is somewhat alkaline. Good native species diversity
35	Peterson Creek Sedge Meadow	NA-3	T2N, R19E, Section 36; Town of Wheatland T2N, R20E, Section 31; Town of Brighton	Private	69	This moderate- to good-quality wetland complex bordering Peterson Creek consists of sedge meadow and cattail marsh. The highest-quality area lies southeast of the creek, where calciphilic species are present
36	Section 11 Wetlands and Oak Woods	NA-3	T2N, R20E, Sections 11 and 12; Town of Brighton	Private	130	A moderate-quality wetland complex, consisting of sedge meadow and cattail marsh, bordered by a disturbed oak woods
37	Bong Low Prairie	NA-3 (RSH)	T2N, R20E, Sections 19 and 20; Town of Brighton	Department of Natural Resources	2	A series of small patches of remnant low prairie within the Bong State Recreation Area. Disturbance history varies, but the two areas adjacent to north-south road are of good quality. Good display of the marsh blazing-star (Liatris spicata)
38	Paris (Ehlen) Prairie Remnant	NA-3 (RSH)	T2N, R21E, Section 16; Town of Paris	Private	1	A small but generally good-quality remnant of the once-extensive mesic prairie that formerly occupied central Kenosha County. Critical plant species are present
39	Pike River Bottomland Woods	NA-3 (RSH)	T2N, R22E, Sections 3 and 10; Town of Somers	Hawthorn Hollow Nature Sanctuary and private	66	Good-quality wet-mesic forest in lowlands and dry-mesic forest on uplands bordering the Pike River. Contains a rich and diverse ground flora. A small prairie remnant is present within the Hawthorn Hollow Nature Sanctuary. This is probably the most natural remaining stretch of the Pike River
- -	Total – 39 sites	NA-3	- -	- -	3,530	- -

[a] NA-1 identifies Natural Area sites of Statewide or greater significance
NA-2 identifies Natural Area sites of countywide or regional significance
NA-3 identifies Natural Area sites of local significance
SNA, or State Natural Area, identifies those sites officially designated as State Natural Areas by the State of Wisconsin Natural Areas Preservation Council
RSH, or Rare Species Habitat, identifies those sites which support rare, threatened, or endangered animal or plant species officially designated by the Wisconsin Department of Natural Resources.

[b] Schroeder Road Marsh straddles the county line between Kenosha and Racine Counties. An additional 77 acres are located within Racine County.

Source: WDNR and SEWRPC.

TABLE 2

CRITICAL SPECIES HABITAT SITES LOCATED OUTSIDE NATURAL AREAS IN KENOSHA COUNTY

Number on Map 18	Site Name and Classification Code[a]	Location	Site Area (acres)	Ownership	Species of Concern[b]
40	Hamilton Woods (CSH-P)	T1N, R19E, Section 33; Village of Twin Lakes	18	Private	*Trillium recurvatum* (R)
41	Wilmot Ski Hill Prairie (CSH-P)	T1N, R20E, Section 31; Town of Salem	104	Wilmot Ski Hill and other private	*Liatris spicata* (R) and *Solidago ohioensis* (R)
42	Trevor Creek Wet Prairie (CSH-P)	T1N, R20E, Section 34; Town of Salem	43	Private	*Solidago ohioensis*(R)
43	Piela Property (CSH-P)	T1N, R22E, Section 33; Village of Pleasant Prairie	5	Private	*Agrimonia parviflora* (R)
44	Martin Band Parcel (CSH-P)	T1N, R23E, Section 18; City of Kenosha	9	Private	*Phlox glaberrima* (E)
45	Nedweski Parcel (CSH-P)	T1N, R23E, Section 18; City of Kenosha	16	Private	*Calamovilfa longifolia* (T)
46	Barnes Creek (CSH-P)	T1N, R23E, Section 19; Village of Pleasant Prairie	29	Village of Pleasant Prairie and private	*Trillium recurvatum* (R) and *Solidago ohioensis* (R)
47	Brighton-Dale Woods (CSH-P)	T2N, R20E, Section 10; Town of Brighton	55	Kenosha County	*Eupatorium sessilifolium* (R) and *Trillium recurvatum* (R)
48	Peterson Creek Wetland (CSH-P)	T2N, R20E, Section 30; Town of Brighton	84	Private	*Solidago ohioensis* (R)
49	Poisl Woods (CSH-P)	T2N, R21E, Section 1; Town of Paris	82	Private	*Trillium recurvatum* (R)
50	Thompson Woods (CSH-P)	T2N, R22E, Section 13; City of Kenosha	8	Private	*Trillium recurvatum* (R)
51	Bradford School Woods (CSH-P)	T2N, R22E, Section 25; City of Kenosha	21	Kenosha County, Kenosha Unified School District, Gateway Technical College, and private	*Trillium recurvatum* (R)
52	Parkside Woods (CSH-P)	T2N, R22E, Section 12; Town of Somers	15	University of Wisconsin-Parkside	*Trillium recurvatum* (R)
53	Unnamed Wetland (CSH-B)	T1N, R19E, Sections 10 and 15; Towns of Randall and Wheatland	35	Kenosha County	Forster's tern (E) and Great egret (T)
54	Bong State Recreation Area (CSH-B)	T2N, R19E, Sections 12 and 13 and T2N, R20E, Sections 3, 4, 7, 9, 10, 15-23; Town of Brighton	4,807	Wisconsin Department of Natural Resources, Kenosha County, Kenosha Unified School District, and private	Forster's tern (E); Piping plover (E); Yellow-throated warbler (E); Loggerhead shrike (E); Great egret (T); Black tern (R) (Colony); Henslow's sparrow (R); Northern harrier (R); Grasshopper sparrow (R); Bobolink (R); Upland sandpiper (R); Northern goshawk (R); American black duck (R); Short-eared owl (R); American bittern (R); Swainson's thrush (R); Lark sparrow (R); Sedge wren (R); Blackburnian warbler (R); Yellow-bellied flycatcher (R); Merlin (R); Common moorhen (R); Least bittern (R); Common merganser (R); Black-crowned night heron (R); Wilson's phalarope (R); Prothonotary warbler (R); Louisiana waterthrush (R); and Dickcissel (R)
- -	Total – 15 Sites	- -	5,329	- -	- -

[a] CSH-P identifies a critical plant species habitat site; CSH-B identifies a critical bird species habitat site.

[b] "R" refers to species designated as rare or special concern; "T" refers to species designated as threatened, "E" refers to species designated as endangered.

Source: WDNR and SEWRPC.

TABLE 3

CRITICAL AQUATIC HABITAT AREAS IN KENOSHA COUNTY

Number on Map 18	River, Stream, or Lake	Size[a]	Rank[b]	Description and Comments[c]
55	Bassett Creek	4.9 miles	AQ-3 (RSH)	Records of critical fish species; good water quality
56	Brighton Creek and Salem Branch	14.2 miles	AQ-3 (RSH)	Critical fish species present
57	Des Plaines River downstream from STH 50	14.2 miles	AQ-3 (RSH)	Bisects a large wetland complex supporting critical herptile species habitat
58	Des Plaines River upstream from STH 50	1.8 miles	AQ-3 (RSH)	Critical fish species present
59	Fox River downstream from CTH JB to Wisconsin-Illinois State line	12.5 miles	AQ-3 (RSH)	Good mussel species assemblage and population of the river redhorse, a threatened fish species
60	Kilbourn Road Ditch	11.5 miles[d]	AQ-3 (RSH)	Sedimentation and other water quality problems exist, but this reach is an important reservoir for the pirate perch, a “special concern” fish species
61	New Munster Creek downstream from CTH KD	1.7 miles	AQ-3	Good water quality
62	Palmer Creek	3.1 miles	AQ-3	Class III trout stream
63	Peterson Creek	5.1 miles	AQ-3 (RSH)	Critical fish species present
64	Pike Creek	4.1 miles	AQ-3 (RSH)	Bisects identified Natural Area
65	Pike River downstream from Pike Creek (includes Sorenson Creek)	4.3 miles[d]	AQ-3 (RSH)	Bisects identified Natural Area; critical fish species present
- -	Subtotal (11 river and stream reaches)	77.4 miles	- -	- -
66	Benedict Lake	59 acres[d]	AQ-2 (RSH)	A drained lake with good overall fish populations; critical fish species present
67	Dyer Lake	64 acres	AQ-2 (RSH)	A shallow drainage lake with critical fish species present; adjacent wetlands are good habitat for waterfowl and other wildlife
68	Elizabeth Lake	688 acres[d]	AQ-2 (RSH)	A drainage lake with critical fish, herptile, and bird species present
69	Lake Mary	330 acres	AQ-2 (RSH)	A drained lake with critical fish species present; good overall fishery
70	Peat Lake	42 acres	AQ-2	A drained lake which is the central feature of Peat Lake Scientific Area; important nesting and feeding refuge for waterfowl
71	Silver Lake	524 acres	AQ-2 (RSH)	A drainage lake with critical fish species present; adjacent wetlands to north are valuable for wildlife
72	Benet Lake-Lake Shangrila	181 acres[d]	AQ-3 (RSH)	A shallow drained lake with critical fish species present
73	Camp Lake	469 acres	AQ-3 (RSH)	A shallow drainage lake with critical fish species present; ideal conditions for waterfowl and marsh furbearers
74	Center Lake	138 acres	AQ-3 (RSH)	A drainage lake; well-rounded fishery; critical fish species present
75	Cross Lake	63 acres[d]	AQ-3 (RSH)	A drained lake with critical fish species present
76	Four Dollar Flowage	21 acres	AQ-3 (RSH)	Within the Bong State Recreation Area; good wildlife habitat
77	Friendship Lake	11 acres	AQ-3	A drainage lake encompassed by Friendship Lake Marsh, an identified Natural Area
78	George Lake	72 acres	AQ-3 (RSH)	A drainage lake with critical fish species present; good waterfowl habitat
79	Hooker Lake	109 acres	AQ-3 (RSH)	A drainage lake with critical fish species present
80	Montgomery Lake	62 acres	AQ-3 (RSH)	A drained lake with critical fish species present
81	Mud Lake	22 acres	AQ-3	A drained lake adjacent to an identified Natural Area, Mud Lake Sedge Meadow
82	Paddock Lake	132 acres	AQ-3 (RSH)	A drained lake with critical fish species present
83	Powers Lake	376 acres[d]	AQ-3	A drainage lake with good water quality

TABLE 3 (CONTINUED)

Number on Map 18	River, Stream, or Lake	Size[a]	Rank[b]	Description and Comments[c]
84	Refuge Flowage	61 acres	AQ-3 (RSH)	Within the Bong State Recreation Area; good wildlife habitat
85	Rock Lake	53 acres	AQ-3 (RSH)	A drained lake with critical fish species present
86	Vern Wolf Lake (East Lake Flowage)	118 acres	AQ-3	A drainage lake with good wildlife habitat
87	Voltz Lake	63 acres	AQ-3 (RSH)	A drained lake with critical fish species present
- -	Total (22 lakes)	3,658 acres	- -	- -

[a] Size is listed as stream miles for rivers and streams and lake surface area (in acres) for lakes.

[b] AQ-1 identifies Aquatic Area sites of statewide or greater significance.
AQ-2 identifies Aquatic Area sites of countywide or regional significance.
AQ-3 identifies Aquatic Area sites of local significance.
RSH, or Rare Species Habitat, identifies those aquatic areas which support rare, endangered, threatened, or "special concern" species officially designated by the Wisconsin Department of Natural Resources.

[c] "Drainage lakes" are lakes that have both an inlet and an outlet and whose main water source is a river or stream. "Drained lakes" are lakes which have no inlet but do have an outlet and which are not groundwater-fed; their primary source of water is from precipitation and runoff from the immediate drainage area.

[d] Lake or stream is located partially within Kenosha County. Number refers to stream miles or acreage located within the County.

Source: WDNR and SEWRPC.

APPENDIX B

BASIS FOR KNOWN IMPAIRMENTS, REDUCTION TARGETS, & IMPAIRMENT REDUCTION FROM CRITICAL AREAS AND HIGH PRIORITY AREAS IN THE PIKE RIVER WATERSHED[a]

Impairment: Cause of Impairment	Basis for Impairment	Reduction Target	Pollutant Reduction from Critical Areas	Pollutant Reduction from High Priority Areas	Target Attainable?
Water Quality/Fish & Aquatic Life: Nutrients - nitrogen	134,581.5 lbs/yr of nitrogen loading based on combined WinSLAMM/STEPL model & 5.406 mg/L total calculated nitrogen in water quality samples	**>54.5% or 73,346.9 lbs/yr** reduction in nitrogen loading to achieve 2.461mg/L total calculated nitrogen USEPA numeric criteria for streams in Ecoregion VI	7% or 9,845 lbs/yr reduction of total nitrogen loading from critical stream reaches	2% or 2,257 lbs/yr reduction of total nitrogen loading from high priority stream reaches	
			3% or 4,246 lbs/yr reduction of total nitrogen loading from critical ravines and brownfields	<1% or 485 lbs/yr reduction of total nitrogen loading from high priority ravines and brownfields	
			2% or 2,624 lbs/yr reduction of total nitrogen loading from critical detention basins	<1% or 252 lbs/yr reduction of total nitrogen loading from high priority detention basins	
			7% or 9,106 lbs/yr reduction of total nitrogen loading from critical drained wetlands	1% or 1,073 lbs/yr reduction of total nitrogen loading from high priority drained wetlands	
			14% or 18,641 lbs/yr reduction of total nitrogen loading from critical riparian areas, agricultural land, and other projects	9% or 11,821 lbs/yr reduction of total nitrogen loading from high priority riparian areas, agricultural land, and other projects	
		TOTAL	**33% or 44,462 lbs/yr reduction of total nitrogen loading from all Critical Areas combined**	**12% or 15,888 lbs/yr reduction in nitrogen loading from all High Priority Areas combined**	**No**
Water Quality/Fish & Aquatic Life: Nutrients - phosphorus	52,579.4 lbs/yr of phosphorus loading based on combined WinSLAMM/STEPL model & 0.22 mg/L TP in water quality samples from the preliminary study results conducted by Racine Health Department	**>47.8% or 25,133.0 lbs/yr** reduction in phosphorus loading to achieve 0.075 mg/L TP USEPA numeric criteria for streams in Ecoregion VI	9% or 4,923 lbs/yr reduction of total phosphorus loading from critical stream reaches	2% or 1,129 lbs/yr reduction of total phosphorus loading from high priority stream reaches	
			3% or 1,494 lbs/yr phosphorus reduction from critical ravines and brownfields	<1% or 98 lbs/yr reduction of total phosphorus loading from high priority ravines and brownfields	
			1% or 645 lbs/yr reduction of total phosphorus loading from critical detention basins	<1% or 67 lbs/yr reduction of total phosphorus loading from high priority detention basins	
			4% or 1,948 lbs/yr reduction of total phosphorus loading from critical drained wetlands	1% or 203 lbs/yr reduction of total phosphorus loading from high priority drained wetlands	
			18% or 9,467 lbs/yr reduction of total phosphorus loading from critical riparian areas, agricultural land, and other projects	11% or 5,971 lbs/yr reduction of total phosphorus loading from high priority riparian areas, agricultural land, and other projects	
		TOTAL	**35% or 18,477 lbs/yr reduction of total phosphorus loading from all Critical Areas combined**	**14% or 7,468 lbs/yr reduction of total phosphorus loading from all High Priority Areas combined**	**Yes**
Water Quality/Fish & Aquatic Life: Total Suspended Solids - ((TSS)/turbidity/sediment)	25,045.7 tons/yr of sediment loading based on combined WinSLAMM/STEPL model & 20.8 mg/L TSS in water quality samples; 14,175 acres (39%) of watershed devoted to cropland; 377,558.7 linear feet of moderate or highly eroded streambank contributing 10,618 tons/yr of sediment loading based on STEPL 166,922.8 linear feet (50%) of riparian area is currently in poor ecological condition; 5,481.2 acres (79%) of wetlands lost since pre-settlement	**>40% or 10,018.3 tons/yr** reduction in sediment loading to achieve 19 mg/l TSS based on USGS numeric criteria in Great Lakes Region	20% or 4,923 tons/yr reduction of total sediment loading from critical stream reaches	5% or 1,129 tons/yr reduction of total sediment loading from critical stream reaches	
			5% or 1,371 tons/yr reduction of total sediment loading from critical ravines and brownfields	<1% or 82 tons/yr reduction of total sediment loading from high priority ravines and brownfields	
			2% or 364 tons/yr reduction of total sediment loading from critical detention basins	<1% or 33 tons/yr reduction of total sediment loading from high priority detention basins	
			5% or 1,326 tons/yr reduction of total sediment loading from critical drained wetlands	<1% or 144 tons/yr reduction of total sediment loading from high priority drained wetlands	
			26% or 6,514 tons/yr reduction of total sediment loading from critical riparian areas, agricultural land, and other projects	16% or 3,967 tons/yr reduction of total sediment loading from high priority riparian areas, agricultural land, and other projects	
		TOTAL	**58% or 14,498 tons/yr reduction of total sediment loading from all Critical Areas combined**	**21% or 5,355 tons/yr reduction of total sediment loading from all High Priority Areas combined**	**Yes**
Water Quality/Fish & Aquatic Life: Chlorides (salinity)	313.9 mg/L Chlorides based on water quality sample	**>26.73% reduction** in road salt usage to achieve 230 mg/L USEPA Ambient Water Quality Criteria for Chloride	Not Applicable**	Not Applicable**	**Not Applicable**
Degraded Habitat: Lack of habitat characteristics	241,806 lf of streambank is highly channelized	**>25% or 60,0452 linear feet** of highly channelized stream length enhanced;	**26% or 64,056 linear feet of highly channelized streambank enhanced via improvements to critical stream reaches**	**12% or 27,813 linear feet of highly channelized streambank enhanced via improvements to high priority stream reaches**	**Yes**
Degraded Habitat: Invasive and/or non-native plant species in riparian area	749 riparian acres are currently in poor ecological condition	**>25% or 187 acres** of poor quality riparian areas ecologically restored	**37% or 277 acres of areas in poor ecological condition restored by addressing critical riparian areas**	**34% or 254 acres of areas in poor ecological condition restored by addressing high priority riparian areas**	**Yes**
Hydrologic and Flow Changes: Impervious cover	5,482 acres (79%) of wetlands lost since pre- settlement.	**>10% or 548 acres** of critical drained wetlands restored	**13% or 895 acres of critical wetland restored by addressing critical drained wetlands**	**8% or 421 acres of critical wetland restored by addressing critical drained wetlands**	**Yes**

[a] *Reprinted (in-part) from Table 36 of the Pike River Watershed-Based Plan - August 2013*

See the full plan at http://www.rootpikewin.org/index.php?option=com_content&view=article&id=169&Itemid=168

APPENDIX C

REVISED SITE-SPECIFIC MANAGEMENT MEASURES FOR THE ROOT RIVER WATERSHED[a]

ID Number (from Table 79 in SEWRPC CAPR No. 316)	Management Action	Annual Pollutant Load Reduction	
		TSS (pounds)	Total Phosphorus (pounds)
LRC-07[b]	Stream rehabilitation, naturalization, or bank stabilization project to address eroding streambanks. Remeandering of channelized reaches including addition of buffer and canopy cover. Bank erosion is estimated to be 60 feet in length and two feet in height	1,200	0.4
MRR-11[b]	Stream rehabilitation, naturalization, or bank stabilization project to address eroding streambanks. Could be done in conjunction with upcoming reconstruction of S. 76th Street. Total bank erosion is estimated at 300 feet with bank heights ranging from three to 12 feet	58,000	16.3
MRR-17[b]	Remove failing drop structures and perform stream rehabilitation, naturalization, or bank stabilization to address eroding streambanks. Bank erosion is estimated at 530 feet in length and five feet in height	23,400	8.3
RHD-01[b]	Stream rehabilitation, naturalization, or bank stabilization to address eroding streambanks. Two erosion sites both estimated to be 20 feet in length and four and one foot in height	400	0.2
RRC-01[b]	Stream rehabilitation, naturalization, or bank stabilization to address eroding banks on East Branch Root River Canal. Bank erosion is estimated to be 75 feet in length and three feet in height	2,200	0.6
RRC-05[b]	Stream rehabilitation, naturalization, or bank stabilization to address eroding banks on East Branch Root River Canal. Three erosion sites estimated at 30, 40, and 30 feet in length and two, two, and eight feet in height, respectively	3,800	1.1
RRC-06[b]	Stream rehabilitation, naturalization, or bank stabilization to address erosion along cliff on Raymond Creek. Bank erosion is estimated to be 30 feet in length and 10 feet in height	9,800	2.5
URR-05[b]	Streambank stabilization or rehabilitation project to address erosion and debris jams. Bank erosion is estimated to be 620 feet in length and 10 feet in height	189,800	58.4
URR-17[b]	Streambank stabilization or rehabilitation project to address erosion. Bank erosion estimated to be 300 feet in length and three feet in height	9,000	2.8
URR-19[b]	Stream rehabilitation, naturalization, or bank stabilization to address eroding streambanks. Bank erosion lengths are estimated to be 580 and 340 feet in length and three and four feet in height, respectively	29,800	9.2
URR-20[b]	Stream rehabilitation, naturalization, or bank stabilization to address eroding streambanks. Bank erosion length is estimated to be 375 feet in length and two feet in height	7,800	2.1
URR-21[b]	Stream rehabilitation, naturalization, or bank stabilization to address eroding streambanks. Bank erosion is estimated to be 960 in length and 2.5 feet in height	23,200	7.2
LRJ-04A	Bank stabilization to address bank erosion along 125 feet of Root River mainstem with an estimated average erosion height of two feet	9,000	2.4
AER-1	Bank stabilization to address bank erosion along 1,070 feet of Root River mainstem with an estimated average erosion height of five feet	119,400	33.7
AER-2	Bank stabilization to address bank erosion along 80 feet of Root River mainstem with an estimated average erosion height of six feet	14,600	4.5
AER-3	Bank stabilization to address bank erosion along four sections of the Root River mainstem with lengths of 80, 85, 45, and 35 feet and respective estimated erosion heights of four, four, two, and four feet	9,400	2.4

ID Number (from Table 79 in SEWRPC CAPR No. 316)	Management Action	Annual Pollutant Load Reduction	
		TSS (pounds)	Total Phosphorus (pounds)
AER-4	Bank stabilization to address bank erosion along 625 feet of Root River mainstem with an estimated average erosion height of 4 feet (Note: the City is already in process of designing improvements in this area with construction planned in 2014)	81,000	21.2
AER-7	Bank stabilization to address bank erosion along 500 feet of Root River mainstem with an estimated average erosion height of 14 feet	73,800	19.3
AER-8	Bank stabilization to address bank erosion along 1,500 feet of Root River mainstem with an estimated average erosion height of 12 feet. This area has also been identified as an area to connect/expand the City's bike/pedestrian path and add park space. (Note: the City/ County are already in process of planning improvements in this area)	189,600	49.6
AER-9	Bank stabilization to address four sections of moderate to high bank and ravine erosion on the Root River mainstem. Erosion section lengths are 150, 205, 60, and 80 feet in length with respective estimated average heights of six, six, eight, and eight feet (Note: the City is already in process of designing improvements in this area with construction planned in 2014)	33,000	9.7
AER-10	Bank stabilization to address three sections of bank erosion along the Root River mainstem. Erosion section lengths are 425, 390, and 38 feet each, with an estimated average height of six feet	58,200	14.1
MUS-E12	Bank stabilization/protection to address erosion in close proximity to S. 124th Street. Bank erosion is estimated to be 60 feet in length and five feet in height	9,800	2.5
MUS-E14	Bank stabilization/protection to address erosion in close proximity to S. 124th Street. Bank erosion is estimated to be 125 feet in length and three feet in height	4,000	1.0
MUS-E16	Bank stabilization/protection to address erosion in close proximity to S. 124th Street. Bank erosion is estimated to be 180 feet in length and two feet in height	3,800	1.0
MUS-E30	Bank stabilization/protection to address erosion in close proximity to S. Root River Parkway. Bank erosion is estimated to be 210 feet in length and two feet in height	4,200	1.3
MUS-E31	Bank stabilization/protection to address erosion in close proximity to S. Root River Parkway. Bank erosion is estimated to be 285 feet in length and two feet in height	5,600	1.7
MUS-E33	Bank stabilization/protection to address erosion in close proximity to S. Root River Parkway. Bank erosion is estimated to be 230 feet in length and three feet in height	6,800	2.1
MUS-E60	Bank stabilization/protection to address erosion progressing toward Oak Lear Trail bridge footings. Bank erosion is estimated to be 200 feet in length and five feet in height	30,600	9.4
MUS-E82	Bank stabilization/protection to address erosion in close proximity to S. Root River Parkway. Bank erosion is estimated to be 100 feet in length and three feet in height	3,000	0.9
MUS-E96	Bank stabilization/protection to address erosion in S. Root River Parkway. Bank erosion is estimated to be 430 feet in length and three feet in height	13,600	3.6
MUS-E106	Bank stabilization/protection to address erosion in S. Root River Parkway. Bank erosion is estimated to be 315 feet in length and four feet in height	12,600	3.9
MUS-E116	Bank stabilization/protection to address erosion in N. Root River Parkway. Bank erosion is estimated to be 200 feet in length and four feet in height	8,400	2.2
MUS-E140	Bank stabilization/protection to address erosion in close proximity to Drexel Avenue and the Drexel Avenue culverts. Bank erosion is estimated to be 100 feet in length and two feet in height	2,200	0.6
MUS-E179	Bank stabilization/protection to address erosion progressing toward STH 100. Bank erosion is estimated to be 150 feet in length and three feet in height	13,800	4.2

ID Number (from Table 79 in SEWRPC CAPR No. 316)	Management Action	Annual Pollutant Load Reduction	
		TSS (pounds)	Total Phosphorus (pounds)
MUS-E208	Bank stabilization/protection to address erosion in close proximity to the Oakwood Road crossing. Bank erosion is estimated to be 120 feet in length and two feet in height	7,400	2.3
MUS-E224	Bank stabilization/protection to address erosion in close proximity to an electrical utility tower. Bank erosion is estimated to be 100 feet in length and two feet in height	2,000	0.6
MUS-E226	Bank stabilization/protection to address erosion in close proximity to 60th Street. Bank erosion is estimated to be 140 feet in length and two feet in height	2,800	0.9
MUS-E266	Bank stabilization/protection to address erosion in close proximity to mobile home in Franklin Mobile Estates. Bank erosion is estimated to be 40 feet in length and two feet in height	2,400	0.7
MUS-E267	Bank stabilization/protection to address erosion in close proximity to mobile home in Franklin Mobile Estates. Bank erosion is estimated to be 40 feet in length and two feet in height	800	0.2
RPC-HE1, 2	Bank stabilization to address severe erosion along 65 feet and 80 feet of Hoods Creek. Erosion heights are estimated at seven feet and nine feet, respectively. Place fence along embankment to reduce dog access	47,600	12.4
RPC-HE4	Bank stabilization to address bank erosion along 120 feet of Hoods Creek. Average erosion height is estimated to be four feet	15,600	4.1
RPC-HE6, 7, 8, 9	Bank stabilization to address erosion of 30, 120, 100, and 45 feet in length along Hoods Creek. Erosion heights are estimated to be three, four, 3.5, and five feet, respectively	16,800	4.4
RPC-HE12	Bank stabilization to address bank erosion along about 50 feet of Hoods Creek. Removal of old bridge footings should be considered to prevent continued scour. Average erosion height is estimated to be five feet	8,200	2.1
RPC-HE14	Bank stabilization to address severe bank erosion along about 120 feet of Hoods Creek. Removal of old bridge footings should be considered to prevent continued scour. Average erosion height is estimated to be nine feet	43,800	11.5
RPC-HE22	Bank stabilization to address bank erosion along 175 feet of Hoods Creek in close proximity to the Hoods Creek Road crossing. Average erosion height is estimated to be three feet	17,000	4.5
RPC-HE23, 24	Bank stabilization to address bank erosion along 40 feet of Hoods Creek in close proximity to the Hoods Creek Road crossing with an erosion height estimated at four feet; bank stabilization to address bank erosion along 80 feet of Hoods Creek, with an estimated average erosion height of 3.5 feet	4,600	1.2
RPC-HE25	Bank stabilization to address bank erosion along 200 feet of Hoods Creek in close proximity to the Hoods Creek Road crossing. Average erosion height is estimated to be 3.5 feet	7,400	1.9
RPC-HE26, 27, 28a, 29, 30	Bank stabilization to address erosion along Hoods Creek of 300, 250, 50, 40, and 200 feet. Average erosion heights are estimated to be seven, four, six, six, and six feet, respectively. Site HE26 has a high priority due to its proximity to a private driveway crossing; Site HE30 has a high priority due to its proximity to a private dam	134,200	35.8
RPC-HE31, 32, 33	Bank stabilization to address bank erosion along Hoods Creek of 40, 125, and 60 feet in length, respectively. Average erosion heights are estimated to be six, 5.5, and 10 feet, respectively	49,400	12.9
RPC-HE36	Bank stabilization to address bank erosion along 90 feet of Hoods Creek. Average erosion height is estimated to be nine feet. Erosion is in close proximity to stormwater detention basin outflow channel located on Jamestown Limited property	26,200	6.9
RPC-HE39	Bank stabilization to address bank erosion along 100 feet of Hoods Creek. Average erosion height is estimated to be six feet. Erosion is in close proximity to a residential garage	19,400	5.1

ID Number (from Table 79 in SEWRPC CAPR No. 316)	Management Action	Annual Pollutant Load Reduction	
		TSS (pounds)	Total Phosphorus (pounds)
RPC-HE40, 41, 42, 43, 44, 46	Bank stabilization to address erosion along Hoods Creek of 50, 100, 150, 75, 45, and 100 feet, respectively. Average erosion heights are estimated to be three, four, 3.5, six, five, and four feet, respectively	45,400	11.9
RPC-HE52	Bank stabilization to address bank erosion along 100 feet of Hoods Creek. Average erosion height is estimated to be six feet. Erosion is in close proximity to a stormwater outlet and Airline Road	6,400	2.0
RPC-HE54, 55, 56, 57, 58,59, 60, 61, 62	Bank stabilization to address bank erosion along Hoods Creek of 75, 150, 100, 40, 80, 50, 100, 75, and 50 feet, respectively. Average erosion heights are estimated to be 3.5, four, four, four, six, four, five, three, and 3.5 feet, respectively	83,600	30.5
RPC-HE63	Bank stabilization to address bank erosion along 60 feet of Hoods Creek. Average erosion height is estimated to be five feet	9,200	2.8
RPCHE67, 69	Bank stabilization to address bank erosion along 250 feet, and 60 feet of Hoods Creek, respectively. Average erosion heights are estimated to be 3.5 feet, and 15 feet, respectively	61,200	18.8
RPC-HE73	Bank stabilization to address bank erosion along 60 feet of Hoods Creek. Average erosion height is estimated to be 15 feet	34,400	10.6
RPC-HE76	Bank stabilization to address bank erosion along 30 feet of Hoods Creek. Average erosion height is estimated to be 12 feet	11,000	3.4
RPC-HE77, 78, 79	Bank stabilization to address bank erosion along 25, 20, and 25 feet of Hoods Creek, respectively. Average erosion heights are estimated to be six, eight, and 10 feet, respectively. Could be combined with projects aimed at remeandering channelized stream reaches, address tile drainage, and reconnecting the stream to a constructed floodplain bench in areas of severe incision in agricultural areas (see LRC-02)	17,000	5.3
RPC-HE80	Bank stabilization to address bank erosion along 100 feet of Hoods Creek. Average erosion height is estimated to be nine feet	27,600	8.5
RPC-HE81	Bank stabilization to address bank erosion along 75 feet of Hoods Creek. Average erosion height is estimated to be 12 feet. Could be combined with projects aimed at remeandering channelized stream reaches, address tile drainage, and reconnecting the stream to a constructed floodplain bench in areas of severe incision in agricultural areas (see LRC-02)	27,600	8.5
RPC-RE2	Bank stabilization to address bank erosion along 60 feet of the mainstem of the Root River. Average erosion height is estimated to be six feet	11,600	3.1
RPC-RE5	Bank stabilization to address bank erosion along 50 feet of the mainstem of the Root River. Average erosion height is estimated to be four feet	6,200	1.9
RPC-RE 8	Bank stabilization to address bank erosion along 70 feet of the mainstem of the Root River in Johnson Park. Average erosion height is estimated to be four feet	9,000	2.4
RPC-RE12	Bank stabilization to address bank erosion along 600 feet of the mainstem of the Root River. Average erosion height is estimated to be four feet. Adjust mowing protocol to leave unmowed area along streambank. Add designated fishing area	23,800	7.4
RPC-RE13	Bank stabilization to address bank erosion along 500 feet of the mainstem of the Root River. Average erosion height is estimated to be six feet	91,800	28.3
RPC-RE15	Bank stabilization and extension of existing rock toe downstream to address bank erosion along 50 feet of the mainstem of the Root River. Average erosion height is estimated to be 12 feet	19,400	5.1
RPC-RE18	Bank stabilization to address bank erosion along 245 feet of the mainstem of the Root River. Average erosion height is estimated to be five feet	37,400	11.5
RPC-RE20	Bank stabilization to address bank erosion along 240 feet of the mainstem of the Root River. Average erosion height is estimated to be five feet	36,800	11.3

ID Number (from Table 79 in SEWRPC CAPR No. 316)	Management Action	Annual Pollutant Load Reduction	
		TSS (pounds)	Total Phosphorus (pounds)
RPC-RE21	Bank stabilization to address bank erosion along 150 feet of the mainstem of the Root River. Average erosion height is estimated to be five feet	23,000	7.1
RPC-RE24	Bank stabilization to address bank erosion along 590 feet of the mainstem of the Root River. Average erosion height is estimated to be five feet	90,200	27.8
RPC-RE34	Bank stabilization to address bank erosion along 740 feet of the mainstem of the Root River. Average erosion height is estimated to be four feet	92,400	27.0
RPC-RE36, 37	Bank stabilization to address bank erosion along 20 feet and 160 feet of the mainstem of the Root River. Average erosion heights are estimated to be eight feet and seven feet, respectively	39,400	12.0
RPC-RE38, 39, 40, 41, 42	Bank stabilization to address bank erosion along 400, 80, 80, 100, and 120 feet of the mainstem of the Root River. Average erosion heights are estimated to be five, six, four, six, and five feet, respectively	110,400	33.9
RPC-RE43, 44	Bank stabilization to address bank erosion along 80 feet and 200 feet of the mainstem of the Root River. Average erosion height is estimated to be six feet for both sites	51,400	15.8
RPC-RE45, 46, 47, 48	Bank stabilization to address bank erosion along 80, 200, 240, and 160 feet of the mainstem of the Root River. Average erosion heights are estimated to be five, 10, five, and five feet, respectively	111,800	32.7
RPC-RE49, 50, 51, 52, 53, 54, 55	Bank stabilization to address bank erosion along 80, 80, 520, 130, 300, 200, and 240 feet of the mainstem of the Root River. Average erosion heights are estimated to be four, four, six, four, five, five, and five feet, respectively	240,200	72.0
RPC-RE56	Bank stabilization to address bank erosion along 50 feet of the mainstem of the Root River. Erosion is within one stream width of a residential structure. Average erosion height is estimated to be four feet	2,200	0.6
RPC-RE57, 58, 59	Bank stabilization to address bank erosion along 75, 100, and 290 feet of the mainstem of the Root River. Average erosion heights are estimated to be five, four, and four feet, respectively	20,400	5.3
RPC-RE60	Bank stabilization to address bank erosion along 50 feet of the mainstem of the Root River. Erosion is located at an outlet of a pond. Average erosion height is estimated to be five feet	8,200	2.1
RPC-RE61, 62	Bank stabilization to address bank erosion along 75 feet and 130 feet of the mainstem of the Root River. Average erosion heights are estimated to be seven feet and five feet, respectively	26,600	5.9
RPC-RE64, 65	Bank stabilization to address bank erosion along 170 and 80 feet of the mainstem of the Root River. Average erosion heights are estimated to be seven feet and six feet, respectively	54,200	14.2
RPC-RE66, 67, 68, 71, 72, 73	Bank stabilization to address bank erosion along 150, 880, 50, 200, 100, and 200 feet of the mainstem of the Root River. Average erosion heights are estimated to be 10, seven, 10, four, five, and four feet, respectively	306,400	87.0
RPC-RE69, 70	Bank stabilization to address bank erosion along 425 feet and 300 feet of the mainstem of the Root River. Average erosion height is estimated to be seven feet and eight feet, respectively	120,800	32.3
RCL-02	Installation of agricultural BMPs including: Grade stabilization structure 78 feet long; Subsurface drain 1,542 feet long; Grassed waterway 1,354 feet long; two underground outlets, 1,165 feet and 440 feet long; and three water and sediment control basins	200,184	61.6
RCL-03	Installation of agricultural BMPs including: Grassed waterway 392 feet long and two lined waterway outlets 20 feet and 16 feet long	11,843	2.7
RCL-04	Installation of agricultural BMPs including: four grassed waterways 1,450, 900, 1,945, and 520 feet long; five subsurface drains 1,314, 1,340, 930, 529, and 1,844 feet long; and an underground outlet 76 feet long	411,430	126.7

ID Number (from Table 79 in SEWRPC CAPR No. 316)	Management Action	Annual Pollutant Load Reduction	
		TSS (pounds)	Total Phosphorus (pounds)
RCL-05	Installation of agricultural BMPs including: three grassed waterways 1,116, 347, and 480 feet long; and one lined waterway outlet	222,963	68.7
RCL-06	Installation of agricultural BMPs including: one 1,138-foot-long grassed waterway; and one 1,138-foot-long subsurface drain	156,134	48.1
RCL-07	Installation of one 650-foot-long grassed waterway	33,841	10.4
RCL-08	Streambank protection structures to address erosion along 165-foot and 75-foot sections of the West Branch Root River Canal with respective estimated average erosion heights of eight and four feet	79,600	24.5
RCL-09	Installation of agricultural BMPs including: one 1,050-feet-long grassed waterway; and one 1,050-foot-long subsurface drain	144,060	44.4

[a]*This table provides additional and revised quantification for selected management measures listed in Table 79 of SEWRPC Community Assistance Planning Report No. 316 (CAPR No. 316),* A Restoration Plan for the Root River Watershed, *July 2014. The annual pollutant load reductions provided in this table supersede load reductions reported in Table 79 and Table 90 of the aforementioned report.*

[b]*Capital costs and annual operations and maintenance costs, respectively, for the specified bank stabilization projects not included in Table 79 of CAPR No. 316 are estimated as follows: LRC-07, $19,800 and $1,200; MRR-11, $99,000 and $5,900; MRR-17, $174,900 and $10,500; RHD-01, $6,600 and $400; RRC-01, $24,750 and $1,500; RRC-05, $33,000 and $1,980; RRC-06, $9,900 and $600; URR-05, $204,600 and $12,300; URR-17, $99,000 and $5,900; URR-19, $303,600 and $18,200; URR-20, $123,750 and $7,400; URR-21, $316,800 and $19,000.*

Source: SEWRPC.

The STEPL model was used to estimate the pollutant load reductions that could be achieved if the grassed waterway projects recommended in Table 79 of the *Root River Watershed Restoration Plan*[b] were implemented. The STEPL model calculates pollutant loads for gullies formed on agricultural fields based on the top width and bottom width of the gully, the depth of the gully, the length of the gully, the estimated number of years required to form the gully, and the soil textural class of the field in which the gully is located. A BMP efficiency rate of 0.70 was applied to the total load to account for any load that may not be captured by the installed grassed waterway. Due to the nature of agricultural field gully erosion, it was assumed that only 70 percent of the remaining load would be actually delivered to the receiving waterbody. Pollutant load reduction estimates for TSS and total phosphorus are provided for grassed waterway projects RCL-02 through RCL-07, and RCL-09 in the table above. See the full plan at http://www.sewrpc.org/SEWRPC/Environment/Root-River-Watershed-Restoration-Plan.htm

APPENDIX D

ESTIMATED POLLUTANT LOAD REDUCTIONS FROM GENERAL CRITICAL AREA RECOMMENDATIONS NORTH MILL CREEK-DUTCH GAP CANAL[a]

ID	Critical Area Type	Critical Catchment[b]	Total Critical Area	Unit	Initial Target %	Initial Target Action Quantity	Sediment Load Reduction (tons/yr)	Nitrogen Load Reduction (lbs/yr)	Phosphorus Load Reduction (lbs/yr)
CA 1	Highly Erodible Soils	51, 36, 57	124	ac	50%	62	126	2,398	1,457
CA 2	Wells and Septic Density	8, 75, 19	180	ac	NA	NA	N/A	N/A	N/A
CA 3	Hydric Soils and Wetland Restoration	31, 16, 25	526	ac	15%	79	71	1,825	830
CA 4	Treatment Wetland Opportunities	31, 16, 43	582	ac	5%	29	26	670	305
CA 5	Equestrian Areas	43, 18, 29	60	ac	80%	48	14	559	70
CA 6	Pollution Loading Hotspots	64, 12, 6	867	ac	25%	217	39	1,003	456
CA 7	Impervious Surfaces	1, 71, 47	158	ac	20%	32	2	141	18
CA 8	Nutrient and Pesticide Management Areas	31, 28, 16	487	ac	95%	463	189	3,581	2,176
CA 9	High Runoff Zones	31, 33, 16	830	ac	25%	208	424	8,043	4,888
CA 10	Urban Area Infiltration Zones	21, 20, 32	321	ac	50%	161	11	710	88
CA 11	Detention Basin Retrofits	47, 46, 66	36	ct	20%	7	2	154	19
CA 12	Stream and Lake Bank Erosion Stabilization	30, 4, 71	108	ac	20%	22	250	300	1,200
CA 13	Aquatic Stream Habitat Improvements	8, 55, 35	25	ac	20%	5	250	300	1,200
CA 14	Lake and Stream Buffers	26, 69, 5	35,456	ft	80%	28,365	30	762	347
CA 15	Areas of Greatest Land Use Change	3, 33, 68	1,081	ac	50%	541	180	11,929	1,482
						Total	**1,614**	**32,375**	**14,534**

[a]*The above table is reprinted from the North Mill Creek-Dutch Gap Canal Watershed-Based Plan Table 6-1.*

[b]*The Dutch Gap Canal in Kenosha County is identified in the North Mill Creek-Dutch Gap Canal Watershed-Based Plan as Critical Catchment 1-36.*

See the full plan at
http://www.lakecountyil.gov/Stormwater/LakeCountyWatersheds/DesPlainesRiver/Pages/NorthMillCreek.aspx

APPENDIX E

Tech Guide Practice Code	Practice Name	Kenosha County Cost- Share Rate
560	Access Roads and Cattle Crossings.	70%
330	Contour Farming	N/A
340	Cover crop.	N/A
342	Critical area stabilization.	70%
362	Diversions.	70%
380	Field windbreaks.	N/A
393	Filter strips.	70%
410	Grade stabilization structures.	70%
561	Heavy use area protection.	70%
468	Lined waterway or outlet	70%
382	Livestock fencing.	70%
614	Livestock watering facilities.	70%
313	Manure storage systems.	70%
360	Manure storage system closure.	70%
590	Nutrient management.	$7/ac/yr - 4 years upfront
528A	Prescribed grazing.	N/A
391	Riparian buffers.	70%
558	Roof runoff structure.	70%
580	Streambank and shoreline protection.	70%
606	Subsurface drains.	70%
600	Terrace systems.	70%
620	Underground outlets.	70%
634	Waste transfer systems.	70%
635	Wastewater Treatment Strips	70%
638	Water and sediment control basin	70%
412	Waterway system	70%
642	Well decommissioning	70%*
657	Wetland restoration	70%

* Payment not to exceed $700.00

APPENDIX F

ADOPTION DOCUMENTATION

RESOLUTION NO. 81

Presented to County Board

Date FEB 17 2016

Action by County Board

- [x] Adopted as presented FEB 17 2016
- [ ] Adopted as amended
- [ ] Referred to
- [ ] Defeated
- [ ] Withdrawn

COUNTY BOARD CHAIRMAN

Kimberly Breunig

Presented to County Executive FEB 17 2016

By Mary T Schuch-Helbs
County Clerk

Action by County Executive

- [x] Approved 2-29-16
- [ ] Vetoed
- [ ] Vetoed in part
- [ ] Effective without signature

By
County Executive

Veto action by County Board

- [ ] Overridden
  Vote to
- [ ] Sustained
  Vote to

Kenosha County

BOARD OF SUPERVISORS

RESOLUTION NO._____

Subject: **REQUEST THAT THE KENOSHA COUNTY BOARD APPROVE THE THIRD EDITION OF THE KENOSHA COUNTY LAND AND WATER RESOURCE MANAGEMENT PLAN - 2017-2026**			
Original ☑	Corrected ☐	2nd Correction ☐	Resubmitted ☐
Date Submitted: February 17, 2016		Date Resubmitted:	
Submitted By: Planning, Development, & Extension Education Committee			
Fiscal Note Attached ☐		Legal Note Attached ☐	
Prepared By: Andy Buehler, Director Division of Planning Operations		Signature: Andy M. Buehler	

WHEREAS, In 1997, Act 27 was created, which caused a revision to the Wisconsin Statues, Chapter 92, requiring all counties in Wisconsin to develop a Land and Water Resource Management Plan to address non-point source pollution from rural and urban land uses; and

WHEREAS, SEWRPC Planning Report No. 255 the Kenosha County Land and Water Resource Management Plan was prepared under the jurisdiction of the Kenosha County Land and Water Conservation Committee for the years 2000 through 2004, and was adopted by the Kenosha County Board of Supervisors by on November 14, 2000; and

WHEREAS, SEWRPC Planning Report No. 255 (2nd Edition) the Kenosha County Land and Water Resource Management Plan was prepared under the jurisdiction of the Kenosha County Land and Water Conservation Committee for the years 2008 through 2012, and was adopted by the Kenosha County Board of Supervisors on August 21, 2007; and

WHEREAS, Kenosha County Board of Supervisors supported a two-year extension of SEWRPC Planning Report No. 255 (2nd Edition) the Kenosha County Land and Water Resource Management Plan on December 4, 2012; and

WHEREAS, the Kenosha County Land and Water Conservation Committee, through the Division of Planning Operations, has been charged to develop a third edition of the Land and Water Resource Management Plan to maintain and/or improve conservation program efforts throughout Kenosha County, allowing the County to remain eligible for state program grant funding; and

WHEREAS, this newly revised Land and Water Resource Management Plan was jointly prepared under the direction of the Land and Water Conservation Committee through the Kenosha County Land and Water Resource Management Citizen Advisory Committee, and the Kenosha County Division of Planning Operations which entails a comprehensive workplan developed for the period 2017 through 2026; this plan revision fulfills all state statutory requirements of the planning and development process, including but not limited to extensive public input and participation; and

WHEREAS, in addition to maintaining the value of providing future Land and Water Resource Management Plan program direction and focus in Kenosha County, the Land and Water Resource Management Plan provides for the protection of our natural resources through conservation best management practices and provides the capability to distribute informational and educational resources to the public through an environmental educational approach; thus, the revisions made as outlined in the Revised Land & Water Resource Management Plan may continue to qualify Kenosha County as being deemed eligible to receive significant pollution abatement state grant funding allocation, beginning in the year 2017 through the calendar year 2026; and

WHEREAS, the Land and Water Resource Management Plan (3rd Edition) was approved by the Kenosha County Land and Water Conservation Committee on September 30, 2015 and approve by the Planning, Development, & Extension Education Committee on October 14, 2015.

NOW, THEREFORE, BE IT RESOLVED by the Kenosha County Board of Supervisors that the revised Kenosha County Land & Water Resource Management Plan (2017 through 2026) is hereby approved; and the Kenosha County Land and Water Conservation Committee is authorized to submit the revised Land and Water Resource Management Plan to the Wisconsin Land & Water Conservation Board for their review and consideration of approval.

NOW, THEREFORE, BE IT FURTHER RESOLVED that the Kenosha County Board of Supervisors enact an ordinance adopting the Kenosha County Land & Water Resource Management Plan (3rd Edition).

Approved by:

PLANNING, DEVELOPMENT
& EXTENSION EDUCATION
COMMITTEE

	Aye	No	Abstain	Excused
Doug Noble, Chair	☑	☐	☐	☐
Erin Decker	☑	☐	☐	☐
Michael Skalitzky	☑	☐	☐	☐
Greg Retzlaff	☑	☐	☐	☐
Michael Goebel	☑	☐	☐	☐

NEWS QUIRKS

Florida couple seeks wedding crashers

FORT MYERS, Fla. (AP) — Inspired by the popular movie "Wedding Crashers," a Florida couple is actually asking strangers to crash their wedding next month.

Paul Johnson and Shelly Osterhout said the more the merrier. They're hosting the Oct. 10 wedding at an outdoor shopping plaza and planning for up to 1,600 people.

Man drives after being shot in head

PHILADELPHIA (AP) — Police said a 29-year-old man in Philadelphia continued to drive a car after being shot twice.

Police pulled over a car that was being driven erratically Tuesday. The officers found the driver had been shot in the right forehead and right cheek. He is in critical but stable condition.

— News Quirks are also available on the Kenosha News app, which is available in the Google Play and Apple online stores for free.

Vatican observers raise questions over clerk's pope visit

LOUISVILLE, Ky. (AP) — The private meeting Pope Francis held with defiant Kentucky clerk Kim Davis is a strong papal endorsement of religious resistance to gay marriage, but it doesn't necessarily mean he approves of how she's waged her fight, experts said Wednesday.

Kim Davis

The Vatican newspaper, L'Osservatore Romano, said their encounter in Washington last Thursday was private. Out of deference to the Vatican, Davis' attorney, Mat Staver, would not say how it was arranged. The Vatican *essentially* confirmed it, without further comment.

Davis said she grasped the pope's outstretched hand, and he told her to "stay strong."

Davis refused to issue any marriage licenses in Rowan County, Ky., rather than comply with the Supreme Court ruling that effectively legalized gay marriage nationwide. She served five days in jail rather than resign. Some of her deputies now issue licenses without her authority, and she claims they are invalid.

"Just knowing that the pope is on track with what we're doing and agreeing, you know, it kind of validates everything," Davis told ABC News.

But Vatican observers said that's reading too much into the visit.

AP PHOTO

Pope Francis, shown arriving for Sunday Mass in Philadelphia, met with defiant Kentucky clerk Kim Davis in Washington last week.

"You can't take his presence with somebody as his affirmation of everything that they stand for," said Cathleen Kaveny, a theologian and legal scholar at Boston College. "He thanked her for her courage and told her to stay strong. That's a commitment to her voice in the conversation. I don't think it's necessarily commitment to her policy views."

Staver's revelation that Francis met his Apostolic Christian client at the Vatican Embassy after speaking to Congress provided a stunning coda to the pope's triumphant visit, which ended Sunday.

Francis largely steered clear of culture war issues, telling the U.S. bishops to avoid "harsh and divisive" language despite the challenges they face in society.

From the start of his six-day tour, Francis encouraged Americans to preserve religious freedom, but did so among a list of many other issues.

At the White House, he said "American Catholics are committed to building a society which is truly tolerant and inclusive," then said "they are likewise concerned that efforts to build a just and wisely ordered society respect their deepest concerns and their right to religious liberty."

Religious freedom, Francis said, is "one of America's most precious possessions."

Still, with much ground to cover during his first U.S. trip, Francis also emphasized immigration, climate change, workers' rights, the death penalty and war. By reaching above and beyond America's usual political and social divides, Francis raised questions about whether he prioritizes objections to gay marriage and other laws as much as U.S. bishops do.

U.S. Catholic leaders have increasingly invested in lobbying for accommodations for religious objectors, desperate to preserve the right of faith-based charities, colleges and hospitals to hire, fire, serve and set policy according to church teaching.

The pope also had a private meeting with the Little Sisters of the Poor, a religious order that, along with dozens of dioceses, is suing President Barack Obama over the birth control requirement in the Affordable Care Act, arguing that an exemption for religious objectors is too narrow.

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Announcements

1 Legal/Public Notices

AGENDA
KENOSHA COUNTY
PLANNING, DEVELOPMENT & EXTENSION EDUCATION COMMITTEE
Wednesday, October 14, 2015

Notice is hereby given that a meeting will be held by the Kenosha County Planning, Development & Extension Education Committee on Wednesday, October 14, 2015, at 6:00p.m. in Conference Room B followed by a public hearing at 7:00 p.m. in the Public Hearing Room at the Kenosha County Center, 19600 75th Street, Bristol, Wisconsin on the following requests:

6:00 p.m. UW-Extension & Budget Items - Conference Room B
1. Certification of Compliance with Wisconsin Open Meetings Law
2. Review and recommendation to the Finance Committee regarding the proposed 2016 UW-Extension budget(s)
3. Review and recommendation to the Finance Committee regarding the proposed 2016 Planning and Development budget(s)

7:00 p.m. – Public Hearings on Land Use Items – KOC Public Hearing Room
4. FINAL CONDOMINIUM PLAT – 27330 SILVER LAKE ROAD - SALEM
Final Condominium Plat of 27330 Silver Lake Road, Trail's End Lake House LLC, 9231 N. Glenwood, Chicago, IL 60660 (Owner), David Sieth, PO Box 268, Twin Lakes, WI 53181 (Agent) on Tax Parcel #65-4-120-162-0160 located in the NW 1/4 of Section 16, T1N, R20E, Town of Salem.
5. TOWN OF SALEM (OWNER), BRAD ZAUTCKE (AGENT) – REZONING – SALEM
Town of Salem, 9814 Antioch Rd., Salem, WI 53168 (Owner), Brad Zautcke, 9814 Antioch Rd., Salem, WI 53168 (Agent), requesting a rezoning from R-4 Urban Single-Family Residential Dist. to R-4 Urban Single-Family Residential Dist. & C-1 Lowland Resource Conservancy Dist. on Tax Parcels #65-4-120-164-0155, 65-4-120-164-0170, 65-4-120-164-0175, 65-4-120-164-0180, 65-4-120-164-0185 & 65-4-120-164-0190 located in the SE 1/4 of Section 16, T1N, R20E, Town of Salem.
6. MARIAN NILES TRUST (OWNER), RYAN FASANO (AGENT) – REZONING – SALEM
Marian Niles Trust, 26244 90th St., Salem, WI 53168-9328 (Owner), Ryan Fasano, 26233 90th St., Salem, WI 53168 (Agent), requesting a rezoning from R-2 Suburban Single-Family Residential Dist. to R-2 Suburban Single-Family Residential Dist. & C-1 Lowland Resource Conservancy Dist. on Tax Parcel #65-4-120-153-0830 located in the SW 1/4 of Section 15, T1N, R20E, Town of Salem.
7. PUBLIC HEARING THIRD EDITION OF THE KENOSHA COUNTY LAND AND WATER RESOURCE MANAGEMENT PLAN - 2017-2026
8. REVIEW AND POSSIBLE APPROVAL - RESOLUTION TO REQUEST THAT THE KENOSHA COUNTY BOARD APPROVE THE THIRD EDITION OF THE KENOSHA COUNTY LAND AND WATER RESOURCE MANAGEMENT PLAN - 2017-2026
9. TABLED ACTION 50 LLC (OWNER) – MARK MERKLING (AGENT) – COMPREHENSIVE PLAN AMENDMENT - WHEATLAND
Tabled Request of Public Hearing on Proposed Comprehensive Plan Amendment, Action 50 LLC, 420 W. Westleigh Rd., Lake Forest, IL 60045 (Owner), Mark Merkling, 3675 302nd Ave., Burlington, WI 53105 (Agent), requests an amendment to the Adopted Land Use Plan map for Kenosha County: 2035 (map 55 of the comprehensive plan) from "Suburban-Density Residential" & "Non-Farmed Wetland" to "Commercial" and "Non-Farmed Wetland" on Tax Parcel #95-4-219-314-0640 located in Section 31, T2N, R19E, Town of Wheatland.
10. TABLED ACTION 50 LLC (OWNER) – MARK MERKLING (AGENT) – REZONING – WHEATLAND
Tabled Request of Action 50 LLC, 420 W. Westleigh Rd., Lake Forest, IL 60045 (Owner), Mark Merkling, 3675 302nd Ave., Burlington, WI 53105 (Agent), requesting a rezoning from A-2 General Agricultural Dist. to B-3 Highway Business Dist. & C-1 Lowland Resource Conservancy Dist. on Tax Parcel #95-4-219-314-0640 located in SE ¼ Section 31, T2N, R19E, Town of Wheatland.
11. TABLED ACTION 50 LLC (OWNER) – MARK MERKLING (AGENT) – CONDITIONAL USE PERMIT – WHEATLAND
Tabled Request of Action 50 LLC, 420 W. Westleigh Rd., Lake Forest, IL 60045 (Owner), Mark Merkling, 3675 302nd Ave., Burlington, WI 53105 (Agent), requesting a Conditional Use Permit for Recreational Vehicle (RV) sales, service and outdoor display & storage in the B-3 Highway Business Dist. on Tax Parcel #95-4-219-314-0640 located on SE ¼ Section 31, T2N, R19E, Town of Wheatland.
12. Certified Surveys
13. Approval of Minutes
14. Citizen Comments
15. Any Other Business Allowed by Law
16. Adjournment

Published October 1 & 6, 2015

WNAXLP

1 Legal/Public Notices

STATE OF WISCONSIN
CIRCUIT COURT
KENOSHA COUNTY
IN THE MATTER OF THE ESTATE OF
Alexander Solomatko
NOTICE TO CREDITORS
(Informal Administration)
Case No. 15-PR-218

PLEASE TAKE NOTICE:
1. An application for informal administration was filed.
2. The decedent, with date of birth 10/29/1924 and date of death 06/08/2015, was domiciled in Kenosha County, State of Wisconsin, with a mailing address of 4819 67th Street, Kenosha, Wisconsin.
3. All interested persons waived notice.
4. The deadline for filing a claim against the decendent's estate is January 28, 2016.
5. A claim may be filed at the Office of Probate Registrar County Courthouse, Kenosha, Wisconsin, Room 114.

/s/
Kelly A. Bilotti
Probate Registrar
9/29/2015

Published: October 1, 8, 15, 2015

WNAXLP

STATE OF WISCONSIN
CIRCUIT COURT
KENOSHA COUNTY
National Mortgage LLC
8950 Cypress Waters Blvd
Coppell, TX 75019
Plaintiff,
vs.
Angie DiMaso
a/k/a Angela L DiMaso
2425 Enterprise Dr
Westchester, IL 60154-5626
John Doe DiMaso
2425 Enterprise Dr
Westchester, IL 60154-5626
Defendants.

PUBLICATION SUMMONS
Case No. 15-CV-1029 Branch 1
The Honorable David M. Bastianelli
Case Code 30404
(Foreclosure of Mortgage)

The amount claimed exceeds $10,000.00
THE STATE OF WISCONSIN
To each person named above as a defendant:

You are hereby notified that the plaintiff named above has filed a lawsuit or other legal action against you.
Within 40 days after September 17, 2015 you must respond with a written demand for a copy of the complaint. The demand must be sent or delivered to the court, whose address is 912 56th Street, Kenosha, WI 53140-3736 and to Gray & Associates, L.L.P., plaintiff's attorney, whose address is 16345 West Glendale Drive, New Berlin, WI 53151-2841. You may have an attorney help or represent you.
If you do not demand a copy of the complaint within 40 days, the court may grant judgment against you for the award of money or other legal action requested in the complaint, and you may lose your right to object to anything that is or may be incorrect in the complaint. A judgment may be enforced as provided by law. A judgment awarding money may become a lien against any real estate you own now or in the future, and may also be enforced by garnishment or seizure of property.
Dated this 8th day of September, 2015

Gray & Associates, L.L.P.
Attorneys for Plaintiff
By: /s/
William N. Fetting
State Bar No. 1020617
16345 West Glendale Drive
New Berlin, WI 53151-2841
(414) 224-1987

Gray & Associates, L.L.P. is attempting to collect a debt and any information obtained will be used for that purpose. If you have previously received a discharge in a chapter 7 bankruptcy case, this communication should not be construed as an attempt to hold you personally liable for the debt.

Published Sept. 17, 24, & Oct. 1, 2015

WNAXLP

STATE OF WISCONSIN
CIRCUIT COURT
KENOSHA COUNTY
SMALL CLAIMS SUMMONS

TO: Andrew Rutland
3021 100th Avenue
Kenosha, WI 53144

You are being sued by Landmark Credit Union, in the Small Claims Court of Kenosha County, Case No: 15-SC-724. A hearing will be held at 10:00 a.m. on October 15, 2015, at the Kenosha County Courthouse, 912 – 56th St., Kenosha, Wisconsin, (262) 653-2664. If you do not appear, a judgment may be given to the person suing you. (A copy of this claim has been mailed to you at the address above.) We are attempting to collect a debt and any information obtained will be used for that purpose.

Dated this 28th day of September, 2015
Mark C. Dernedder
State Bar No.: 1017259
735 N. Water St., Suite 830
Milwaukee, WI 53202
(414) 277-1400
Published October 1, 2015

WNAXLP

STATE OF WISCONSIN
CIRCUIT COURT
KENOSHA COUNTY
City of Kenosha, Wisconsin,
Plaintiff,
vs.
DANA BOYLE, dba
BOYLE LAW FIRM
1119 – 60th Street
Kenosha, Wisconsin
Defendant.
Case No. 15-SC-2410
SMALL CLAIMS PUBLICATION NOTICE

You are being sued by the City of Kenosha, Wisconsin, in Small Claims Court for Kenosha County. A hearing will be held in Room 300 of the Kenosha County Courthouse, 912 – 56th Street, Kenosha, Wisconsin [(262)653-2647] on Monday, October 12, 2015 at 2:30 PM
If you do not appear, a judgment may be given to the party suing you. A copy of the claims has been mailed to you at the address above.
Dated September 29, 2015
Jonathan A. Mulligan,
Assistant City Attorney
Room 201, 625 – 52nd Street,
Kenosha, Wisconsin 53140
(262)653-4170
Published: October 1, 2015

WNAXLP

STATE OF WISCONSIN
CIRCUIT COURT
KENOSHA COUNTY
Federal National Mortgage Association ("Fannie Mae"), a corporation organized and existing under the laws of the United States of America
P.O. Box 2008
Grand Rapids, MI 49501
Plaintiff,
vs.
Jeffrey A. Welch

1 Legal/Public Notices

477 49th Avenue
Kenosha, WI 53144
Patricia L. Welch
477 49th Avenue
Kenosha, WI 53144
State of Wisconsin Department of Revenue
114 East State Capitol
Madison, WI 53707
Defendants
SUMMONS
Real Estate Mortgage Foreclosure
Case No. 15-CV-908
Honorable Anthony Milwaukee
Case Code: 30404

THE STATE OF WISCONSIN
To the following party named as a defendant herein: Jeffrey A. Welch and Patricia L. Welch

You are hereby notified that the plaintiff named above has filed a lawsuit or other legal action against you. The Complaint, which is also served upon you, states the nature and basis of the legal action. Within 40 days after September 24th 2015, you must respond with a written answer, as that term is used in Chapter 802 of the Wisconsin Statutes, to the complaint. The Court may reject or disregard an answer that does not follow the requirements of the statutes. The answer must be sent or delivered to the Court, whose address is
Kenosha County Clerk of Circuit Court
912 56th Street
Kenosha, WI 53140-3747
and to James Peterman / J Peterman Legal Group Ltd., plaintiff's attorney, whose address is:
J Peterman Legal Group Ltd.
165 Bishops Way, Suite 100
Brookfield, WI 53005
You may have an attorney help or represent you.
If you do not provide a proper answer within 40 days, the court may grant judgment against you for the award of money or other legal action requested in the complaint, and you may lose your right to object to anything that is or may be incorrect in the complaint. A judgment may be enforced as provided by law. A judgment awarding money may become a lien against any real estate you own now or in the future, and may also be enforced by garnishment or seizure of property.
Dated this 3rd day of September, 2015

James M. Peterman /
J Peterman Legal Group Ltd.
State Bar No. 1015478
165 Bishops Way Suite 100
Brookfield, WI 53005
262-790-5219

J Peterman Legal Group Ltd. is the creditor's attorney and is attempting to collect a debt on its behalf. Any information obtained will be used for that purpose.
Published Sept. 24, Oct. 1, 8, 2015

WNAXLP

In the Matter of the
Marjorie Houch Family Trust
Notice to Creditors Under Wisconsin Statutes § 701.0308

The undersigned is a trustee of the Marjorie Houch Family Trust Dated July 30, 1999, as amended (the "Trust"). Marjorie Houch's date of birth was September 3, 1921 and her date of death was September 14, 2015. Marjorie Houch died domiciled in Kenosha County, Wisconsin, with a post office address of PO Box 3, Salem, WI 53168.

1 Legal/Public Notices

In accordance with Wisconsin Statutes § 701.0308 all creditor's claims must be filed with the trustee, at the address listed below, on or before February 5, 2016.
IF YOU DO NOT FILE YOUR CLAIM WITH THE TRUSTEE BY THE DATE SET FORTH ABOVE YOUR RIGHT TO BE PAID BY THE TRUSTEE OR FROM THE TRUST ASSETS WILL BE BARRED

/s/
Cristy Thompson
PO BOX 41
Salem, WI 53168
Dated: 9/25/15

Published October 1, 8, 15, 2015

WNAXLP

STATE OF WISCONSIN
CIRCUIT COURT KENOSHA COUNTY
COMMUNITY STATE BANK,
Plaintiff,
vs.
MILORAD IGNJATOVIC,
MIRJANA IGNJATOVIC,
UNION GROVE MOTORS, INC., and
UNITED STATES OF AMERICA,
Defendants
NOTICE OF SHERIFF'S SALE
Case No. 14 CV-1408
Foreclosure of Mortgage - 30404
Judge David M. Bastianelli
Branch 1

By virtue of and pursuant to a judgment of foreclosure entered in the above-entitled action on the 21st day of May, 2015, I will sell at public auction in the lobby of the Kenosha County Public Safety Building, 1000 55th Street, in the City of Kenosha, in said County, on Wednesday, October 14, 2015, at 10:00 o'clock a.m., all of the following described mortgaged premises, to-wit:
Parcel 4 of CERTIFIED SURVEY MAP NO 571, EXCEPTING the South 12 feet thereof, recorded in the Kenosha County Register of Deeds office on July 14, 1978 in Volume 1023 of Records, pages 728-29, as Document No. 638321, and being part of the Northeast 1/4 of Section 14, Town 1 North, Range 22 East of the Fourth Principal Meridian, lying and being in the Village of Pleasant Prairie, County of Kenosha and State of Wisconsin.
Address: 8542 43rd Avenue
Parcel No.: 92-4-122-141-0157
Terms of Sale:
1. 10% down payment in cash or certified check at time of sale; balance due within 10 days of confirmation of sale; failure to pay balance due will result in forfeit of deposit to plaintiff.
2. Sold "AS IS" and subject to all legal liens and encumbrances.

Dated at Kenosha, Wisconsin, this 8th day of September, 2015.

/s/
David G. Beth
Sheriff of Kenosha County, Wisconsin
DAVISON LAW OFFICE, LTD.
Attorneys for Plaintiff
1207 55th Street
Kenosha, WI 53140
Ph: 262-657-5165
Fax: 262-657-5517

Published: September 17, 24, October 1, 2015

WNAXLP

1 Legal/Public Notices

STATE OF WISCONSIN
CIRCUIT COURT KENOSHA COUNTY
COMMUNITY STATE BANK,
Plaintiff,
vs.
MILORAD IGNJATOVIC,
MIRJANA IGNJATOVIC,
UNION GROVE MOTORS, INC.,
UNITED STATES OF AMERICA, and
UNKNOWN TENANTS,
Defendants.
NOTICE OF SHERIFF'S SALE
Case No. 14-CV-1471
Foreclosure of Mortgage - 30404
Judge Anthony Milwaukee
Branch 4

By virtue of and pursuant to a judgment of foreclosure entered in the above-entitled action on the 22nd day of May, 2015, I will sell at public auction in the lobby of the Kenosha County Public Safety Building, 1000 55th Street, in the City of Kenosha, in said County, on Wednesday, October 14, 2015, at 10:00 o'clock a.m., all of the following described mortgaged premises, to-wit:
Lot 35 of HANNAH HEIGHTS, a subdivision of part of the South Half of Section 35, Town 2 North, Range 22 East of the Fourth Principal Meridian, lying and being in the City of Kenosha, County of Kenosha and State of Wisconsin.
Address: 4802 58th Street
Parcel No.: 08-222-35-454-012
Terms of Sale:
1. 10% down payment in cash or certified check at time of sale; balance due within 10 days of confirmation of sale; failure to pay balance due will result in forfeit of deposit to plaintiff.
2. Sold "AS IS" and subject to all legal liens and encumbrances.

Dated at Kenosha, Wisconsin, this 8th day of September, 2015.

/s/
David G. Beth
Sheriff of Kenosha County, Wisconsin
DAVISON LAW OFFICE, LTD.
Attorneys for Plaintiff
1207 55th Street
Kenosha, WI 53140
Ph: 262-657-5165
Fax: 262-657-5517

Published: September 17, 24, October 1, 2015

WNAXLP

STATE OF WISCONSIN
CIRCUIT COURT KENOSHA COUNTY
IN THE MATTER OF THE ESTATE OF
NICHOLAS W. BARBER
DECEASED
Notice to Creditors
(Informal Administration)
Case No. 15-PR-205

PLEASE TAKE NOTICE: