

Ozaukee County

Land and Water Resource Management Plan



January 2006



The preparation of this document was financed in part through the Wisconsin Coastal Management Program and the National Oceanic and Atmospheric Administration, of the Ocean and Coastal Resource Management, under the Coastal Zone Management Act, Grant #NA04NOS4190092

Mission Statement:

To promote sustainable and comprehensively planned growth in Ozaukee County through cost-effective technical and financial assistance, environmental education, and administration of county regulations that balance the concern for a robust local economy with: 1) the preservation, protection and enhancement of natural resources, 2) an increased awareness for environmental protection and regulation, and 3) the implementation of land and water conservation practices that provide the public with an improved quality of life in Ozaukee County.

Table of Contents

	<u>Page</u>
Committee Members	1
Ozaukee County LWRM Plan Summary	3
PREFACE	9
 Chapter 1 – Introduction – LWRM Plan Background, Development, and Public Participation	
Plan Development and Public Participation	10
Plan requirements	12
Performance Standards and Prohibitions.....	12
Performance Standards and Prohibitions Incorporated into County Ordinances	13
Public Comment and Plan approval	14
Plan Implementation	14
Chapter 2 – Inventory of Agricultural, Natural, Cultural and Community Resources	
Introduction	15
Agricultural Resources	15
Natural Resources	20
Cultural Resources	48
Community Resources (Population and Land Use)	50
Summary	56
Chapter 3 - Goals, Objectives, Strategies and Work Tasks	
Land and Water Quality Goals and Objectives	62
Consultation with Wisconsin Department of Natural Resources	69
Key Water Quality and Soil Erosion Critical Areas	69
Priority Farms in Ozaukee County (Targeted Lands)	70
Systematic Approach to Identifying Priority Farms.....	71
Cost Share Assistance and Availability for Priority Farms.....	71
Enforcement of State Standards and Prohibitions on Priority Farms.....	71
Tracking Priority Farm Compliance with State Standards & Prohibitions	72
Conservation Practices Needed to Address Water Quality and Erosion Problems	72
County Strategies to Encourage Voluntary Implementation Of Conservation Practices	74
Chapter 4 - Planned Activities	
Priorities Measurements - Implementation Schedule / Work Plan (chart)	75
Multiyear Activities to Ensure Compliance with FPP as it relates to State Standards	82
Multiyear Reporting and Tracking of Goals, Objectives, and Strategies.....	82
Multiyear Costs of Activities and Sources of Funding	83
Chapter 5 - Regulations for Plan Implementation	
State and Local Regulations Ozaukee County will use to Implement Plan	86
Summary	90
Chapter 6 - Information and Education	
Information and Education Strategy	92
Chapter 7 - Coordination	
Coordination with Federal, State, and Local Agencies, Roles and Responsibilities	95
Chapter 8 - Monitoring and Evaluation	
System to Monitor Activities and Measure Progress of Goals and Objectives	96
References Sited	98
Glossary	100
Appendices	104

Prepared under the jurisdiction of:

The Ozaukee County Environment and Land Use Committee

Rose Hass Leider, County Board Supervisor and Chair
Joseph Sopko, County Board Supervisor
Katherine L. Smith, County Board Supervisor
Thomas H. Richart, County Board Supervisor
Cindy Bock, County Board Supervisor
Roger Noll, USDA Farm Service Agency Representative

Prepared by:

The Ozaukee County Planning, Resources and Land Management Department

Andy Holschbach, Director
Andrew Struck, County Planner and Assistant Director
Jeff Bell, Land and Water Coordinator
Thomas Dueppen, Environmental Specialist



The Land and Water Resource Management (LWRM) Plan Advisory Committee

The LWRM Plan Advisory Committee met on October 10 and December 6, 2005 to assist in the development of the Draft Land and Water Resource Management Plan (LWRM Plan) with a design year of 2006 – 2010. The Local LWRM Plan Advisory Committee includes a diverse mix of interest groups including landowners, farmers, local government elected officials, nonprofit organizations, educators, local, regional, state, and federal agencies, basin partnership members, and citizens. The Local LWRM Plan Advisory Committee's purpose is:

- Help identify problem areas, conservation issues and concerns;
- Provide information and technical data for the LWRM Plan;
- Assist with preparation of LWRM Plan, including review of the inventory data and maps;
- Review and comment on the LWRM Plan as it develops;
- Advise the Environment and Land Use Committee on program options for the LWRM Plan;
- Coordinate agency programs with the implementation of the County LWRM Plan
- Discuss jurisdictional issues and cooperation needed with municipalities and drainage districts.

The Local LWRM Plan Advisory Committee sent a mailing to an Ozaukee County farmer mailing list to inform the agriculture community of the LWRM Plan and a public hearing for the LWRM Plan scheduled for February 27, 2006 at 1:00 PM. In addition, the LWRM Plan Final Draft was posted to the County website for review and comment on February 8, 2006.

The Land and Water Resource Management Plan Advisory Committee

Jeff Opitz, Farmer / Town of Saukville
Jim Melichar, Farmer / Town Board Member – Town of Port Washington
Francis Kleckner, Farmer / Town Board Chairman – Town of Belgium
Lee Schlenvogt, Farmer / Town Board Chairman – Town of Port Washington
Ken Albinger, Ozaukee County Farm Bureau
Lance Leider, Farmer / Town Board Member – Town of Fredonia
Tim Kaul, Farmer / Town Board Member – Town of Grafton, Board Member of Ulao Creek Partnership, Inc.
Mike Paulus, Farmer / Towns of Belgium and Saukville
Don Hamm, Farmer / Town of Saukville
Andrew Large, Farmer / Town of Belgium
John Pipkorn, Farmer / City of Mequon
Dale Katsma, WDNR - Wildlife
Missy Sparrow, WDNR - Wildlife
Julie Peltier, WDNR - Forestry
Victor Pappas, WDNR - Sheboygan River Basin, Team Leader
Craig Webster, WDNR - Agriculture
Bill Hoppe, City of Mequon, City Engineer
Timothy Fuchs, Pheasants Forever, Inc.
Shawn Graff, Ozaukee Washington Land Trust, Executive Director
Dale Buser, Northern Environmental, Hydrogeologist
Rick Flood, Citizen, Cedarburg
Susan Eichelkraut, WDNR - Stormwater
Noel Cutright, We Energies and Riveredge Bird Club Organizer
Daniel Lynch, Wings Over Wisconsin Member
Steven Lenz, U.S. Fish and Wildlife Service (USFWS)
Marsha Burzynski, WDNR - Planning
Donald Reed, SEWRPC – Environmental Division
William Wawrzyn, WDNR - Fisheries
Angie Tornes, NPS – Rivers, Trails, and Conservation Assistance Program
Dan O'Neil, Ozaukee County - UWEX / Agricultural Agent
Mark Baran, NRCS – District Conservationist
Dan Ziegler, Ozaukee County - Public Health Dept., Environmental Specialist
Sue Millin, Land Conservation Partnership of Ozaukee and Washington Counties
Jill Hapner, GeoBotany Systems, Botanist
Angie Curtes, Ozaukee Washington Land Trust, Assistant Director
Coreen Ripp Fallat, Wisconsin DATCP
Sharon Gayan, WDNR – Milwaukee River Basin, Team Leader
Andrew Struck, Ozaukee County – PRLM Dept., County Planner and Assistant Director
Andy Holschbach, Ozaukee County – PRLM Department, Director
Jeff Bell, Ozaukee County – PRLM Dept., Land and Water Coordinator
Thomas Dueppen, Ozaukee County – PRLM Dept., Environmental Specialist
Rose Hass Leider, Ozaukee County – Board of Supervisors & Chair, Environment & Land Use Committee
Marc White, Riveredge Nature Center, Land Steward

OZAUKEE COUNTY LWRM PLAN SUMMARY

Chapter 1 Introduction:

Ozaukee County is the smallest County in Wisconsin by land area. There are three bordering counties; Milwaukee to the south, Washington to the west, Sheboygan to the north, and Lake Michigan borders to the east. The county has a surface area of about 235 square miles, which consists of approximately 150,458 acres of land and 2,062 acres of water. Ozaukee County currently has about 82,317 residents located in six townships and seven incorporated municipalities.

This LWRM Plan was designed by PRLM Department staff and represents contributions from public officials, agency staff and private citizens. The LWRM Advisory Committee members are listed on page 2. The committee met three times, before creating the final draft. As part of the plan process, every effort was made to incorporate all of the comments from the LWRM Advisory Committee. The results of the June 2005 public opinion survey, which were a result of the County's Multi-jurisdictional Comprehensive Planning Process, were also incorporated in the Plan. Supplemental information for the LWRM Plan was also obtained from: the WDNR Milwaukee and Sheboygan River Basin Plans; SEWRPC publications; and previous Priority Watershed Plans for Ozaukee County. Performance Standards and Prohibitions along with Priority Farms are also a significant portion of the LWRM Plan priorities, and are described in Chapters 3 and 4.

Chapter 2 Inventory of Agricultural, Natural, Cultural and Community Resources:

This chapter provides inventory information on existing agricultural, natural, cultural and community resources in Ozaukee County. Information regarding soil types, existing farmland, farming operations, topography and geology, water resources, forest resources, natural areas and critical species habitats, environmental corridors, park and open space sites, historical resources, archeological resources, and non-metallic mining resources are all included in this chapter. In addition, population and land use inventory information are presented as relevant to the management of land and water resources.

The base years for the inventory data presented in this chapter range from 1994 to 2005. Much of the inventory data has been collected through regional land use and natural area planning activities conducted by SEWRPC. Additional inventory data was collected by County, local units of government, and State & Federal agencies. Included in these agencies is the Wisconsin Department of Natural Resources; Wisconsin Department of Agriculture, Trade, and Consumer Protection; Wisconsin Historical Society; U.S. Census Bureau; U.S. Department of Agriculture – Farm Service Agency; and U.S. Department of Agriculture - Natural Resource Conservation Service.

Chapter 3: Goals, Objectives, Strategies, & Work Task

Ozaukee County established four goals after evaluating all the inventory data and incorporating comments from various members of the LWRM Advisory Committee. Below each goal (listed as Goal 1 thru Goal 4) are the objectives, strategies and work tasks to accomplish these goals. The “strategies” are listed after each objective, and the highest priority strategies are highlighted in yellow. The key work tasks targeted to complete the goals, objectives, and strategies, are listed in the plan directly under each strategy.

Goal 1. Improved Land and Water Resources

There are eight objectives under this goal:

- A) **Habitat Protection and Restoration.** The strategies with high priority include: restore, protect, and enhance Natural Areas; protect Riparian Lands along waterways; manage Invasive Species; and restore, enhance, create, and protect wetlands, woodlands, and grasslands.
- B) **Protect Public Recreation and Access.** The highest priority strategies include: provide, protect, and improve safety, public access and recreational opportunities; insure the safe use of beach water and make beaches more aesthetic for patrons.
- C) **Pollution Reduction and Control.** The highest priority strategies include: reduce cropland erosion; reduce nitrogen and phosphorous to surface waters; reduction of failing septic systems; Stormwater and Construction Site Erosion Control – NR216 revised NOI; and animal waste reduction.
- D) **Protect Natural Systems.** The high priority strategies include promoting infiltration and natural hydrology systems.
- E) **Protecting Public Safety.** The highest priority strategies include: focus on water quality impacts to the health, safety, and welfare of people.
- F) **Preserve and Protect Farmland and Working Lands.** The highest priority strategies include: implement Farmland Preservation Program; promote Farm and Ranch Program; encourage County programming to protect farmland; provide technical and financial assistance to North Branch Farming Heritage Areas.
- G) **Protect Lake Michigan and its Resources.** The specific high priority strategies include the protection and enhancement of Lake Michigan water quality.
- H) **Wildlife Management.** The highest priority strategies include: Wildlife Damage Abatement and Claims Program; and promote working with all non-profit conservation organizations.

Goal 2. Regional Leadership, Education and Collaboration

There are two objectives under this goal:

- A) **Improved Stakeholder Education and Public Participation.** The highest priority strategies include: identify and educate the public, municipal leaders, students and media on costs of providing different levels of services for water quality protection.
- B) **Improved Collaborative Relationships and Partnerships.** The highest priority strategies include: encourage existing and future partnerships to improve land and water quality; and creating programs and policies focusing on countywide land and water quality issues.

Goal 3. Strong Governmental Role in Environmental Protection

There are two objectives under this goal:

- A) **Improved Policy Regulations and Enforcement.** The highest priority strategies include: enforce existing government regulations consistently; establish and improve coordinated planning, monitoring systems, and implementation throughout all levels of government.
- B) **Improved Government Planning and Monitoring.** The highest priority strategies include: establish and improve coordinated planning, monitoring systems, and implementation throughout all levels of government.

Goal 4. Effective Planning and Design

There are five objectives associated with this goal:

- A) **Comprehensive Planning.** The highest priority strategies include: complete and adopt a County Multi-Jurisdictional Comprehensive Plan for Ozaukee County by 2008; implement County Planning review of Plats, per Wisconsin Stats. Chap. 236 and County Shoreland Zoning Ordinance; provide for public participation in the Comprehensive Planning process.
- B) **Implement Park and Open Space Plan.** The high priority strategy is natural area planning.
- C) **Incorporate Regional Water Quality Management and Watershed Basin Planning.** The high priority strategy is waterways draining directly into Lake Michigan.

- D) Integrated Funding and Implementation of Plans.** The highest priority strategies include: working on integrated Plan Goals; determine total costs and benefits; identify funding sources for private strategies.
- E) County Planning and Review.** There was no specific high priority strategy for this objective.

Priority Farms are also identified in this chapter. Chapter 2 of the plan describes the four areas (Impaired waters on 303(d) list, Sauk and Sucker Creek, waterways flowing directly into Lake Michigan, and any NOD in the County) where cost share assistance will be targeted. Cost share assistance will also be prioritized by the list included in Chapter 3. In all cost sharing activities the Prohibitions and Performance Standards will be met for each cost shared BMP practice installed. A farm checklist will be used for each Priority Farm (see example in Appendix 3.1). The checklist will be attached to the farmer's conservation plan by tax identification number and transferred with changes in land ownership. The County will also develop a GIS data layer for tracking conservation practice implementation.

Chapter 4. Planned Activities

This chapter breaks down the Goals, Objectives, and Strategies into a table, which shows the following:

- 1) Activities targeted to meet the strategies
- 2) Responsible agencies to perform the activity, with lead agency listed first
- 3) Total estimated needs to be completed within the five year plan
- 4) Amount of activity to be completed by year starting in 2006 and ending in 2010
- 5) Unit of measurement to report and track activity accomplishments

Once again the yellow highlighted activities are the priority areas to be accomplished. At the end of the spreadsheet on page 77 is the "Multiyear description of activities" to ensure compliance with state standards and prohibitions.

The estimated costs for implementing these activities are detailed in the "Multiyear Costs of Activities and Funding" chart, including future funding needs and funding sources. Furthermore, each Goal and Objective is listed along with "Estimated Staff Time", "Estimated Cost Share Funds Needed", and "Estimated Staff Cost".

Chapter 5. Regulations for Plan Implementation

Ozaukee County will use State and local regulations to implement the LWRM Plan. These regulations will include: County Ordinances, Compliance Procedures, Notices, Hearings, Enforcement and Appeal of Agricultural Standards & Prohibitions. Priority Farms will comply with State Standards & Prohibitions for manure management and Ozaukee County's current Manure Storage Ordinance will be updated to reflect the new NRCS 313 standard and incorporate the State's "Manure Management Prohibitions".

Land use and development regulations affect the type of uses allowed, as well as the detailed design and site layout of proposed developments. The land use regulations adopted by Ozaukee County must correspond with zoning, subdivision, and official mapping regulations adopted by participating local governments. Zoning ordinances are public laws that regulate and restrict the use of private property and should promote the implementation of an adopted master or comprehensive plan. Each city, town, and village in Ozaukee County has also adopted a zoning ordinance. Each zoning ordinance typically consists of two parts: a text setting forth regulations that apply to each of the various zoning districts,

together with related procedural and administrative requirements; and a map delineating the boundaries of zoning districts. The county currently administers three ordinances that influence future land use.

The *County Shoreland and Floodplain Zoning Ordinances* regulates the zoning of shoreland areas within unincorporated areas. This ordinance includes restrictions on uses in wetlands located in the shorelands, and limits the types of uses that can occur in the 100-year recurrence interval flood hazard area. The ordinance also includes restrictions on the removal of vegetation and other activities in the shoreland area, and requires that most structures be set back a minimum of 75 feet from navigable waters. These county regulations also remain as minimum land use regulations, for property annexed by cities and villages.

The *County Nonmetallic Mining Reclamation Ordinance* was enacted to ensure the effective reclamation of nonmetallic mining sites in Ozaukee County. The requirements of this ordinance apply to all operators of nonmetallic mining sites within Ozaukee County operating or commencing operation after August 1, 2001, except for nonmetallic mining sites located in a city, village, or town that has adopted an ordinance that meets the standards set forth by the Ozaukee County nonmetallic mining reclamation ordinance and Chapter NR 135 of the Wisconsin Administrative Code.

The *County Highway Access Control Ordinance* regulates access onto County trunk highways. The ordinance contains regulations regarding existing accesses to County trunk highways, vacated accesses, access prohibitions, subdivision of land, access spacing and frequency along County trunk highways, and access design standards.

The Wisconsin Statutes authorize cities and villages to adopt extraterritorial zoning regulations for land bordering adjacent unincorporated areas, in cooperation with the adjacent town. The border width depends on the class of the city or village. The City of Mequon is currently the only municipality in Ozaukee County which has adopted an extraterritorial zoning ordinance, involving a southeast portion of the Town of Grafton. The Villages of Saukville and Newburg are in the process of adopting extraterritorial zoning ordinances.

A land division ordinance is a public law that regulates the division of land into smaller parcels. In most areas, the county and town have concurrent jurisdiction over land divisions. The Ozaukee County shoreland and floodplain zoning ordinance includes land division regulations for areas located in the shoreland and also has review and approval authority for all subdivisions located in unincorporated portions of the County. All cities and villages in the county have adopted a land division ordinance, and most towns except for the Town of Belgium have adopted a land division ordinance.

The comprehensive planning law requires that zoning, subdivision, and official mapping ordinances be consistent with a governmental unit's comprehensive plan as of January 1, 2010. As of that date, the County shoreland zoning ordinance and subdivision regulations must be consistent with the comprehensive plan adopted by the County Board, and city, village, and town zoning, subdivision, and official mapping ordinances must be consistent with the comprehensive plan adopted by the Common Council, Village Board, or Town Board. To assist in meeting this requirement, the Ozaukee County PRLM Department has included this as one of the objectives in the LWRM Plan.

Chapter 6. Information and Education

The Information and Education (I & E) strategy is critical to accomplishing each goal identified in the LWRM Plan, since the goals require many individuals in the county to make behavioral changes to protect land and water resources. Individuals will most likely not make these changes unless they understand the importance of land and water resources, how they are inter-connected, ways to protect these resources, and what instruments are available to assist them.

I & E Plan- Goal 1: Improve land and water resources by raising awareness of the financial assistance opportunities available through various funding sources.

I & E Plan Goal 2: Improve regional leadership, education and collaboration by informing citizens about the ecological, recreational and economic value of land and water conservation.

I & E Plan Goal 3: Strong governmental role in environmental protection by encouraging local municipalities to adopt management practices initiated at the county level.

I & E Plan Goal 4: Effective planning and design by encouraging landowners to adopt new management practices.

The educational objectives associated with these goals mainly involve public information activities, encouraging partnerships to improve land & water quality, promoting policies and regulations that improve and protect water quality, prioritizing water quality issues in comprehensive and land use planning. The ways to accomplish these objectives range from producing newsletters and presentations to developing ordinances that focus on conservation and funding BMPs on Priority Farms.

Chapter 7: Coordination

Coordination with federal, regional, state and local agencies is necessary to protect land and water resources in Ozaukee County. The Ozaukee County PRLM Department Staff are responsible for the implementation, design and construction of the conservation practices identified in LWRM Plan. However, the county relies upon several Federal and State cost share programs to help fund these projects. These management programs include: Environmental Quality Incentive Program (EQIP) from USDA, Priority Watershed cost share funding from WDNR, Land and Water Resource Management Plan Funding from DATCP, Conservation Reserve Program (CRP), Wetland Reserve Program (WRP) and Conservation Reserve Enhancement Program (CREP) from USDA and DATCP.

Staffing assistance from the Joint WDNR and DATCP allocation process will also be key to the success of the LWRM Plan. Each agency has its own particular mission and leadership, but has a common goal to preserve and protect the environment for future generations. Cooperation is imperative to guarantee successful plan implementation. Many of these agencies are included in the LWRM Plan and will be relied upon for technical support, funding, cooperation and guidance.

Chapter 8. Monitoring and Evaluation

The PRLM Department will continue to work closely with the participants of several local monitoring programs that are currently assessing the quality of land and water resources in Ozaukee County. The programs are not in-depth monitoring sites, but they should provide the department with information regarding general “trends” in the quality of the land and water. The PRLM Department will provide educational assistance and also encourage expansion of their monitoring programs.

Evaluation of annual program achievements will be reported to the ELU Committee and County Board. Evaluation against goals, objectives, strategies and work tasks will also occur with annual reporting to various state agencies such as: DATCP, WDNR, WCMP, WDOA and others.

PREFACE

During 1996, Land and Water Conservation professionals throughout Wisconsin forged the County Land and Water Resource Management Plan concept. This was done partly in response to a state legislative call to “redesign” Wisconsin’s nonpoint pollution abatement programs. More importantly, the Land and Water Resource Management Plan concept evolved from a long-stated need to establish a process that ensured local decision making, increased program delivery mechanisms, and utilized local, state and federal funds with greater effectiveness toward the protection of land and water resources.

In 1997 the Land and Water Resource Management Plan concept became law as Chapter 92.10 of the Wisconsin Statutes was amended. This created a County Land and Water Resource Management Planning Program that is intended to:

- rely on a locally driven process for plan development and implementation;
- maximize flexibility in how program funds are used;
- foster comprehensive watershed-based efforts without excessive planning;
- support innovation and cost effectiveness toward achieving objectives;
- foster the “seamless” integration of programs and funding sources; and
- establish a credible means to measure the extent to which planned objectives are achieved.

Chapter 92 is the enabling legislation that provides counties, through their Land Conservation Committees, the formal authority to develop a County Land and Water Resource Management Plan. This plan provides structured means that will integrate and leverage available programs, funds, and other resources to:

- guide the process for resource management planning and decision making;
- compile information for evaluating land and water resource conditions;
- identify land and water related resource problems and priorities;
- develop a multi-year work plan to address land and water resource problems by watershed;
- strengthen partnerships with landowners, other agencies, municipalities, and organizations;
- integrate efforts with other county and basin level Natural Resource Management Plans;
- coordinate with Township and County comprehensive land use planning efforts;
- develop effective information and education strategies that will strengthen and maintain community support for the planned Land and Water Resource Management Plan goals and objectives; and
- track progress toward the achievement of the plan’s goals and objectives.

Ozaukee County has a long-standing record of leadership and participation in natural resource protection, preservation and improvement. These actions include prior plan development, program design, and project implementation which all emphasize partners, cooperation and integration to cost-effectively and efficiently protect, preserve and improve the County’s natural resources.

The driving force behind the development of the Ozaukee County Land and Water Resource Management Plan is the opportunity to establish a true locally driven process. That means individual citizens, units of government, and local, regional, state, and federal agency representatives working together to develop a framework which: 1) positively integrates natural resource management programs and funding sources; and 2) provides the necessary flexibility to allocate staff and financial resources where they will do the most toward accomplishing resource management objectives.

Chapter 1. INTRODUCTION – LWRM PLAN BACKGROUND, DEVELOPMENT, AND PUBLIC PARTICIPATION

Locally led conservation is based on the principle that local / regional leaders are best suited to identify and resolve local natural resource problems. It challenges local, regional, state, and federal agency representatives and urban and rural neighbors to work together and take responsibility for addressing natural resource needs. Locally led conservation creates new opportunities, but also poses significant challenges to County Committees to take a more active role as conservation leaders in their communities.

Counties have the primary responsibility for implementing the new runoff standards as detailed in NR 151 and ATCP 50. DATCP expects that counties will implement the new rules using their Land and Water Resource Management (LWRM) plans. These plans identify local conservation needs and set forth priorities in a county.

Plan Development and Public Participation

This Land and Water Resource Management (LWRM) Plan was designed by numerous partners and citizens for the citizens of Ozaukee County. The Planning, Resources and Land Management Department (PRLM) enlisted the help of thirty-nine volunteers, the LWRM Advisory Committee, to list and rank concerns that effect natural resources in Ozaukee County. The PRLM Department used this group of citizens, organizations, agency staff, and elected officials with diverse backgrounds, expertise, and geography to try and obtain various land and water resource issues in the County. The product is intended to be comprehensive and provide adequate direction of the PRLM Department for the next five-year period (2006-2010). The LWRM Plan Advisory Committee also developed a variety of work tasks and activities they would like to see the County undertake. The activities are in-line with County goals and mission, and PRLM Department will work towards accomplishing these activities to uphold the quality of life in Ozaukee County for today's citizens and future generations.

The Land and Water Resource Management (LWRM) Plan is not intended to contain an exhaustive inventory of land and water resources in Ozaukee County; however, the Planning, Resources and Land Management (PRLM) Department drew upon the recently updated (2005) natural and agricultural resource inventories compiled as part of the Multi-jurisdictional Comprehensive Plan for Ozaukee County to provide a thorough land and water resource inventory. Additionally, the LWRM Plan draws upon other existing inventory information from previously prepared plan documents (see References Section). Recent development trends and land use data were also drawn from the recently compiled inventory data (2005) from the Multi-jurisdictional Comprehensive Plan for Ozaukee County. Desirable natural resources and agricultural inventory data that were not compiled as part of the Multi-jurisdictional Comprehensive Plan for Ozaukee County were compiled independently from a number of sources by the PRLM Department specifically for use in the LWRM plan. Additionally, inventory data was compiled from PRLM-maintained databases and geographic information system (GIS) data layers. Pollution control plans for the five Milwaukee River Priority Watersheds, Milwaukee and Sheboygan River Basin Plans and computer databases were used in the preparation of inventory data. Finally, plan documents listed in the Appendices were also utilized to support and provide inventory data for the LWRM plan. These plan documents are available at the PRLM Department to provide additional detailed information on particular items discussed in the LWRM Plan.

Public Opinion Survey of Ozaukee County Residents

The PRLM Department, in conjunction with its Multi-jurisdictional Comprehensive Planning process, conducted a countywide public opinion survey of Ozaukee County residents in June 2005. Residents from 14 cities, villages, and towns assisted in identifying and prioritizing some of the major land and water resource issues of concern as well as other issues related to the nine elements of a comprehensive plan. The survey included a wide range of questions from planning and development topics such as housing, transportation, agricultural and natural resources, land use, and economic development. The survey was statistically significant for Ozaukee County at the 95% confidence level with a margin of error of +/- 4.83% (406 respondents). The full report of the countywide comprehensive planning Public Opinion Survey of Ozaukee County Residents is provided in Appendix 1.1.

Local Land and Water Resource Management Plan Advisory Committee

A local Land and Water Resource Management Plan Advisory Committee was established to assist in identifying and prioritizing issues of concern, to assist in identifying goals, objectives, strategies and work tasks, and to provide input into the development of the Land and Water Resource Management Plan for Ozaukee County. The first meeting of the Land and Water Resource Management Plan Advisory Committee was held on Monday, October 10, 2005. The first meeting of the Ozaukee County LWRM Plan Advisory Committee introduced the members to the existing Ozaukee County LWRM Plan, provided a summary of inventory data collected and prepared for the LWRM Plan, provided a brief description of current PRLM Department programs and projects, agenda minutes, handouts (Appendix 1.2). A Powerpoint Presentation providing a summary of the countywide public opinion survey of Ozaukee County residents was also include (Appendix 1.8). An invitation letter to LWRM Plan Advisory Committee members, agenda, and minutes of the first meeting are included in Appendix 1.3. The invitation letter, agenda, minutes, and photo of the Committee members at the second meeting, held on December 6, 2005, are included in Appendix 1.4. The invitation letter, agenda, and minutes of the LWRM Plan Advisory Committee's review and comments on the draft LWRM Plan document are included in Appendix 1.5. The third meeting of the LWRM Plan Advisory Committee was held on February 7, 2006. The agenda is included in Appendix 1.5a. Comments on the final draft of the LWRM Plan were provided by Advisory Committee members at the third meeting.

Milwaukee and Sheboygan River Basin Partnership Coordination

Ozaukee County has established ongoing communications with all of the WDNR / UWEX Land and Water Basin Team Leaders in the Sheboygan and Milwaukee River Basins. PRLM Department staff are represented on both the Milwaukee River Basin Partnership and the Sheboygan River Basin Partnership and various supporting committees including the executive committees. The Milwaukee and Sheboygan River Basin Partnership goals are listed in Appendix 1.6. In addition, the State of the Basin Report for both the Sheboygan River Basin and the Milwaukee River Basin were used in developing the inventory data, goals, objectives and priorities for the Ozaukee County LWRM Plan. Most of the goals, objectives and priorities by the Milwaukee and Sheboygan River Basin Partnerships are addressed as part of the Ozaukee County LWRM Plan.

Relationship between County LWRM Plan and the Priority Watershed Plans

This plan is not intended to replace the existing priority watershed plans, which focus on specific drainage basins. Instead, this plan supplements and provides countywide recommendations that are not addressed by the various priority watershed plans. Recommendations in the priority watershed plans remain priorities for the County, especially where they are consistent with the countywide goals and objectives listed in the LWRM Plan. The priority watershed plans and associated funding for implementation, which include approximately 70% of Ozaukee County, will all be closed by 2006. However, the priority watershed plan implementation has been used to focus the priorities of the LWRM Plan.

Plan Requirements

The statutory requirements of this plan are administered by Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP). A County Land and Water Resource Management Planning Program was created through amendments to Chapter 92.10 of the Wisconsin Statutes in Wisconsin Act 27 (the 1997-1999 Biennial Budget Bill). The goal of the amendment was to create a planning process that would be locally led, flexible, and watershed-based with efficient leverage of economic resources. The first plans were approved in 1998. These plans are meant to guide the direction of the county government in assessing their resource conditions and needs, deciding how to best meet water quality goals and conservation objectives, and measuring progress towards meeting those goals. To be approved, the LWRM plan shall meet the requirements of ATCP 50 and Wisconsin Administrative Code as described in Chapter 92 of the State Statutes.

To receive DATCP approval, a LWRM plan must:

- Describe water quality (WQ) and soil erosion condition in the county
- Identify state and local regulations used to implement the plan (DATCP may ask for copies of local regulations and make comments)
- Identify WQ objectives working with WDNR
- Identify key WQ and soil erosion problems, and practices to address those problems
- Plan to identify priority farms based on WQ needs, manure management problems, nutrient applications and other criteria
- Develop strategies to promote voluntary compliance, including information and education, cost sharing and technical assistance
- Identify compliance procedures, including notices and appeals.
- Develop a multi-year work plan to implement farm conservation practices, and achieve compliance with WDNR performance standards (NR 151) – include priorities and expected costs
- Explain how local conservation efforts will be coordinated with state and federal agencies
- Meet plan development requirements, including a separately-appointed advisory committee, public hearing, and county board approval

After the LWRM plan is developed, it is submitted to the Department of Agriculture, Trade, and Consumer Protection for review and approval. The plan must also receive approval from the Wisconsin Land and Water Conservation Board.

Performance Standards and Prohibitions

Performance standards and prohibitions are a vital component of County Land and Water Resource Management Plans. The WDNR and DATCP have developed performance standards for agriculture and non-agriculture nonpoint pollution sources. In October 2002 after long deliberation and many public hearings new state runoff rules took effect. WDNR rule (**NR 151**) sets performance standards for runoff and to protect water quality. The DATCP rule (**ATCP 50**) identifies conservation practices available to maintain compliance with the WDNR standards. Specifically the DATCP rule sets the requirements that a **nutrient management plan (NMP)** must meet to comply with state law. The prohibitions listed in § 281.16(3) Wisconsin Statute are:

- No direct runoff from feedlots or stored manure into **waters of the state**

- No unlimited livestock access to Shoreland areas where high concentrations of animals prevent the maintenance of adequate or self-sustaining sod cover
- No overflow of manure storage structures
- No manure stacking in confined piles within a **water quality management area (WQMA)**

Other standards outlined in the newest rules are:

- If you grow agricultural crops you must meet (T) on cropped fields and follow a nutrient management plan by 2005 (for high priority areas – e.g. **impaired water, or outstanding (ORW) and exceptional waters (ERW)**) and by 2008 for all others
- If you raise, feed or house livestock starting in 2005 (for high priority areas) and 2008 (for all others) you must follow a **NMP** when applying or contracting to apply manure to limit entry of nutrients into waters of the state
- If you have a plan to build, or want to repair (or upgrade) a failing or leaking manure storage structure, that poses an imminent health threat to the public, or violates groundwater standards, the manure storage structure must comply with current NRCS Manure Structure Standards.
- Abandoned manure storage structures shall be closed according to accepted standards
- Meet technical standards for a newly constructed or substantially-altered manure storage structure
- If you have land in a WQMA, you must divert clean water away from feedlots, manure storage areas and barnyards located within this area

How these performance standards are to be implemented and enforced will be detailed in subsequent chapters of this plan.

Performance Standards and Prohibitions Incorporated into County Ordinances

Several of the Performance Standards and Prohibitions are currently not incorporated into Ozaukee County Ordinances. However, this LWRM Plan includes a framework / time frame for incorporating non-agricultural and agricultural standards and prohibitions into the following current and proposed ordinances:

- Nonmetallic Mining (NR 235 / non-agricultural standards)
- Shoreland and Floodplain Zoning (NR 115, NR 116, NR 216, NR 151, ATCP 50)
- Construction Site Erosion Control (NR 216 / non-agricultural standards)
- Stormwater Management (NR 216 / non-agricultural standards)
- Manure Storage (NR 151, ATCP 50 / agricultural prohibitions and standards)

Working together with other county departments, future ordinances will need to be enacted to strengthen the implementation of other performance standards and prohibitions. A top priority will be the development of a more comprehensive Construction Site Erosion Control and Stormwater Management Ordinance to better address the nonpoint pollution problems associated with construction development. The Ozaukee County Environment and Land Use Committee has approved a joint approach with the WDNR to enforcement of the Performance Standards and Prohibitions. The County will work with the WDNR for enforcement of NR 243 upon landowner request. Other than the above-mentioned County ordinances, the County will rely upon WDNR enforcement for other state standards.

Public Comment and Plan Approval

A Public Hearing was held on February 27, 2006, in the Ozaukee County Administration Center Auditorium, Port Washington, WI. A copy of the newspaper notices is shown in Appendix 1.7. Notice of the public hearing was also sent to agriculture producers and livestock operators registered with the Farm Service Agency in their newsletter. Eleven people attended the public hearing, a brief summary presentation was given and no comments were received. The Environment and Land Use Committee approved the final draft of the LWRM Plan at their February 21, 2006 meeting. The Environment and Land Use Committee recommended the Land and Water Board approved LWRM Plan version to the County Board for approval at their _____ meeting. Copies of the County Board approved resolution and State approval documentation will be attached to the LWRM Plan as a cover letter addendum.

Plan Implementation

The Ozaukee County Board of Supervisors approved the Ozaukee County LWRM Plan at their _____ meeting. Based on the approved LWRM Plan, the PRLM Department will partner with local, state, and federal agencies and organizations to conserve Ozaukee's land and water resources, reduce soil erosion, prevent nonpoint source pollution and enhance water quality. The PRLM Department will assist those agencies with primary responsibility for enforcement of ordinances including the WDNR. Enforcement of county ordinances depends on the involvement with other departments. Recent consolidation of the Environmental Health and Land and Water Conservation Departments can streamline priorities and make enforcement more effective. The PRLM Department will also assist other agencies with implementation of financial assistance programs.

Education and outreach activities are critical to reaching each resource protection goal and objective. These activities must reach and involve a variety of audiences including citizens, decision-makers, interest groups, non-resident landowners, and landowner groups. Communication is key to ensure an accepted plan and buy-in from local residents. Responsible stewardship shall include all residents: citizens, decision-makers, interest groups, and landowner and user groups.

Chapter 2. INVENTORY OF AGRICULTURAL, NATURAL, CULTURAL AND COMMUNITY RESOURCES

Introduction

The conservation and wise use of agricultural and natural resources and the preservation of cultural resources are fundamental to achieving strong and stable physical and economic development as well as maintaining community identity. The Ozaukee County Land and Water Resource Management (LWRM) plan recognizes that agricultural, natural, and cultural 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 locate future urban and rural land uses to avoid serious environmental problems and to ensure protection of natural resources.

This chapter provides inventory information on existing agricultural, natural, and cultural resources in the Ozaukee County planning area. Information regarding soil types, existing farmland, farming operations, topography and geology, water resources, forest resources, natural areas and critical species habitats, environmental corridors, park and open space sites, historical resources, archeological resources, and non-metallic mining resources is included in this chapter. The planning goals, objectives, strategies and work tasks set forth in Chapter 3 of this report are directly related to the inventory of the resources listed above.

The base year for inventory data presented in this chapter range from 1994 to 2005. Much of the inventory data has been collected through regional land use and natural area planning activities conducted by SEWRPC. Additional inventory data has been collected from the County, local units of government, and State and Federal agencies including the Wisconsin Department of Natural Resources; Wisconsin Department of Agriculture, Trade, and Consumer Protection; State Historical Society of Wisconsin; U.S. Census Bureau; and U.S. Department of Agriculture. The maps, figures and tables described in this chapter are included in Appendix 2.

AGRICULTURAL RESOURCES

Soil Suitability for Agricultural Production

The U.S. Department of Agricultural Soil Conservation Service, now the Natural Resources Conservation Service (NRCS), issued a soil survey for Ozaukee County in 1970. The information can be applied in managing farms and woodlands; in selecting sites for roads, buildings, and other structures; identifying mineral resources; and judging the suitability of land for agricultural, industrial, or recreational uses. The soil survey plays an important role in land use decisions. It is possible to determine which areas of the County are suitable for agricultural use, areas vulnerable to erosion, and areas where marketable nonmetallic mineral deposits may be present, as documented later in this chapter through a variety of soil analysis methods.

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. Class I soils have few limitations, the widest range of use, and the least risk of damage when used. 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. The soils in the other classes have progressively

greater natural limitations. Class VIII soils are so rough, shallow, or otherwise limited that they do not produce economically worthwhile yields of crops, forage, or wood products. 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”. This classification system also indicates the potential for both water and wind erosion. The erosion potential for soil covering agricultural fields in Ozaukee County is shown in Map 2.1.

The location and amount of Class I, II, and III soils were critical in identifying farmland preservation areas in the existing County farmland preservation plan (adopted in 1983) and existing town land use and master plans. Areas recommended in those plans to be preserved for agricultural use were typically parcels of 35 acres or more covered by at least 50 percent Class I, II, and III soils and located in blocks of existing farmland at least 100 acres in size.

Following preparation of the County farmland preservation plan, the NRCS developed an alternative method for identifying areas to be preserved as farmland. This method is known as the Land Evaluation and Site Assessment (LESA) system. LESA is a numeric system for rating potential farmland preservation areas by evaluating soil quality (LE or land evaluation) and geographic variables (SA or site assessment). The LESA system was used to identify the farmland preservation areas recommended by this plan.

The land evaluation component of the LESA rating system is based on the NRCS Soil Survey Geographic Database (SSURGO), which includes the County soil surveys and the attributes of each soil type. The NRCS rated each soil type in Ozaukee County and placed the soil ratings into groups ranging from the best to the worst suited for cropland. The best group is assigned a value of 100 and all other groups are assigned lower values. In addition to soil type, the land evaluation component considers slope, the agricultural capability class, and soil productivity. Map 2.2 depicts the land evaluation ratings for agricultural soils in the planning area, grouped by various ranges. Acres within each range are listed in Table 2.1.

The site assessment component of the LESA rating system is based on geographic variables, which have been determined specifically for the Ozaukee County planning area and each town.

Cropland Erosion (Transect Survey)

It should be emphasized that the previously mentioned classification and rating systems are based solely on soil characteristics and how a soil typically responds to management and treatment. Farming practices, which have a direct bearing on the rates of erosion, are not taken into account. To incorporate farming practices into soil erosion rates and provide a scientifically measurable assessment of soil loss in Ozaukee County, the PRLM Department (formerly the Land and Water Conservation Department) initiated a transect survey in 1999. A transect survey is an annual survey of cropland to determine the soil erosion rates, by consistently sampling crop fields throughout the county. A traveling route was established for the entire county, which consists of a ½ mile grid-sampling pattern, and the PRLM Department continues to revisit these same data sites (~700 total) every year. Information collected on each site includes present and previous crop history; type of tillage system, amount of residue left after planting; slope length and slope percentage; if any ongoing erosion is noticed; and the watershed location. Occasionally a site will need to be eliminated from the survey because it no longer applicable to monitoring. The most common reason for removing a site from the survey is due to the construction of a building and/or subdivision. Ozaukee County’s Transect Survey which now has six years worth of data shows that we have approximately 20% of crop fields above “T”. The trend in data shows a steady decrease in soil loss, but still approximately 20% above “T”. Ozaukee County has and will continue to stress

soil loss in FPP (Farmland Preservation Program) Plans. See Appendix 3 for Transect Survey Reports.

Existing Farmland

Agricultural lands in 2000 were identified in the SEWRPC land use inventory and include all croplands, pasture lands, orchards, nurseries, and non-residential farm buildings. Farm residences, together with a 20,000 square foot dwelling site, are classified as single-family residential land uses. Table 2.2 sets forth the number of acres occupied by farmland in the City of Mequon and each town in the planning area in 2000. Farmlands occupied 86,285 acres, or about 35 square miles, representing almost 55 percent of the planning area.

Map 2.3 shows the area devoted to farmland use in 2000, categorized as follows:

- Cultivated Lands, which includes lands used for the cultivation of crops including row crops, grain crops, vegetable crops, and hay.
- Pasture Land and Unused Agricultural Lands, which includes lands used as pasture, or lands which were formerly cultivated or used for pasture which have not yet succeeded to a wetland or woodland plant community.
- Orchards and Nurseries. This category does not include greenhouses, which are shown as commercial on the land use map.
- Other Agricultural, which includes lands used for sod farms and specialized crops such as mint, ginseng, and berry fields.

As shown on Map 2.3 and Table 2.2, cultivated lands are the predominant type of agricultural use in the planning area, accounting for about 83 percent of all land used for agricultural purposes in 2005. Graph 2.1 also shows that the two northern Townships (Belgium and Fredonia) have the most acreage in the planning area that is utilized for agricultural purposes.

Farm Production and Revenue

In addition to inventory data regarding the suitability of lands and soils in the planning area for agricultural uses, it is also important to collect farm production and revenue data. Farm production and revenue inventory data are useful in determining the economic impact of agricultural operations on Ozaukee County and how much of the land suitable for agricultural uses should be preserved.

Ozaukee County farms produce a varied array of agricultural products including many varieties of crops and livestock. Among the most prominent of these agricultural products are corn, forage (hay, grass silage, and greenchop), soybeans, small grains, and dairy products. Table 2.3 sets forth 2002 crop production and changes in production between 1999 and 2002 and between 1990 and 1999 in the County and the State.

In 2002, 19,900 acres were devoted to corn production in Ozaukee County. This represents an increase of 3,200 acres, or 19 percent, from 1999; however, from 1990 to 1999 the County lost 5,500 acres of corn production, which was a 25 percent loss. From 1990 to 1999 the State saw a 3 percent loss in land devoted to producing corn, but saw a 5 percent gain from 1999 to 2002. In addition, 15,200 acres were devoted to forage crops in the County in 2002. This represents a loss of 2,600 acres, or 15 percent, from 1999. The County lost 3,600 acres of forage between 1990 and 1999, which was a 17 percent loss. The State saw a loss of 11 percent of its forage land between 1990 and 1999 and a loss of 17 percent between 1999 and 2002.

Vegetable Crop Inventory

Also in 2002, 9,100 acres were devoted to soybean production in the County. This represents a 4 percent loss from 1999, although acres devoted to soybeans grew from 3,000 acres to 9,500 acres between 1990 and 1999. The State saw a 202 percent increase in acres devoted to soybean production between 1990 and 1999 and a 17 percent increase between 1999 and 2002. Acres devoted to small grains have decreased sharply in recent years as opposed to acres devoted to soybeans. In 2002, 6,400 acres were devoted to small grain production in the County, which is the same as the number of acres in 1999; however, it is a 47 percent decrease from the 1990 level of 12,100 acres. The State saw a 50 percent decrease between 1990 and 1999 and a 6 percent decrease between 1999 and 2002.

Livestock Inventory

There is also significant livestock agricultural activity in Ozaukee County, in addition to crop agricultural activity. The most prevalent livestock activity in the County is dairy farming. In 2002 there were 9,000 dairy cows in the County. They produced 166,500,000 pounds of dairy products or 18,500 pounds per cow. There were 103 cows in the average herd. Total dairy production and average herd size increased by 13 percent in the County from 1999 to 2002. Total dairy production changed very little in the County from 1991 to 1999, however, the number of cows decreased by almost 19 percent while productivity per cow increased almost 23 percent. The State saw a decrease of about 5 percent in total dairy production between 1999 and 2002 and an increase in herd size of 6 percent between 1999 and 2002. The State experienced a 5 percent decrease in total dairy production between 1991 and 1999. The State had about 22 percent less cows in 1999 than in 1991, but also experienced about a 21 percent increase in productivity per cow.

Agricultural Products Inventory

Table 2.4 sets forth the different agricultural products grown in Ozaukee County and the number of farms involved in producing each agricultural product. As the table suggests, individual farms in the County have diversified crops and livestock.

Ozaukee County farms combined to produce agricultural products with a market value of \$38,323,000 in 2002 consisting of \$14,471,000 in crops and \$23,852,000 in livestock, poultry, and associated products. The average farm in the County produced agricultural products with a market value of \$71,901. Farms across the State combined to produce agricultural products with a market value of \$5,623,275,000 in 2002. The average farm in the State produced agricultural products with a market value of \$72,906.

Farm Operation Inventory

The average net income from farm operation in the County in 2002 was \$20,616, compared to an average of \$17,946 for the State. Farming was the principal occupation of the farm operator on 302 farms, or almost 57 percent, and was not the primary occupation of the farm operator on 231 farms, or about 43 percent. Statewide, farming was the principal occupation of the farm operator on about 59 percent of farms and was not the principal occupation of the farm operator on about 41 percent of farms.

Table 2.5 sets forth sales for Ozaukee County farms in 2002 by category. There were 113 farms, or about 21 percent of farms in the County, with sales of \$100,000 or more in 2002, while 226 farms, or about 42 percent, had sales less than \$2,500. About 18 percent of State farms had sales of \$100,000 or more and almost 40 percent had sales less than \$2,500 in 2002.

Number and Size of Farms

There were 533 farms in Ozaukee County in 2002. Of the 533 farms located in the County, 81 were dairy farms. Table 2.6 sets forth the number of farms by size category in Ozaukee County and the State of Wisconsin. The average farm size in the County was 142 acres in 2002, while the median farm size was 79 acres. This compares to 204 acres and 140 acres, respectively, for farms in the State. Table 2.6 shows that 287 farms in Ozaukee County, or almost 54 percent, were between 50 acres and 499 acres in size. There were 223 farms, or about 42 percent, less than 50 acres, and 23 farms, or about 4 percent, were 500 acres or greater in size. In the State, about 64 percent of farms were between 50 and 499 acres. Almost 28 percent of farms were under 50 acres, and about 8 percent were 500 acres or greater in size. As indicated in the table below, the total number of farms in Ozaukee County has steadily decreased over the past 30 years while the number of dairy cows and cattle have remained almost the same. This trend indicates that each farm site has had to increase the number and/or size of buildings, to accommodate for the larger herd sizes. The loss of agricultural land to increasing land development is also indicated by the significant increase in the average sale price/acre of agricultural land in the county over the past 30 years.

AGRICULTURAL TRENDS – OZAUKEE COUNTY

	1976	1986	1996	1998	2002	2005
Total # of farms	660	540	550	560	533	*
# of dairy farms	255	190	110	98	81	77
# of dairy cows	9,900	11,200	9,300	9,100	9,000	8,800
Land in farms (acres)	106,500	88,000	86,000	85,000	75,467	71,755
Price / Acre (average land sale)	1,500	1,774	2,215	2,288	6,602	14,415
Total # of cattle	*	*	20,000	19,000	19,000	20,000

* statistic not recorded

Farms Enrolled in State and Federal Preservation Programs

There are a number of State and Federal conservation programs that have been created to help protect farmland and related rural land. These programs include the Wisconsin Farmland Preservation Program, Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program (CREP), and the Wetland Reserve Program (WRP).

Wisconsin Farmland Preservation Program

The Wisconsin Farmland Preservation Program allows farmers who agree to maintain farmland in agricultural use to receive annual State income tax credits. The farm must be a minimum of 35 acres, and must produce a minimum of \$6,000 in gross farm receipts in the previous year or \$18,000 in the previous three years. Contracts are for a 10-year period. The farm must be zoned for exclusive agricultural use and the town-zoning ordinance must be certified by the Department of Agriculture, Trade, and Consumer Protection (DATCP) in order for a farm to be enrolled in the program.

The Town of Belgium and Town of Cedarburg master plans, and the Town of Fredonia, Town of Port Washington, and Town of Saukville land use plans each designate farmland preservation areas within their jurisdictional areas. Farmland preservation areas typically include prime agricultural lands. Prime agricultural lands are generally defined in the local plans in terms of farm size, soil characteristics, and the aggregate area being farmed. Farmland preservation areas designated in local plans adopted prior to 2005 are shown on Map 2.5.

The Town of Fredonia, Town of Belgium, and Town of Saukville plans designate prime agricultural lands as farmland preservation areas. Prime agricultural lands are defined as parcels of 35 acres or larger that are at least 50 percent covered by soils that meet NRCS standards for national prime farmland or farmland of Statewide importance (class I, II, or III soils), and which occur in aggregate blocks of farmland or conservancy lands of 100 acres or more in extent.

The Town of Port Washington plan designates exclusive agricultural areas as farmland preservation areas, but the plan does not define the criteria used to identify exclusive agricultural areas. The Town of Cedarburg plan designates agricultural lands as farmland preservation areas. Agricultural lands are defined as those lands actively being farmed with a minimum parcel size of 35 acres. Land designated for agricultural use is not based on the amount of class I, II, or III soil types covering the land.

The zoning ordinances for all six townships in Ozaukee County have been certified. In 2005, there were 706 Wisconsin Farmland Preservation Program tax parcels under contract in Ozaukee County encompassing approximately 35,244 acres of farmland.

USDA Programs

The U.S. Department of Agriculture (USDA) administers a variety of incentive programs to provide water quality protection, erosion control, and wildlife habitat in agricultural areas. Under the Conservation Reserve Program (CRP) and the Conservation Reserve Enhancement Program (CREP), the 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 conservation improvements. In 2005, there were 559 CRP contracts and 29 CREP contracts in Ozaukee County. CRP lands encompassed about 5,892 acres and CREP lands encompassed about 120 acres.

Another conservation program administered by the USDA is the Wetland Reserve Program (WRP). The WRP is a program aimed at protecting wetlands on private property. This is typically done by providing a financial incentive to landowners to restore wetlands that have been drained or filled for agricultural use. Landowners who choose to participate in the program may sell a conservation easement to the USDA or enter into a cost-share restoration agreement with the USDA to restore wetlands. The landowner retains private ownership of the wetland area but limits future uses. In 2005, there were four WRP agreements encompassing about 101 acres of land in Ozaukee County.

NATURAL RESOURCES

Geomorphology

The landforms and physical features of the Ozaukee County planning area, such as the topography and geology, are important determinants of regional growth and development. The physical geography of an area must be considered in land use, transportation, and utility and community facility planning and development, and for its contribution to the natural beauty and overall quality of life in an area. The Ozaukee County planning area lies on the western shore of Lake Michigan and directly east of a major subcontinental divide between the Mississippi River and the Great Lakes – St. Lawrence River drainage basins (see Figure 2.8, page 41).

Ozaukee County Soils and Soil Associations

The USDA-NRCS soil survey identifies and maps each of the various soil types found in the County. Soils have been mapped and are organized by soil association, soil series, and soil type.

Soil associations are general areas with broad patterns of soils. Soil associations in the planning area are shown on Map 2.6. There are five soil associations in Ozaukee County: the Kewanee-Manawa association, Ozaukee-Mequon association, Hochheim-Sisson-Casco association, Houghton-Adrian association, and the Casco-Fabius association.

The Kewanee-Manawa association contains well-drained to somewhat poorly drained soils that have a subsoil of clay to silty clay loam formed in thin loess and silty clay loam glacial till on uplands. Most of this association is cultivated. Erosion control and tile drainage are the main concerns in managing these soils.

The Ozaukee-Mequon association contains well-drained to somewhat poorly drained soils that have a subsoil of silty clay loam and silty clay formed in thin loess and silty clay loam glacial till on uplands. Most of this association is cultivated with erosion control and drainage of low wet areas being the chief management concerns.

The Hochheim-Sisson-Casco association contains well-drained soils that have a subsoil of loam to clay loam underlain mainly by loamy till, outwash, and lake-laid deposits on uplands, terraces, and in lakebeds. Most areas suitable for cultivation have been cleared and are cultivated. This association also contains more woodlands than other associations found in the County.

The Houghton-Adrian association contains very poorly drained organic soils in basins and depressions. Most areas of this association are wooded and provide habitat for wildlife. Crops grow well on areas that are adequately drained and are protected from soil blowing. Throughout most of the year the water table is high and the soils are highly compressible under heavy loads. Use of the soils for residential and industrial development and for highways is severely limited.

The Casco-Fabius association contains well drained and somewhat poorly drained soils that have a subsoil of clay loam and sandy clay loam; shallow over gravel and sand and on stream terraces. Most of the soils in this association are cultivated. The soils are easy to cultivate and erosion is generally not a serious hazard. These soils are a good source of sand and gravel.

Topographic Features

Glaciation has largely determined the topography and soils of the planning area. Generalized areas of physiographic features and generalized topographic characteristics in 100-foot interval contours are shown on Map 2.7. Surface elevations in the planning area range from a low of 580 feet above sea level in the Town of Belgium along Lake Michigan to a high of 988 feet above sea level in the southwestern portion of the Town of Cedarburg. In general, the topography of the planning area is relatively level to gently rolling in some areas, with low lying areas associated with streams and wetlands. The nature of the Lake Michigan shoreline in the County is generally characterized by areas of steep slopes, including bluffs and several ravines.

There is evidence of four major stages of glaciation in the planning area. The last and most influential in terms of present topography was the Wisconsin stage, which ended in the State about 11,000 years ago. Except for a few isolated spots where dolomite bedrock is exposed at the surface, the entire planning area is covered with glacial deposits ranging from large boulders to fine grain clays such as silty clay loam till, loam to clay loam, and organic mucky peat. Glacial deposits may be economically significant because some are prime sources of limestone, which has historically been quarried in the planning area.

Geology Sites

Knowledge of bedrock and the surface deposits overlaying the bedrock is important to land use, transportation, and other utility and community facility planning. Bedrock conditions and the overlaying surface deposits directly affect the construction costs of urban development such as streets, highways, and utilities, particularly those that involve extensive trenching or tunneling, and also affect the location of onsite waste treatment systems. The bedrock formations underlying the planning area consist of the Milwaukee Formation and Niagara Dolomite. The Milwaukee Formation includes shale and shale limestone and dolomite in the bottom third. It is approximately 130 feet thick and is found in a 23,276 acre area, or about 36 square miles, in the eastern portion of the planning area along Lake Michigan. Niagara Dolomite is approximately 100 feet thick and is found in a 135,520 acre area, or almost 212 square miles in the central and western portions of the planning area. Map 2.8 depicts the depth to bedrock found in the planning area.

A total of 16 sites of geological importance, including one glacial feature and 15 bedrock geology sites, were identified in the County in 1994 as part of the regional natural areas study. The geological sites included in the inventory were selected on the basis of scientific importance, significance in industrial history, natural aesthetics, ecological qualities, educational value, and public access potential. The 16 sites selected in Ozaukee County include five sites of statewide significance (GA-1), six sites of countywide or regional significance (GA-2), and five sites of local significance (GA-3). Together, these sites encompass about 274 acres in Ozaukee County. Map 2.9 shows the locations of the sites of geological importance. Table 2.7 sets forth a description of each site.

Lake Michigan Bluff and Ravine Areas

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. Additional information regarding these conditions are available at the University of Wisconsin Sea Grant website: <http://www.seagrant.wisc.edu/communications/LakeLevels/index.html>. 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 Ozaukee County are summarized in Table 2.8 and depicted on Map 2.10. The findings shown in Table 2.8 are from multiple research points along several shoreline “reaches” which begin in Milwaukee County and progress northward along the shoreline to the Ozaukee – Sheboygan County border. The linear expanse of each reach was determined by the presence of similar shoreline characteristics.

Information summarized in Table 2.8 includes bluff height, bluff stability, shoreline recession data, and beach width. The same information is documented in greater detail in the 1995 SEWRPC Lake Michigan shoreline recession and bluff stability report. Bluff stability field research was conducted at 192 sites, including 62 sites in Ozaukee County, which are summarized in Table 2.8. A safety factor score of less than 1.0 is considered unstable, a score of 1.0 to 1.1 is considered marginally stable, and a score of greater than 1.1 is considered stable.

There are approximately 25 linear miles of Lake Michigan shoreline in the Ozaukee County planning area. The shoreline contains areas of substantial bluffs with heights of up to 140 feet, ravines, areas of gently rolling beaches with widths of up to 150 feet, and areas of low sand dune ridges and swales. Bluff stability safety factors ranged greatly in the planning area from 0.59 to 1.88. Shoreline recession rates also ranged greatly from an average of 0 feet per year between

1963 and 1995 to an average of 4.1 feet per year between 1963 and 1995. Estimated beach width ranged between 0 feet and 150 feet at selected sites along the shoreline.

Nonmetallic Mineral Resources

Nonmetallic minerals include crushed stone (gravel), dimension stone, and sand. Nonmetallic mines (quarries) provide sand and stone for transportation facilities and buildings. Nonmetallic minerals are important economic resources that should be taken into careful consideration whenever land is being considered for development. Mineral resources, like other natural resources, occur where nature put them, which is not always convenient or locally desirable. If an adequate supply of stone and sand is desired for the future, wise management of nonmetallic mineral resources is important.

Areas Suitable for Sand and Gravel Extraction

Map 2.11 shows the location of potential commercially workable sand deposits and the location of potential commercially workable gravel deposits in the planning area. Soil mapping units are rated as probable and improbable sources of sand or gravel. The rating is intended only to show the probability of the presence of material of suitable quality in workable quantities. As shown in Map 2.11, about 39 square miles, or 15 percent of the planning area, are covered by soil mapping units which have been identified as probable sources of sand and about 10 square miles, or 10 percent of the planning area, are covered by soil mapping units which have been identified as probable sources of gravel. Areas possibly containing commercially workable amounts of sand and gravel occur throughout the planning area with the largest concentrations in the western portion of the planning area and along the Milwaukee River. Table 2.9 sets forth the amount of area covered by soil mapping units which have been identified as probable sources of sand or gravel in each participating local government.

Existing Quarries and Registered Sites

In 2000, there were 23 sites encompassing almost 544 acres in the planning area being used for non-metallic mining based on the SEWRPC land use inventory. The location of these sites is shown on Map 2.12. There are no sites in Ozaukee County which are currently registered as sites with marketable nonmetallic mineral deposits that are in operation. Chapter NR 135 of the *Wisconsin Administrative Code* establishes a procedure for landowners to register marketable nonmetallic mineral deposits in order to preserve these resources.

NR 135 subchapter VI defines a marketable mineral deposit as one which can be or is reasonably anticipated to be commercially feasible to mine and which has significant economic or strategic value. Only the owner of the land (as opposed to the owner of the mineral rights or other partial rights) can register a marketable nonmetallic mineral deposit. The registration must include a legal description of the land and certification and delineation by a registered professional geologist or a registered professional engineer. In making this certification, the geologist or engineer must describe the type and quality of the nonmetallic mineral deposit, the areal extent and depth of the deposit, how the deposit's quality, extent, location, and accessibility contribute to its marketability, and the quality of the deposit in relation to current and anticipated standards and specifications for the type of material concerned.

A person wishing to register land pursuant to NR 135 subchapter VI must provide evidence that nonmetallic mining is a permitted or conditional use of the land under zoning in effect on the day notice is provided by the owner to government authorities. A copy of the proposed registration and supporting information must be provided to each applicable zoning authority (city, village, or town), the County, and the WDNR at least 120 days prior to filing the registration. The registration

must include a certification by the landowner, which is binding on the landowner and his or her successors in interest, that the landowner will not undertake any action that would permanently interfere with present or future extraction of nonmetallic materials for the duration of the registration.

Section 66.1001(4) of the *Wisconsin Statutes* requires any unit of government that prepares and adopts a comprehensive plan to prepare and adopt written procedures to foster public participation. These written procedures must describe the methods the local government will use to distribute proposed elements of a comprehensive plan to owners, or to persons who have a leasehold interest in property pursuant to which the persons may extract nonmetallic mineral resources in or on property, in which the allowable use or intensity of use of the property is proposed to be changed by the comprehensive plan. All registered owners and leaseholders will be provided with copies of the proposed Agricultural, Natural, and Cultural Resources and Land Use elements of the comprehensive plan and offered an opportunity to submit comments.

Water Resources

Water resources such as lakes, streams and their associated floodplains, and groundwater form an important element of the natural resource base of the Ozaukee County planning area. The contribution of these resources is immeasurable to economic development, recreational activity, and aesthetic quality of the planning area.

Basins, Watersheds and Subwatersheds

Map 2.13 identifies the portions of the Milwaukee and Sheboygan River Basins that are within the planning area. The Basins drain directly into Lake Michigan and are part of the overall Great Lakes-St. Lawrence River drainage system. Collectively the six watersheds in the Milwaukee River Basin contain about 500 miles of perennial streams, over 400 miles of intermittent streams, and 35 miles of Lake Michigan shoreline. Collectively the six watersheds in the Sheboygan River Basin contain about 400 miles of perennial streams, 400 miles of intermittent streams, and 35 miles of Lake Michigan shoreline. For stormwater management planning purposes, the basins are further subdivided into watersheds and subwatersheds. There are seven WDNR designated watersheds within the planning area, including portions of the Milwaukee River North, Milwaukee River East-West watershed, Milwaukee River South watershed, Cedar Creek watershed, Menominee River watershed, Sauk Sucker Creeks watershed, and Onion River watershed. The majority of the planning area is located in the Milwaukee River South watershed, which covers 164 square miles, or 66 percent of the planning area. The watersheds and subwatersheds are shown on Map 2.14 and Map 2.15.

Milwaukee River North Watershed

The Milwaukee River North Watershed is located in portions of Sheboygan, Ozaukee and Washington counties (Figure 2.1). The North Branch Milwaukee River begins in the Nichols Creek State Wildlife Area in Sheboygan County and runs in a southerly direction for 28 miles to its junction with the Milwaukee River in Ozaukee County.

Land cover is primarily rural, with agriculture dominant (57%). Wetlands cover over 14 percent of the land area while grasslands (12%) and forests (11%) represent the other major rural uses. Urban lands cover less than one half of one percent of the land area. The Villages of Adell, Cascade and Random Lake are the only incorporated municipalities.

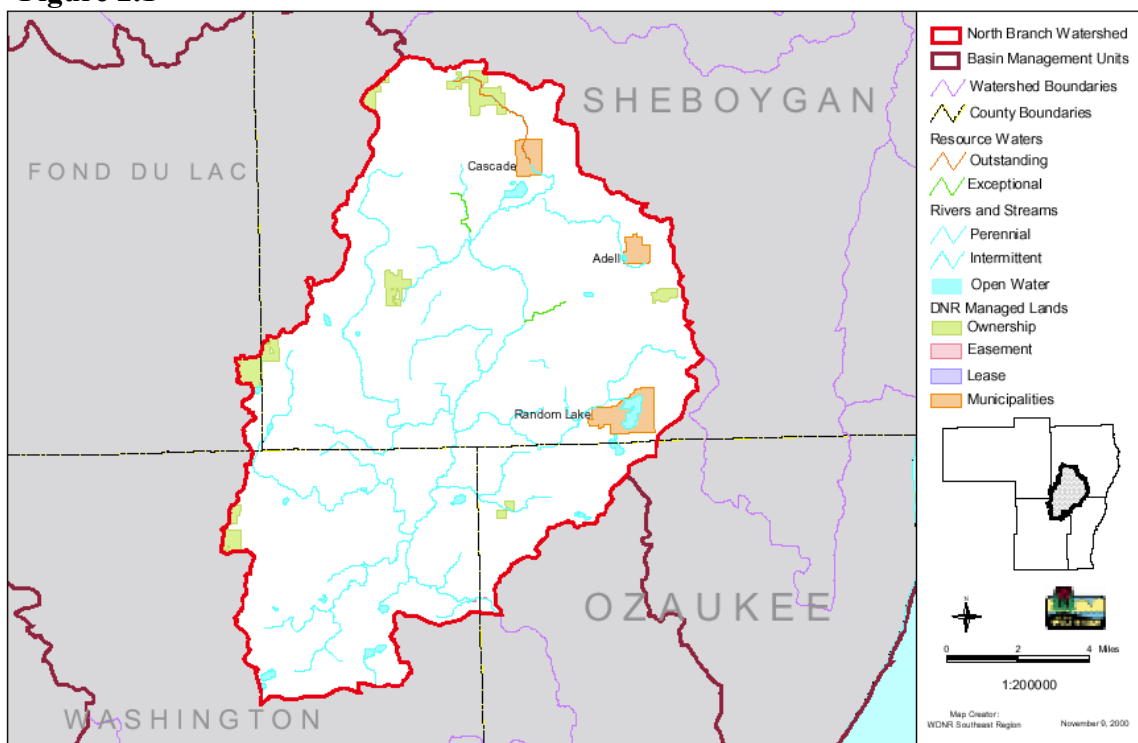
The quality of rivers and streams in the North Branch Watershed ranges from severely degraded to nearly pristine. Eighty-five miles of perennial streams (86%) partially meet their potential

biological uses, and 12 miles (12%) do not meet their potential biological uses. An unnamed tributary to the Milwaukee River North Branch (Adell tributary) is listed on the state’s impaired waters (303(d)) list. For additional information, refer to the WDNR *Milwaukee River Basin – State of the Basin Environmental Report*.

The upper four miles of the North Branch Milwaukee River were formerly known as Nichols Creek, a Class I trout stream. The stretch that runs through the Nichols Creek State Wildlife Area is designated as an Outstanding Resource Water. Outstanding and Exceptional Resource Waters are those that are of such high quality that discharges from municipal and industrial wastewater treatment plants must be of the same or better quality as the receiving water. This designation is based on the quality of the fisheries, protection of recreational uses, water quality and pollution sources. In addition, 8.1 miles of other trout streams (including Mink Creek, Gooseville Creek and Melius Creek) are found in this watershed. Additional streams may support, or have the potential to support cold water fish and aquatic life communities *For more information about outstanding and exceptional resource waters please call the state ORW/ERW coordinator at (608) 266-927 or visit <http://www.dnr.state.wi.us/org/water/wm/wqs/orwerw/>.*

Fish species found in streams range from highly tolerant to intolerant. Tolerant fish species like common carp, fathead minnow and creek chub are more abundant in degraded streams. Sport fish species found in the watershed include brook trout, brown trout, rainbow trout, smallmouth bass, northern pike, largemouth bass and a variety of panfish. Other fish species found include common shiner, bluntnose minnow, blacknose dace, common shiner, golden redhorse, greater redhorse, black bullhead, fantail darter, johnny darter and blackside darter. The greater redhorse is listed as a state Threatened and Endangered species. Thirteen named lakes are found in this watershed ranging in size from 212 acres (Random Lake) to six acres (Lake Sixteen). With the exception of Huiras Lake and Erler Lake, much of the shoreline of lakes in the watershed is developed. For more detailed information about the watershed, please refer to the WDNR web site [The Milwaukee River Basin](#).

Figure 2.1



Milwaukee River East-West Watershed

The Milwaukee River East-West Watershed covers 266 square miles and is located in portions of Dodge, Fond du Lac, Ozaukee, Sheboygan, and Washington counties (Figure 2.2). The East and West Branches of the Milwaukee River meet the Milwaukee River mainstem near the Village of Kewaskum in Washington County. The Milwaukee River then runs south and east to western Ozaukee County where this watershed meets the Milwaukee River South Watershed.

Rural uses cover most of the land area in this watershed. Agriculture is dominant, covering about 47 percent of the land area, followed by wetlands (19%), grasslands (16%) and forests (12%). Urban uses cover about three percent of the land area. The City of West Bend and the Villages of Campbellsport, Kewaskum and Newburg are the only incorporated areas in the watershed.

The Milwaukee River East-West Watershed contains about 196 miles of perennial streams. Nearly all the stream miles in this watershed (98%) are partially meeting their biological uses, while two percent of the streams have not been evaluated. Even though general evaluations have been conducted on many of the streams in the watershed, thorough assessments have been conducted on just five percent of total stream miles within the last five years. No streams in this watershed are listed as impaired waters on the state's 303(d) list. Portions of two rivers (Auburn Lake Creek and East Branch Milwaukee River) totaling six miles in length are considered exceptional resource waters.

The Milwaukee River mainstem is the longest river in this watershed (53 miles). The Milwaukee River begins in wetlands in Fond du Lac County, and flows in a southeasterly direction until meeting the North Branch Milwaukee River near Waubeka. Upstream of Kewaskum, wetland drainage, river straightening, especially the smaller headwaters streams, dams and agricultural runoff are the major factors keeping the rivers from fully meeting their potential. Downstream of Kewaskum, the river is increasingly affected by urban land uses and five major dams, leading to degraded habitat and water quality from nutrient and sediment inputs.

The headwaters for the Milwaukee River East Branch begin with Watercress Creek, a trout stream, in Sheboygan County. The Milwaukee River East Branch then flows south through Long Lake, Mauthe Lake and the New Fane Millpond until it reaches the Milwaukee River mainstem. Unlike the Milwaukee River mainstem, most of East Branch remains in a relatively natural, unchannelized condition. Agricultural runoff contributing nutrients and sediment are the major sources of water quality degradation in the East Branch.

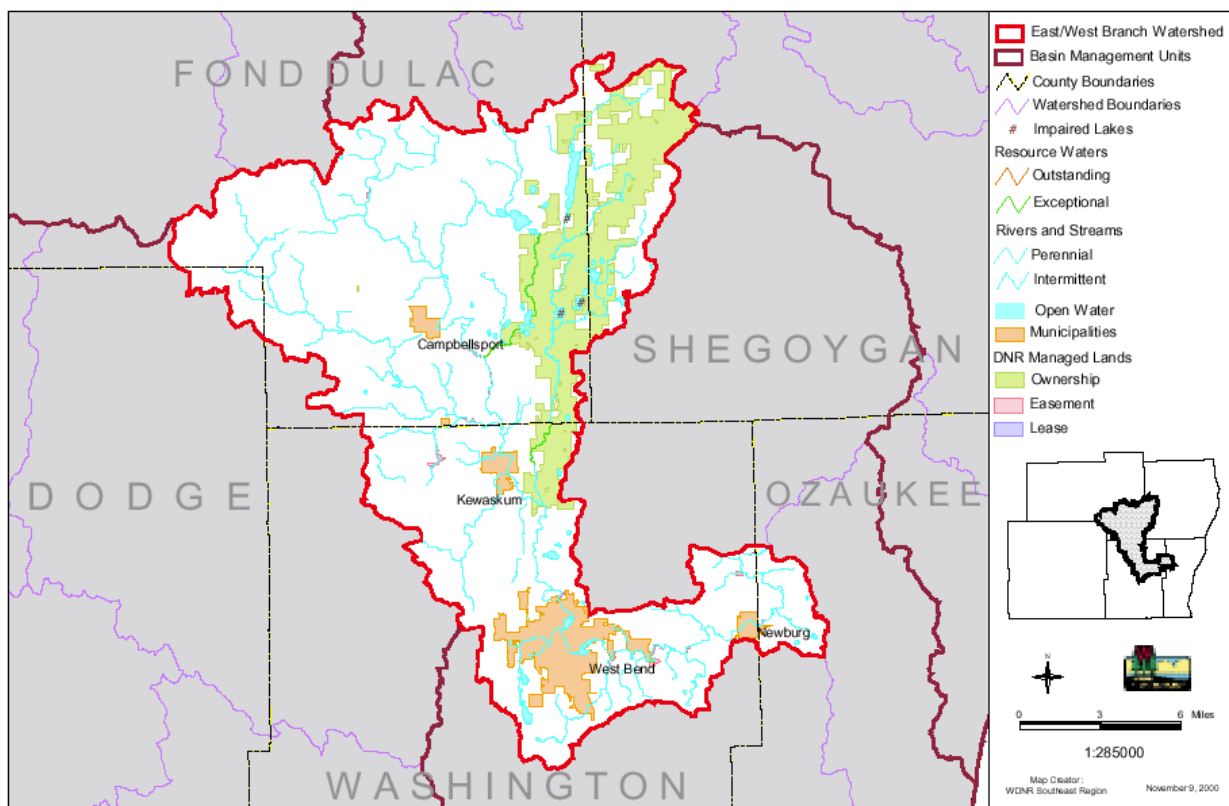
The West Branch Milwaukee River is located in the rolling glacial topography of Fond du Lac County. The river begins with wetlands and flows southeast through wetlands and Lake Bernice before reaching the Milwaukee River mainstem. This river has been greatly affected by channelization for agricultural purposes, especially in the headwaters. Nutrients and sediment from agricultural runoff and stream modification (channelization and dams) contribute to reduced water quality in the West Branch Milwaukee River.

Fish species found in this watershed range from intolerant species such as brook trout, mottled sculpin, blackchin shiner, Iowa darter, pearl dace and northern redbelly dace in the cool and cold water streams, to more tolerant species such as creek chub, central mudminnow, common shiner and white sucker in the more degraded streams. Other than brook trout, sport fish species found in the watershed include smallmouth bass, black bullhead, northern pike, pumpkinseed and bluegill. The state threatened pugnose shiner, greater redhorse and longear sunfish have also been

documented in this watershed. The longear sunfish is listed as a state Threatened and Endangered species.

The East-West Branch Milwaukee River Watershed contains over 30 named lakes ranging in size from 427 acres (Long Lake) to two acres (Mallard Hole Lake), providing many recreational opportunities. Six lakes have active lake associations or districts. For more detailed information about the watershed, please refer to the WDNR web site [The Milwaukee River Basin](#).

Figure 2.2



Milwaukee River South Watershed

The Milwaukee River South Watershed covers about 168 square miles and is located in portions of Ozaukee and Milwaukee Counties (Figure 2.3). The Milwaukee River mainstem enters the watershed west of the Village of Fredonia and flows for about 48 miles before entering the Milwaukee Harbor.

Land cover in the watershed is a mix of rural and urban uses. Overall, the watershed is about 33 percent urban, with agriculture (25%), grasslands (21%), forests (12%) and wetlands (6%) making up the rest of the major land cover types. Fourteen cities and villages are found in this watershed.

As with the other watersheds in the basin, the streams in the Milwaukee River South Watershed exhibit a wide range of quality. Over 35 stream miles within the Milwaukee South Watershed are listed on the 303(d) list, including the Milwaukee Estuary, a Great Lakes Area of Concern. The Milwaukee Estuary area of concern encompasses the Milwaukee Harbor, the Milwaukee River downstream from the abandoned North Avenue Dam, the Menomonee River downstream from 25th street and the Kinnickinnic River downstream from Chase Avenue. The International Joint

Commission (IJC) and U.S. EPA designated the Milwaukee Estuary in 1987 through the Great Lakes Water Quality Agreement as one of 43 Great Lakes Areas of Concern. These areas are usually industrial in nature, with a history of pollution. In the Milwaukee Estuary, sediments contaminated with polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and heavy metals are linked to degraded water quality, impaired fish and wildlife populations, and restrictions on dredging. A remedial action plan defining the problems with the estuary was published in 1989 by WDNR. A follow up plan further refining impairments and outlining a plan for restoring the estuary was published by WDNR in 1995. *For more information about Great Lakes Areas of Concern, please visit the USEPA web site at the following address:* <http://www.epa.gov/grtlakes/aoc/>.

Over 30-species of warm and cool water native fish species have been identified in this watershed. Recreational game fish species include northern pike, smallmouth and large mouth bass, and a variety of panfish such as bluegill and rock bass. The greater redhorse and striped shiner are reported as present and are listed as state Threatened and Endangered species, respectively. Following removal of the North Avenue Dam in 1997 by the City of Milwaukee, anadromous (e.g. trout and salmon) and potadromous (e.g. northern pike and walleye) fish from Lake Michigan and the Milwaukee River Estuary are able to migrate upstream of the barrier for the first time in over 150-years. Following the removal of the fish barrier and considerable water quality improvements associated with the Milwaukee Metropolitan Sewerage District's sewer overflow abatement program, the WDNR in cooperation with other agencies and non-profit conservation groups have implemented a walleye and lake sturgeon restoration plan for the Milwaukee River South Watershed, including Milwaukee and Ozaukee Counties. Stocking of these species has been ongoing for years, and the WDNR is working with the Riveredge Nature Center outside of Newburg to construct and operate a lake sturgeon streamside rearing facility.

Nearly 15 percent of all perennial stream miles in this watershed are significantly modified to the extent they have limited ability to sustain diverse biological communities. Many of these streams were straightened, enclosed or lined with concrete to facilitate water movement downstream to alleviate flooding concerns. This method to control flooding, while popular 35 years ago is now considered somewhat ineffective. From a water quality and biological standpoint this type of river modification causes wide fluctuations in water levels over short periods of time, increases channel scour, and provides little to no habitat for aquatic life. Establishing a meandering stream helps create more diverse habitat for biological activities. The Milwaukee Metropolitan Sewerage District (MMSD) is implementing major flood water storage and where possible, river restoration activities in Lincoln Creek, Southbranch Creek and Indian Creek and other area watersheds. *For more information on the Lincoln Creek flood control project and other MMSD watercourse activities, please visit the MMSD web site at:* http://www.mmsd.com/lcreek/news_lcreek.html . Recent dam removals along the Milwaukee River, including the Chair Factory Dam near Grafton and the Waubeka Mill Dam, have also eliminated long-term liability to the dam owners and resulted in improved fish and aquatic life habitat.

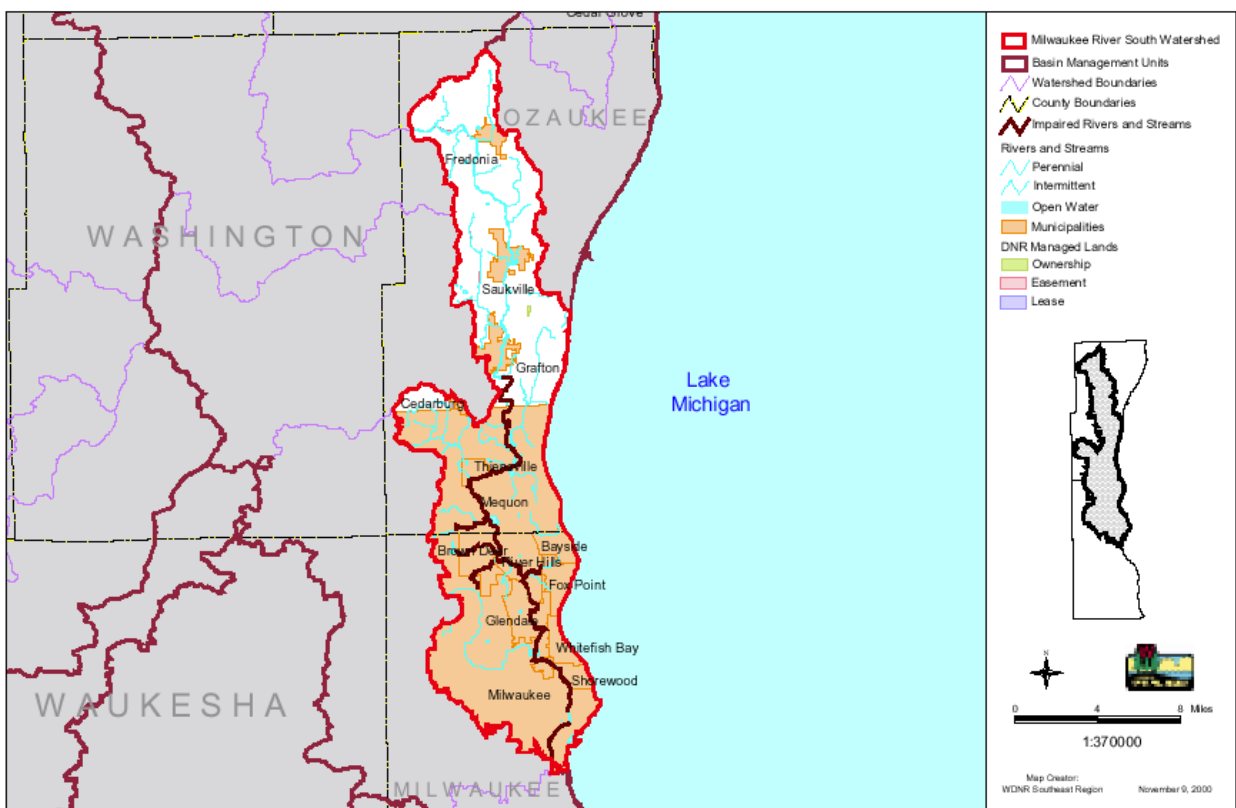
Although not officially listed as a cold water stream, Mole Creek in Ozaukee County is the only river in the Milwaukee South Watershed with the ability to sustain cool and cold water fish species. Extensive surveys on Mole Creek during the 2000 Baseline Monitoring Program found a wide variety of fish species including species such as mottled sculpin, Iowa darter and brook stickleback that rely on cool water. Temperature and habitat surveys conducted on Mole Creek found that the creek is capable in places, of supporting a diverse cool and cold water fishery. The WDNR has obtained almost 1-mile of easements along Mole Creek in an effort to restore stream and wetland habitat along channelized reaches of stream and converted wetlands. Efforts are continuing to

obtain addition easements. The WDNR in cooperation with Ozaukee County and the NRCS are in the process of constructing the first reach of restored stream and wetland corridor. Additional efforts will be needed to encourage (require) infiltration for stormwater since the stream needs clean and ample groundwater supplies to maintain cool and cold water fish and wildlife communities.

Most of the tributary streams in the Milwaukee County portion of this watershed are only capable of supporting populations of more tolerant fish species like common carp. Non-native species such as rainbow trout, coho and chinook salmon migrate from Lake Michigan into the Milwaukee River during their seasonal spawning runs. Habitat and water quality are not sufficient to allow for successful reproduction of these species in the rivers where they spawn so annual stocking of these species is needed to maintain recreational fishing opportunities. *For more information about Lake Michigan Fisheries, please visit the WDNR web page at: <http://www.dnr.state.wi.us/org/water/fhp/fish/lakemich/index.htm>.* See Fish Consumption Advisory for Milwaukee River South Watershed in Table 2.10.

There are three small named lakes, several unnamed lakes and many park ponds within the Milwaukee River South Watershed. For more detailed information about the watershed, please refer to the WDNR web site [The Milwaukee River Basin](#).

Figure 2.3



Cedar Creek Watershed

The Cedar Creek Watershed is the most central of the Milwaukee River Basin watersheds, encompassing portions of central Washington and Ozaukee Counties (Figure 2.4). Cedar Creek is 28 miles long, beginning its journey from the headwaters downstream from Little Cedar Lake to its confluence with the Milwaukee River near the Village of Newburg.

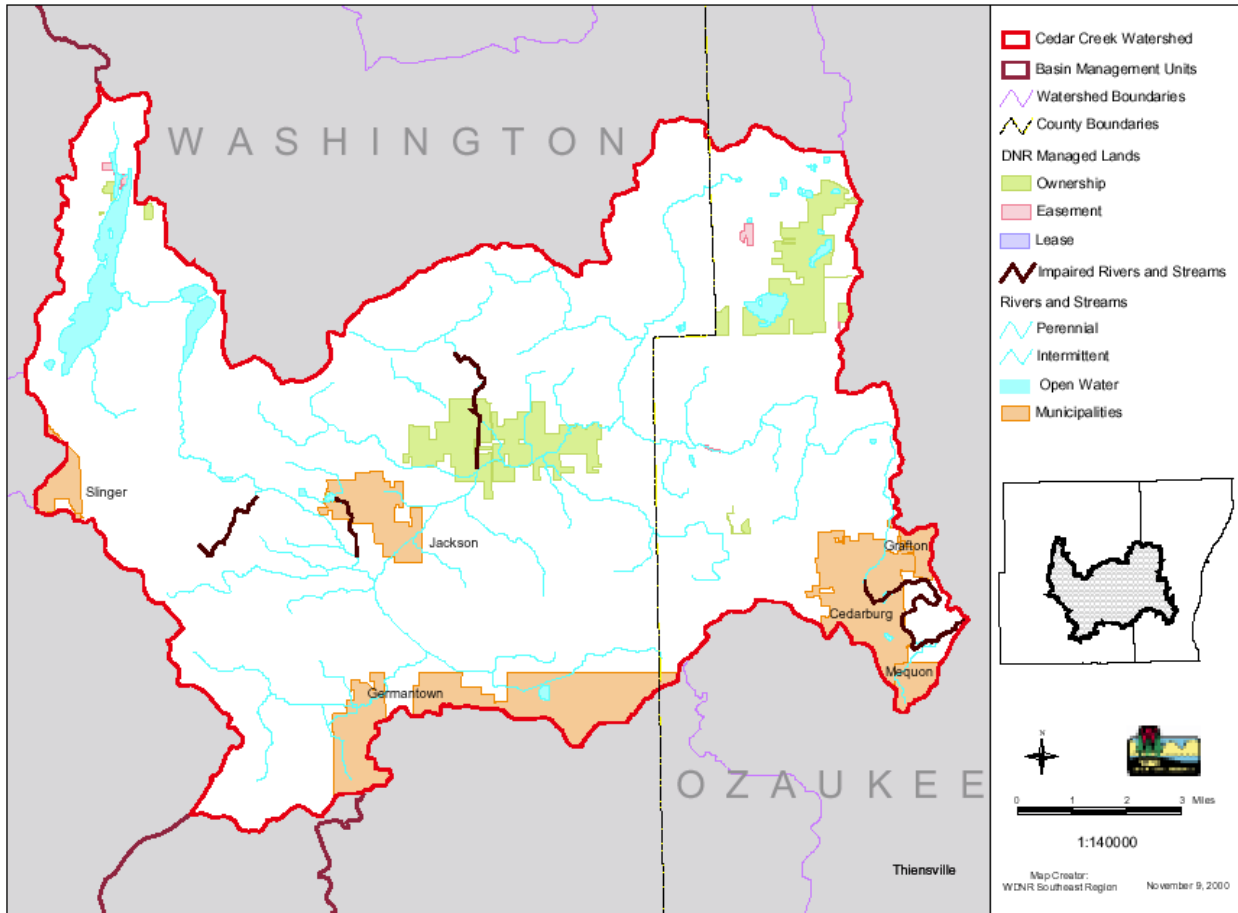
Land cover in the Cedar Creek Watershed is primarily rural, with agriculture dominant (49%). Other rural uses include wetlands (16%), grasslands (15%) and forest (11%). Two major wetland complexes, the Jackson Marsh State Wildlife Area and Cedarburg Bog State Natural Area, are located within the Cedar Creek Watershed, providing important habitat for fish and wildlife. Urban areas comprise about 3.5 percent of land cover in the watershed. Portions of the Villages of Germantown and Slinger, the City of Cedarburg, and the entire Village of Jackson are the incorporated municipalities in the watershed.

Most of the stream miles in this watershed are capable of supporting a full range of aquatic life if stressors were reduced or eliminated. The stressors; such as the lack of cover, sedimentation, bacterial contamination, nutrient enrichment and temperature fluctuations; are usually associated with urban/rural storm water runoff and other unspecified nonpoint sources. No outstanding or exceptional resource waters are located within the Cedar Creek Watershed. However, several stream have the potential in certain areas of supporting cold and cool water fish species if stream banks and in stream habitat were restored.

Nearly 12 stream miles are listed on the state 303(d) list as impaired waters needing attention. Five miles of Cedar Creek are listed because of PCB contaminated sediments. Some of the PCB concentrations in Cedar Creek are the highest ever recorded in the state of Wisconsin. The extent of the problem was initially identified in the mid-1980's and continues to be **one of the most serious threats to human health and the environment in all of Ozaukee County**, and once the extent of the contamination is understood, it could have a major impact on the value of properties directly impacted by the contamination. This stretch of Cedar Creek runs through the City of Cedarburg, where several dams slow water velocity, allowing contaminated sediments to settle out. Mercury Marine Corporation (formerly the Kiekhaefer Corporation) and the Amcast Corporation (formerly MetaMold Corporation) are the source of PCB impacts and are currently the parties responsible for cleaning up these discharges. PCB mixtures in bottom sediments are dominated by Aroclor 1260. These mixtures are more toxic and resist degradation more than other PCB mixtures. ALL fish species and geese from this stretch of Cedar Creek are contained in the "DO NOT EAT" category of the states Fish and Wildlife Consumption Advisory, the most stringent level of protection afforded by the advisory. In 1994, the WDNR directed some sediment clean up activities at Ruck Pond and a partial cleanup of Hamilton Pond. No active clean up has occurred since the USEPA Superfund program took over sight of the investigation. in the upstream most portion of the contaminated section of Cedar Creek. See Fish Consumption Advisory for Cedar Creek Watershed located in Table 2.10.

Big Cedar Lake (932 acres) and Little Cedar Lake (246 acres) are the largest of the 16 named lakes in the watershed. Both lakes have active lake associations and have participants in the Self Help Lake Monitoring Program. For more detailed information about the watershed, please refer to the WDNR web site [*The Milwaukee River Basin*](#).

Figure 2.4



Menomonee River Watershed

The Menomonee River Watershed covers 136 square miles in portions of Washington, Waukesha and Milwaukee counties (Figure 2.5). The Menomonee River originates in wetlands in the near the Village of Germantown and the City of Mequon and runs south, south east for about 32 miles where it meets the Milwaukee and Kinnickinnic Rivers in the Milwaukee Harbor.

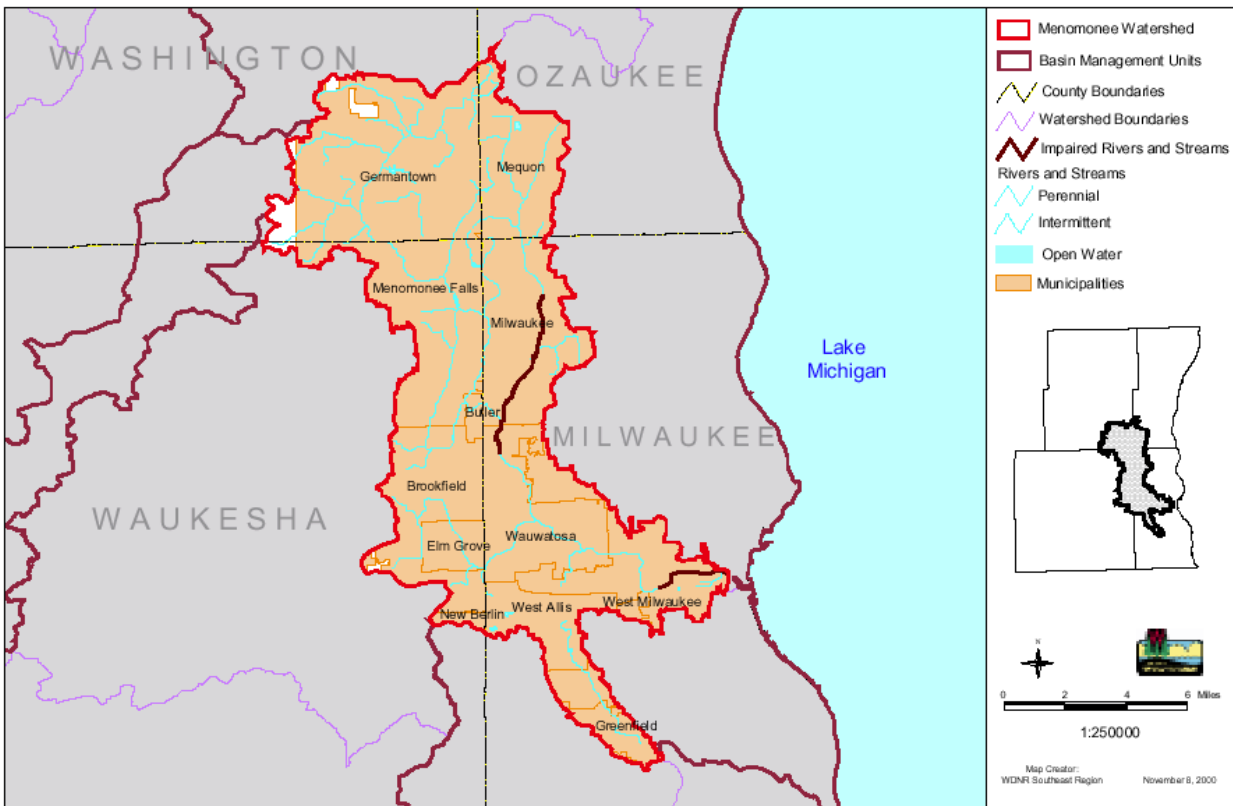
Nearly all of the land area in this watershed is within incorporated municipalities. Forty-two percent of the land is covered by urban uses. Grasslands (22%), agriculture (17%) forests (8%) and wetlands (7%) make up most of the remaining land use.

Stream and wetland modification, urban and rural runoff, construction site erosion and industrial point sources of pollution are the major contributors to degraded water and habitat quality within this watershed. Over eight miles of stream are listed on the 303(d) list as impaired. Many streams in this watershed have been concrete-lined, or straightened to convey floodwaters off the land faster. Flooding continues to be a major concern in this watershed. The Milwaukee Metropolitan Sewerage District is implementing several flood control projects in this watershed. Over five miles of the Little Menomonee River has been designated as the Moss American Superfund Site. Creosote contaminated sediments within the river have caused extensive environmental damage, and the U.S. EPA has recently completed negotiations with the responsible party for implementing a clean up remedy. By the end of 2005, three of the five miles of creosote contaminated river have been remediated. *For more information about the Moss American Superfund Site, please see the following:* <http://www.epa.gov/region5superfund/npl/wisconsin/WID039052626.htm>.

Following the recent removal of the Falk Corporation Dam and concrete drop structure on the Menomonee River, seasonal runs of Lake Michigan trout and salmon create fishing opportunities in publicly accessible areas up to the Lepper Dam in the Village of Menomonee Falls. Most fish species resident in the streams of this watershed are tolerant of pollution and habitat degradation. Some streams within this watershed are enclosed or diverted under roads for some of their length which further restricts habitat for aquatic life.

There are no named lakes within this watershed. Some park ponds provide for some recreational opportunities for urban fishing. For more detailed information about the watershed, please refer to the WDNR web site [The Milwaukee River Basin](#).

Figure 2.5



Sauk and Sucker Creeks Watershed

The Sauk and Sucker Creeks Watershed is the southern most watershed in the Sheboygan River Basin. Most of the watershed is located in Ozaukee County, with a small northern portion located in Sheboygan County. Sauk Creek enters Lake Michigan in the City of Port Washington, while Sucker Creek enters the Lake north of the City of Port Washington (Figure 2.6).

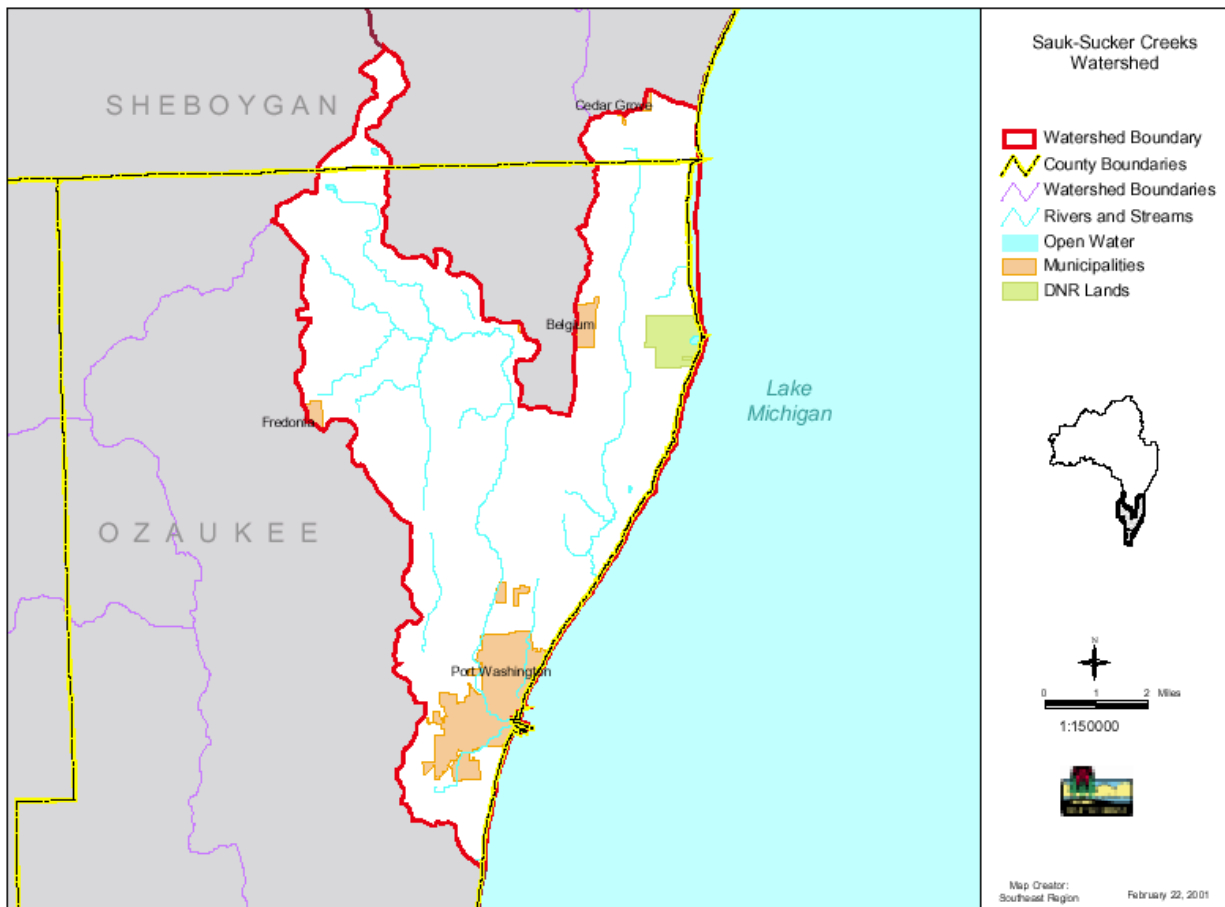
The watershed is primarily agricultural, but urbanization is proceeding rather rapidly. The entire City of Port Washington and portions of the Villages of Cedar Grove, Belgium and Fredonia are located within this watershed.

Water quality is fair to poor in both Sauk and Sucker Creeks. Nonpoint sources of pollution and stream channelization are the primary causes of degraded water and habitat quality throughout the watershed. Construction site erosion and impervious surfaces (such as roads, roofs, and parking lots) are increasingly threatening water quality as urbanization proceeds. Runoff from farm fields and barnyards also contribute to degraded water quality in the watershed. These pollution sources and habitat modifications are contributing to the high concentrations of nutrients and suspended solids and sediment observed in the watershed. Large sediment plumes are frequently observed entering Lake Michigan at the mouths of Sauk and Sucker Creeks during spring melt and heavy rains.

Fish surveys conducted in the headwaters of Sauk Creek in 1999 identified a diverse fish community consisting of twelve forage and four sport fish species. Sauk and Sucker Creeks also support seasonal runs of trout and salmon from Lake Michigan, providing good fishing opportunities for anglers. From 1995 through 1998, the Department of Natural Resources cooperated with local sports clubs, city government and others to improve fish habitat, water quality and stream banks in some downstream portions of Sauk Creek. In stream structures, stream bank shaping and erosion control measures were implemented with the objectives of increasing the carrying capacity of Sauk Creek, improving the return of migratory trout and salmon to the creek and increasing fishing opportunities. This project would not have been possible without the help from donations by the Great Lakes Sport Fishing Club of Ozaukee County, cooperation from Wisconsin Electric Power Company, the City of Port Washington, WCMP and countless volunteers. Repair to structures and additional stream bank shaping was done in 1999.

A summary table with general information about the Sauk and Sucker Creeks Watershed follows. For more detailed information about the watershed, please refer to the WDNR web site [The Sheboygan River Basin](#).

Figure 2.6



Onion River Watershed

The Onion River Watershed covers 98 square miles (Figure 2.7). The Onion River flows southerly for about half its length before turning northward, entering the Sheboygan River in Rochester Park in the City of Sheboygan Falls. Belgium Creek is the only major tributary to the Onion River. There are two dams on the Onion River, which form the Waldo and Hingham impoundments.

Land use in the watershed is primarily agricultural. The entire Village of Waldo, most of the Village of Belgium, and small portions of the Village of Cedar Grove and the City of Sheboygan Falls comprise the urban areas of the watershed.

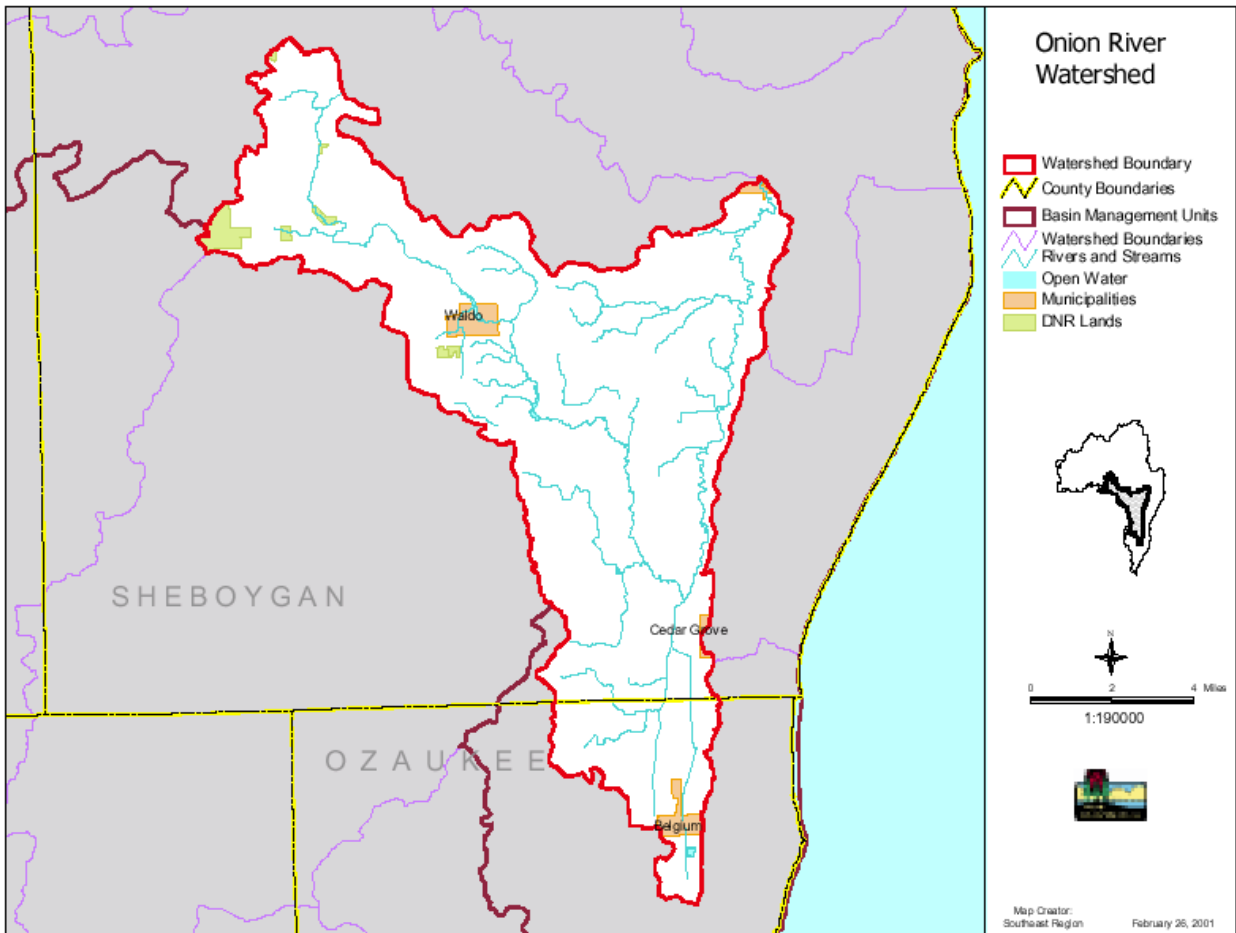
Water quality in the Onion River Watershed ranges from excellent to good in the headwater areas to fair to poor in the lower sections. Sources of pollution degrading stream water quality are primarily agricultural with some urban runoff, and point source discharges. Excessive sedimentation and channelization limit stream habitat quality. Heavy metal and polycyclic aromatic hydrocarbon (PAHs) contamination is found in the sediments in the East Branch of Belgium Creek. Impoundment of headwater areas for fish hatcheries negatively impacts water quality, trout and other aquatic life.

The Onion River Watershed was one of the very first watersheds targeted under the Nonpoint Source Water Pollution Abatement (Priority Watershed) Program. A follow up report found that the watershed continues to be affected by nonpoint pollution sources. The upstream reaches (above the Village of Waldo) continue to exhibit excellent to good water quality, while the downstream reaches continue to be heavily affected by agricultural runoff.

The headwaters of the Onion River are a trout stream downstream to the top of the pool formed by the Waldo dam. Private fishponds on major spring sources have adversely impacted the headwaters, including Ben Nutt Creek and Mill Creek. WDNR recently purchased property in the headwaters of Ben Nutt Creek upstream of County Highway ZZ in the Town of Plymouth. This was the site of an old fish farm and the stream had been diverted into a pond and then impounded. This cold water reach is being restored and is expected to provide important spawning and rearing habitat for brook trout.

A summary table with general information about the Onion River Watershed follows. For more detailed information about the watershed, please refer to the WDNR web site [The Sheboygan River Basin](#).

Figure 2.7



Surface Water Resources

Surface water resources consist of streams, rivers, lakes, and associated floodplains and shorelands. Lakes, rivers, and streams constitute a focal point for water-related recreational activities and greatly enhance the aesthetic quality of the environment. However, lakes, rivers, and streams are readily susceptible to degradation through improper land development and management. Water quality can be degraded by excessive pollutant loads, including nutrient loads, from manufacturing and improperly located onsite waste treatment systems; sanitary sewer overflows; urban runoff, including runoff from construction sites; and careless agricultural practices. The excessive development of riparian areas and inappropriate filling of peripheral wetlands may also adversely affect the water quality of surface waters. This adds new sources of undesirable nutrients and sediment, while removing needed areas for trapping nutrients and sediments. Surface waters, shown on Map 2.18, cover an area of about 2,280 acres and 94 miles of streams, or about 1 percent, of the planning area. Table 2.13 sets forth the acres of surface water, floodplain, and wetlands in each participating local government.

Lakes

Lakes have been classified by SEWRPC as being either major or minor. Major lakes have 50 acres or more of surface water area, and minor lakes have less than 50 acres of surface water area. There are three major inland lakes located entirely within the planning area, the 57 acre Lac du Cours in the City of Mequon, 245.4 acre Mud Lake in the Town of Saukville, and 66.4 acre Spring Lake in the Town of Fredonia. The major lakes are all located in the Milwaukee River Basin. In addition to the major lakes there are 546 minor lakes and ponds distributed throughout the planning area. The total surface area of major and minor lakes in the planning area is approximately 986 acres. The entire eastern side of the planning area is bounded by Lake Michigan with approximately 26 miles of shoreline. The following is a list of major lakes and other lakes/ponds that are noted on most municipal maps in Ozaukee County:

LAKES AND PONDS IN OZAUKEE COUNTY

Lakes and Ponds	U.S. Public Land Survey Section, Town, and Range	Surface Area (acres)
Major Lakes		
Mud Lake	32-11-21	245.4
Spring Lake	2, 3-12-21	66.4
Lac du Cours	36-9-21	57.0
Subtotal		368.8
Other Lakes and Ponds		
Big Biernborn Lake	20-11-21	12.2
Cedarburg Pond	26-10-21	14.8
Cedarburg Stone Quarry	35-10-21	6.2
Daly Lake	9, 16-11-21	13.2
Donut Lake	29-11-21	3.6
Fromm Pit	10-9-21	3.6
Grafton Mill Pond	24-10-21	24.9
Hanneman Lake	3-10-21	6
Hansen Lake	4-1-21	6
Harrington Quarry Lake	19-12-23	18.6

Huiras Lake	15, 16-10-21	25.6
Lime Kiln Mill Pond	25-10-21	4
Little Bienborn Lake	20-11-21	4.8
Long Lake	28, 29-11-21	34.4
Ludowissi Lake	1-12-21	10.7
Moldenhauer Lake	11-10-21	2.6
Pickets Pond	24-12-22	1.8
Pit Lake	7-9-22	35.4
Roeckl Lake	19-11-21	3.2
Thiensville Mill Pond	23-9-21	45.1
Other misc. lakes/ponds		353.4
Subtotal		632.1
Total		986

Streams

Rivers and streams are classified as either perennial or intermittent. Perennial streams are defined as watercourses that maintain a continuous flow throughout the year. Intermittent streams are defined as watercourses that do not maintain a continuous flow throughout the year. There are approximately 94 miles of perennial streams in Ozaukee County. Watersheds within the Milwaukee River and Sheboygan River Basins are generally subdivided and named according to the major streams flowing through them. Major streams in the Menomonee River Watershed, which generally includes the area in the southwestern corner of the planning area, include the Little Menomonee Creek and Little Menomonee River. Major streams in the Milwaukee River North watershed, which generally includes the northwestern corner of the planning area are only unnamed tributaries that eventually drain into the North Branch Milwaukee River. The only major stream in the Milwaukee River East-West watershed, which includes only a small northwestern corner of the planning area, is Riveredge Creek, which eventually drains into the main branch of the Milwaukee River. Major streams in the Milwaukee River South watershed, which includes more than one half of the central and southern portions of the planning area, include Mole Creek, Ulao Creek, and the main branch of the Milwaukee River. Cedar Creek is the major stream of the Cedar Creek watershed, which includes a small area in the south central portion of the planning area. Sauk and Sucker Creek are the major streams in the Sauk and Sucker Creek watershed, which generally includes the area in the northeastern corner of the planning area, and is the only portion of the Sheboygan River Basin that does not eventually flow into the Sheboygan River before draining into Lake Michigan. Belgium Creek is the only major stream in the Onion River Watershed, which generally includes a small area in the northeastern corner of the planning area, which eventually drains north into Onion Creek in Sheboygan County. An analysis of the maximum potential for stream buffers along streams adjacent to agricultural lands in each survey township is provided in Tables 2.11, 2.12, Graph 2.2, and Maps 2.16, 2.17. This analysis will provide for targeted implementation of CREP and SWRM funds for installing riparian buffers.

Floodplains and Shorelands

The floodplains of a river are the wide, gently sloping areas usually lying on both sides of a river or stream channel. 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 soils poorly suited to urban uses.

Floodplains in Ozaukee County for which floodplain elevations have been determined through detailed studies were delineated by SEWRPC on large-scale topographic maps as part of an update to the Ozaukee County shoreland and floodplain zoning maps. Those delineations will also be used for the Floodplain Map Modernization Program being conducted by the Federal Emergency Management Agency (FEMA) in cooperation with the DNR. The Map Modernization Program includes floodplain delineations in both unincorporated (town) areas and in all of the cities and villages in Ozaukee County. Detailed studies and 100-year flood profiles are available for the Milwaukee River and several of its tributaries, including Cedar Creek and a portion of Ulao Creek. The floodplain delineations were mapped on orthophotos at a scale of one-inch equals 400 feet as part of the update to the Ozaukee County shoreland and floodplain zoning maps for all cities, towns, and villages in Ozaukee County except the City of Mequon. Where flood elevations are not available, approximate floodplain delineations from the FEMA Flood Insurance Rate Maps were mapped on the orthophotos as part of the update to the shoreland and floodplain zoning maps. The floodplains identified as part of the shoreland and floodplain zoning map update for Ozaukee County, completed in 2005, are shown on Map 2.18. Floodplains shown in the City of Mequon on Map 2.19 reflect floodplains mapped on the FEMA Flood Insurance Rate Map (FIRM) for Ozaukee County. The floodplains shown on Map 2.18 encompass an area of approximately 15 square miles, or 6 percent of the planning area.

Under the Map Modernization Program for Ozaukee County, additional detailed and “limited detailed” floodplain studies are being conducted along priority streams and stream reaches. In some cases, the WDNR will also adjust approximate floodplain delineations where no detailed studies are proposed to be conducted to better reflect existing stream locations and topographic mapping. It is anticipated that Ozaukee County will amend its shoreland and floodplain zoning maps to incorporate the floodplain delineations established through the Map Modernization Program when that project is completed in 2006.

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*, both the Ozaukee and Washington County shoreland and floodplain zoning ordinances restrict uses in wetlands located in the shorelands, and limit the uses allowed in the 100-year floodplain to prevent damage to structures and property and to protect floodwater conveyance and storage capacity of floodplains. The ordinances also restrict removal of vegetation and other activities in shoreland areas and require most 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. Shorelands in unincorporated portions of the planning area are shown on Map 2.19 in Appendix 2.

Under Chapter NR 117 of the *Administrative Code*, cities and villages are required to restrict uses in wetlands located in the shoreland area. The provisions of NR 115, which regulate uses in unincorporated portions of the shoreland, apply in cities and villages only in shoreland areas annexed to a city or village after May 7, 1982. The same floodplain regulations set forth in NR

116 for unincorporated areas also apply to cities and villages. Each city and village administers the floodplain regulations within its corporate limits.

Wetlands

Wetlands are defined as areas that are inundated or saturated by surface or groundwater at a frequency and duration that is sufficient to support a prevalence of vegetation typically adopted for life in saturated soil conditions. As shown on Map 2.18, wetlands occur in depressions, near the bottom of slopes, along lakeshores and stream banks, and on land areas that are poorly drained.

Wetlands are generally unsuited or poorly suited for most agricultural or urban development purposes. Wetlands do have important recreational and ecological values. Wetlands contribute to flood control and water quality enhancement, since such areas naturally serve to store excess runoff temporarily, thereby tending to reduce peak flows and to trap sediments, undesirable nutrients, and other water pollutants. Wetlands may also serve as groundwater recharge and discharge areas. Wetlands also provide breeding, nesting, resting, and feeding grounds for many forms of wildlife. As indicated in Table 2.13, wetlands encompass approximately 29 square miles, or about 11 percent of the planning area. Table 2.13 also sets forth wetland coverage for each participating local government in the planning area. The wetlands shown on Map 2.18 are those identified by SEWRPC as part of the inventory of “land uses” in Ozaukee County in 2000.

Restored Wetlands

Over the past 20 years, federal, state, and local government agencies have constructed 326 wetland restorations covering more than 350 acres on private land in Ozaukee County. Their efforts are continuing, with several additional wetlands appearing on the landscape each year through incentives such as those provided by the Natural Resources Conservation Service (NRCS), United States Fish & Wildlife Service (USFWS), Wisconsin Department of Natural Resources (WDNR), and County Priority Watershed Programs. These programs encourage landowners to remove highly erodible land from agricultural use and restore natural plant communities. Not intended to restore the pre-settlement (primarily forested) wetland communities of the area, the restoration program goals are to: increase wildlife habitat and plant diversity, reduce soil erosion, improve water quality by filtering pollutants and sediments, and provide storm water storage to reduce flooding.

Ozaukee County PRLM Department received funding from the Wisconsin Coastal Management Program in 2001 to initially complete a Geographic Information System (GIS) inventory of these wetlands (Map 2.20). A subsequent grant from the U.S. Environmental Protection Agency in 2003 allowed the Department to determine if wetlands restored on private lands are providing the intended landscape functions. This was measured on an individual site scale as well as collectively on a County landscape scale. The resulting information, allowed us to determine how future County wetland restoration funds should be utilized to achieve effective restorations. An assessment of existing relative wetland restoration function enables adaptive decisions for improving the local County wetland restoration program such as establishing guidelines for repairing existing and restoring future wetlands that will develop and provide a high degree of function.

In addition, a landowner survey was developed and utilized to aid in the identification of the most common and immediate management concerns. Survey respondents represented 2/3 of all the county’s privately owned restored wetland basins in the county. Half of the landowners reported no management concerns for the wetlands, while the other half expressed concerns about: weedy plant species, inadequate water levels, berm/dike failure, and troublesome wildlife. Recreational

uses described for the wetlands included: bird watching, hunting, plant identification, fishing, ice-skating and ecological education. A majority of the owners reported waterfowl use in the restored wetland basins and other wildlife commonly observed included: deer, songbirds, frogs/salamanders, pheasants, and muskrat/beaver. The relatively large proportion of landowners requesting additional contact and/or additional land evaluation for conservation practices indicates that the majority of landowners are generally satisfied with the wetland restorations, and that the conservation practices may be long-term. This information, along with the functional assessment results, was used to develop a county wetland restoration-monitoring plan that can be utilized by all participating agencies.

More specific details on the landowner survey can be accessed on the PRLM web site at:

<http://www.co.ozaukee.wi.us/PlanningResourcesLandManagement/LAND%20OWNER%20SURVEY%20REPORT.pdf>

Potentially Restorable Wetlands (PRWs)

Many of the wetlands in the Milwaukee River and Sheboygan River Basins have been destroyed, filled-in or drained to create farm fields, subdivisions, and roads. In an attempt to return these valuable habitats, several individuals and public organizations have been creating, enhancing, and/or restoring wetlands within these areas. As shown on Map 2.20, over 300 of these wetlands are currently present in Ozaukee County. Through a USEPA grant, the WDNR initiated the Milwaukee River Basin Wetlands Assessment Project in 2003 to better understand the consequences of wetland losses and examine options for future planning. The Ozaukee County PRLM Department has been working in conjunction with WDNR, SEWRPC and other county agencies, to test GIS decision support tools that evaluate the benefits of restoring wetlands. More specifically, the intent is for the tool to evaluate the relative potential for flood reduction, pollution reduction and increased wildlife habitat through restoring various combinations of wetlands. Ozaukee County's portion of the project is primarily within the Milwaukee River South Watershed in the Towns of Cedarburg and Grafton and the City of Mequon. The project has a two-year timeline and is scheduled for completion in mid-2006. The project has several phases:

- **Phase 1** - Field verify potentially restorable wetlands (PRWs). This phase involves visiting a sample set of PRW sites in selected watersheds. The site visits will verify whether the site actually contains an altered wetland or whether some other land use is present.
- **Phase 2** - Conduct field testing of some of the remaining PRWs identified in Phase 1. Field testing will involve a WDNR wetland biologist evaluation of the PRWs potential for flood reduction, pollution reduction and/or wildlife habitat improvement. This information will be used to further refine the decision support tools.
- **Phase 3** - Testing various restoration scenarios using the GIS decision support tool and the County's GIS capabilities. The testing will result in qualitative information as to the relative benefits of each scenario with regards to flood reduction, pollution reduction, and/or wildlife habitat improvement.

This project has the potential to assist people at local and regional levels, such as town boards, county boards and the state, in prioritizing and evaluating the impacts of wetland restoration. The potential for flood reduction is especially pertinent in areas serviced by the MMSD. An example of some inventory maps generated from this project are included in Appendix 2. Mole Creek subwatershed (Maps 2.21, 2.22, 2.23) and the Ulao Creek subwatershed (Maps 2.24, 2.25, 2.26).

Groundwater Resources

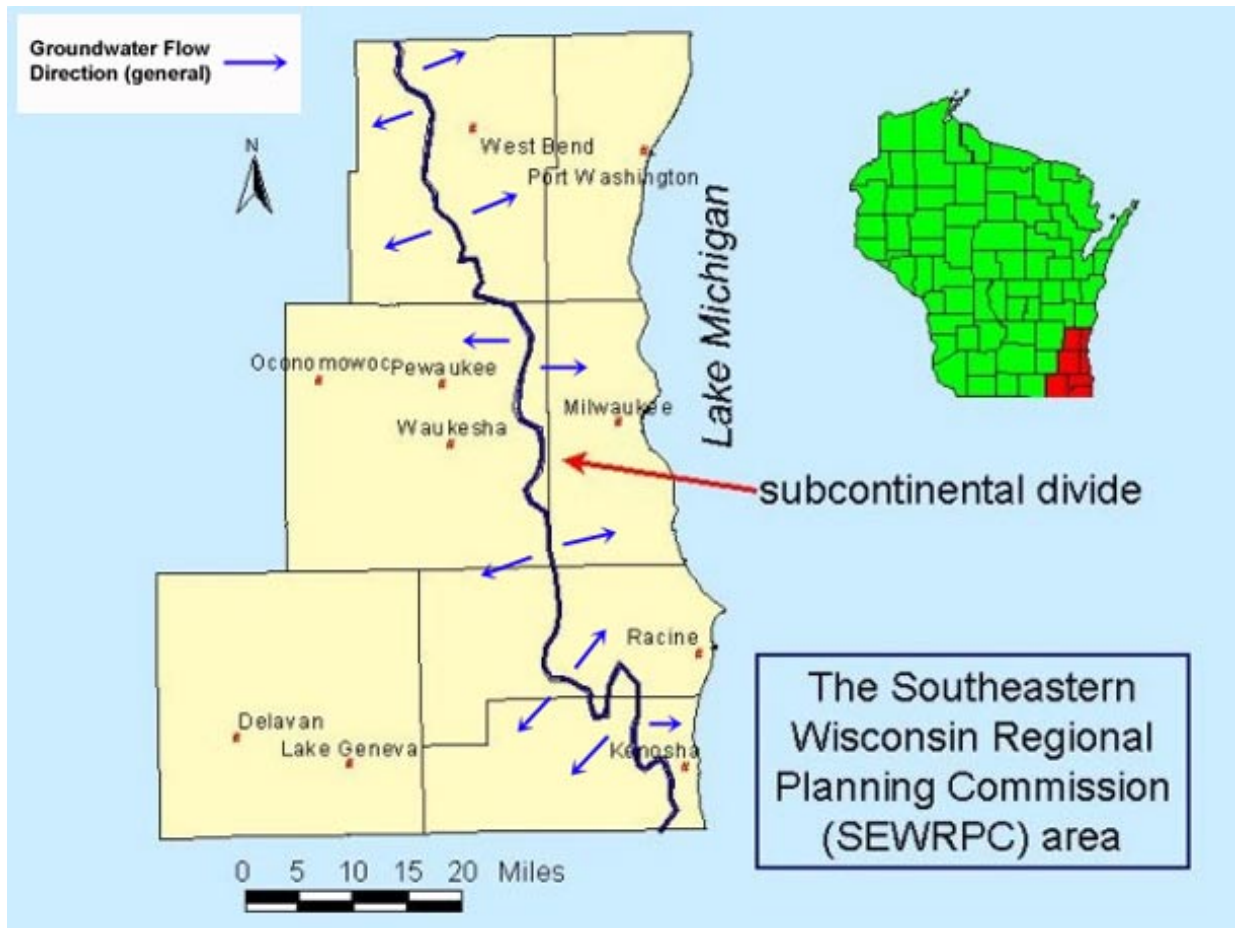
An adequate supply of high quality groundwater is essential if used for domestic consumption. Like surface water, groundwater is susceptible to depletion and deterioration. The quality of

groundwater can be reduced by the loss of recharge areas, excessive or overly concentrated pumping, and changes in ground cover. In addition, groundwater quality is subject to degradation from onsite waste treatment systems, surface water pollution, improper agricultural practices, and other soil and water pollutants. Identifying sources of groundwater and areas susceptible to groundwater contamination is important in proper land use planning to prevent adversely affecting the availability and quality of groundwater.

Ozaukee County has seen an increase in overall water consumption and groundwater consumption in recent decades. Total water consumption (surface water and groundwater) increased from 7,850,000 gallons per day to 9,040,000 gallons per day, a 15 percent increase, between 1979 and 1995. Groundwater consumption in the County has increased from 6,660,000 gallons per day to 7,620,000 gallons per day, a 14 percent increase, between 1979 and 1995. Over 84 percent of the total water used per day in Ozaukee County was groundwater in 1995. The regional groundwater resources report prepared by SEWRPC indicates that there is an adequate supply of ground water in the shallow aquifer for Ozaukee County and the Region as a whole. The shallow aquifer is the source of water for most wells in the County. The regional groundwater resources report also suggests that there is an imbalance in supply and demand in some parts of the Region in the deep aquifer, which is an additional source of water for municipal wells in the Region. This imbalance occurs in Waukesha County. This imbalance demonstrates the importance of both the future shallow aquifer water supply and deep aquifer water supply in Ozaukee County, as groundwater is currently the main source of water for daily use in Ozaukee County.

Groundwater levels are replenished through water infiltration in surface areas called groundwater recharge areas. Groundwater recharge areas are those areas where the groundwater flow is downward. As shown on Map 2.27, the local groundwater table for most areas in the County is generally shallow, at depths of less than 25 and 50 feet. On a regional level, groundwater recharge areas tend to be in upland areas or areas of topographic highpoints from which flow paths originate and diverge. These locations are groundwater divides, across which there is no horizontal flow of groundwater. The major groundwater divide in the Region affecting Ozaukee County runs through western and central Washington County, approximately along the surface water sub-continental divide (see Figure 2.8). In Ozaukee County groundwater generally flows to the east and southeast towards the Milwaukee River and Lake Michigan. Locally, the recharge potential of an area is dependent on a number of factors, including soil permeability and percolation rates, slope, the direction of groundwater flow, land use, and, the permeability of the subsurface materials above the water table. Groundwater recharge areas will be identified in the regional water supply study, which is expected to be completed in 2007.

Figure 2.8



The deeper sandstone aquifer, previously referred to as the deep aquifer, is separated from the shallow aquifer by a relatively impervious barrier, the Maquoketa shale formation. The primary recharge area for the deep aquifer is located in western Waukesha, Walworth, and Washington Counties. While the primary recharge area lies in the southwestern portion of the Southeastern Wisconsin Region, it does appear that the shallow aquifer and deep aquifer are hydraulically connected, highlighting the importance of regional groundwater flow.

Another factor that is critical to maintaining a high quality groundwater supply is determining which areas of the County are most vulnerable to groundwater contamination. Land use planning can be used to steer incompatible uses away from these areas once they have been identified.

The most commonly used methods used to evaluate groundwater contamination potential are overlay methods combining several major physical factors. The system for evaluation of contamination potential used by SEWRPC in its study of groundwater resources in Southeastern Wisconsin was based on five parameters: soil characteristics, unsaturated zone thickness, permeability of vertical sequences in the unsaturated zone, recharge to groundwater, represented by soil percolation, and aquifer characteristics. SEWRPC has evaluated the contamination potential of shallow groundwater, which is shown on Map 2.28. An evaluation of the contamination potential of deep aquifers is not yet available due to data limitations. Table 2.14 sets for the combination of parameters for contamination potential and the number of acres encompassed by each final contamination potential ranking in the planning area.

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. For the purposes of this report, 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. As shown on Map 2.29, woodlands encompassed 12 square miles, or about 5 percent of the Ozaukee County planning area, in 2000.

Managed Forest Lands

The Managed Forest Law (MFL) is an tax incentive program intended to encourage sustainable forestry on private woodlands in Wisconsin with the primary focus on timber production. The MFL offers private woodland owners a reduced property tax rate as an incentive to participate. All Wisconsin private woodland owners with at least 10 acres of contiguous forestland in the same city, civil town or village are eligible to apply provided the lands meet the other criteria: 1) have a minimum of 80% of the land in forest; 2) the primarily use the land for growing forest products (croplands, pastures, orchards, etc. are not eligible); 3) not have recreational uses that interfere with forest management. Participants enter into a 25 or 50 year agreement. If the agreement is terminated before its end, a withdraw penalty will be assessed. Starting with the 2008 entries, applications must have an approvable management plan, written by a Certified Plan Writer, accompany the application. The application fee will be \$20. If enrolled property is sold before the agreement period has expired, the new owner can choose one of the following options: 1) complete the agreement period with the current plan; 2) adjust the plan to meet their goals and objectives; 3) withdraw the land and pay the penalty. Currently a landowner can closed 160 acres per municipality to the public. Any land enrolled over that 160 acres will be open to the public. The tax benefit is substantially greater for enrolled acreage that is open to the public. In 2005, there were 67 participants in the MFL program encompassing about 1676.83 total acres enrolled: 1305.28 acres of closed enrolled forestlands and about 371.55 acres of open enrolled forestlands in the planning area, as shown on Map 2.29.

Natural Areas and Critical Species Habitat Sites

A comprehensive inventory of natural resources and important plant and animal habitats was conducted by SEWRPC in 1994 as part of the regional natural areas and critical species habitat protection and management study. The inventory systematically identified all remaining high-quality natural areas, critical species habitat, and sites having geological significance within the Region. Ownership of identified natural areas and critical species habitat sites in the planning area were reviewed and updated in 2005.

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 are classified into one of three categories: natural areas of statewide or greater significance (NA-1), natural areas of countywide or regional significance (NA-2), and natural areas of local significance (NA-3). Classification of an area into one of these three categories is based on

consideration of the diversity of plant and animal species and community type present, the structure and integrity of the native plant or animal community, the uniqueness of the natural features, the size of the site, and the educational value.

Fifty natural areas lying wholly or partially in the Ozaukee County planning area have been identified. These sites, which together encompass 7,446 acres, or about 5 percent of the planning area, are described in Table 2.15 and shown on Map 2.30.

Critical Species Habitat and Aquatic Sites

Critical Species Habitat and Aquatic sites consist of areas outside Natural Areas, which are important for their ability to support rare, threatened, or endangered plant or animal species. Such areas constitute “critical” habitat considered to be important to the survival of a particular species or group of species of special concern. Seven sites supporting rare or threatened plant and animal species have been identified in the Ozaukee County planning area. These sites encompass an area of 294 acres, less than 1 percent of the planning area, and are described in Table 2.16 and shown on Map 2.31. There are also 30 aquatic sites supporting threatened or rare fish, herptile, or mussel species in the County planning area. There are 73.1 stream miles and 413 lake acres of critical aquatic habitat in the planning area, which are described in Table 2.17 and shown on Map 2.31.

Reestablishment of Forest Interior

A 400-acre site consisting of grasslands that were once cultivated agricultural lands in the western portion of Harrington Beach State Park was identified for re-establishment of forest interior habitat in the regional natural areas plan prepared by SEWRPC. The plan recommended this area be reestablished with native hardwood tree species to serve as a forest interior-nesting site for critical bird species. The site is shown on Map 2.31.

The DNR master plan for Harrington Beach State Park recommends maintaining the existing grasslands through prescribed burns and mechanical means such as mowing. The master plan does state that an alternative to maintaining the existing grasslands would be to restore the site to southern mesic forest. Southern mesic forests were the pre-settlement vegetation in the area and, like grasslands, are in decline.

Environmental Corridors and Isolated Natural Resource Areas

One of the most important tasks completed under the regional planning program for Southeastern Wisconsin has been the identification and delineation of those areas in which concentrations of the best remaining elements of the natural resource base occur. It has been recognized that preservation of these areas is essential to both the maintenance of the overall environmental quality of the region and to the continued provision of the amenities required to maintain a high quality of life for residents.

Seven elements of the natural resource base are considered essential to the maintenance of the ecological balance and the overall quality of life in the Region, and served as the basis for identifying the environmental corridor network. These seven elements are: 1) lakes, rivers, and streams and associated shorelands and floodplains; 2) wetlands; 3) woodlands; 4) prairies; 5) wildlife habitat areas; 6) unfarmed, wet, poorly drained, and organic soils; and 7) rugged terrain and high relief topography. In addition, there are certain other features which, although not a part of the natural resource base, are closely related to the natural resource base and were used to identify areas with recreational, aesthetic, ecological, and natural value. These features include

existing park and open space sites, potential park and open space sites, historic sites, scenic areas and vistas, and natural areas.

The mapping of these 14 natural resource and resource-related elements results in a concentration of such elements in an essentially linear pattern of relatively narrow elongated areas, which have been termed “environmental corridors” by SEWRPC. SEWRPC has combined these environmental corridors with other “isolated natural resources areas” to represent the best natural remnants remaining in the region. It would not be practical or even possible to preserve every last natural remnant in Ozaukee County. Nor is that being recommended. In fact, some creative compromises may accommodate both development and environmental objectives.

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. The primary environmental corridors of Ozaukee County are generally along major stream valleys and around major lakes, and consist of almost all of the remaining high-value woodlands, wetlands, and wildlife habitat areas within the County. These corridors also include the undeveloped floodland and shorelands associated with the major surface water bodies within the County. These primary environmental corridors are, in effect, a composite of the best individual elements of the natural resource base of Ozaukee County, and have truly immeasurable environmental and recreational value.

Secondary environmental corridors serve to link primary environmental corridors, or encompass areas containing concentrations of natural resources between 100 and 400 acres in size and one mile long. Where secondary environmental corridors serve to link primary corridors, no minimum area or length criteria apply. The secondary environmental corridors in Ozaukee County are located generally along intermittent streams or grass waterways that serve as links between segments of primary environmental corridors. These secondary environmental corridors contain a variety of resource elements, often remnant resources from primary corridors that have been developed for intensive agricultural purposes or urban land uses.

Isolated natural resource areas contain significant remaining resources apart from environmental corridors. These isolated natural resource features represent “pockets” of undisturbed areas that are not large enough to meet the size or length criteria for primary or secondary environmental corridors. They are at least five acres in size and at least 200 feet wide.

The delineated environmental corridors and isolated natural resource areas located within the Ozaukee County planning area, as of 2000, are shown on Map 2.32.

The preservation of environmental corridors and isolated natural resource areas in essentially natural, open uses can assist in flood-flow attenuation, water pollution abatement, noise pollution abatement, and maintenance of air 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, loss of groundwater recharge, as well as

a decline in the scenic beauty of the planning area. The importance of maintaining the integrity of the remaining environmental corridors and isolated natural resource areas thus becomes apparent.

As shown on Map 2.32, the primary environmental corridors in the Ozaukee County planning area are located along the Milwaukee River and major streams, along Lake Michigan, around several lakes, and in large wetland areas. In 2000, about 32.4 square miles, comprising about 14 percent of the planning area, were encompassed within primary environmental corridors. Secondary environmental corridors are located chiefly along the smaller perennial streams and intermittent streams in the planning area. About eight square miles, comprising about 3 percent of the planning area, were encompassed within secondary environmental corridors in 2000. Isolated natural resource areas within the planning area include a geographically well-distributed variety of isolated wetlands, woodlands, and wildlife habitat. These areas encompassed about 5.3 square miles, or about 2 percent of the planning area, in 2000. Table 2.18 sets forth the amount of land encompassed by primary and secondary environmental corridors and isolated natural resource areas in each participating local government.

Park and Open Space Sites

A comprehensive region wide inventory of park and open space sites was conducted in 1973 under the initial regional park and open space planning program conducted by SEWRPC. The inventory is updated periodically, and was updated in 2005 as part of this planning process.

The 2005 inventory identified all park and open space sites owned by a public agency, including Federal, State, County, and local units of government and school districts. The inventory also included privately owned outdoor recreation sites such as golf courses, campgrounds, boating access sites, hunting clubs, group camps, and special use outdoor recreation sites. Sites owned by nonprofit conservation organizations, such the Ozaukee Washington Land Trust, were also identified. In 2005, there were 10,996 acres of park and open space land encompassing about 7 percent of the Ozaukee County planning area in fee simple ownership. An additional 866 acres of land were under conservation or other easements intended protect the natural resources of a site.

Park and Open Space Sites Owned by Ozaukee County

Park and open space sites owned by Ozaukee County in 2005 are listed in Table 2.19 and shown on Map 2.33. In 2005 the County owned 14 park and open space sites encompassing 1,236 acres, which is less than 1 percent of the total planning area. The 15 existing County park and open space sites include: 1) Carlson Park/Ozaukee Ice Center, 2) Mee-Kwon County Park, 3) Virmond Park, 4) Covered Bridge Park, 5) Ozaukee County Fairgrounds, 6) Lions Den Gorge Nature Preserve, 7) Hawthorne Hills County Park, 8) Tendick Nature Preserve, 9) Guenther Farmstead, 10) Ehlers County Park, 11) Ozaukee County Trail Park, 12) Bee Keeper Bog, 13) Waubedonia Park, and 14) the Shady Lane Property. The Ozaukee County planning area also includes the four-acre Goeden Park along the Milwaukee River in Washington County. Goeden Park, which is owned by Washington County, brings the total county park acreage in the planning area to 1,240 acres.

Park and Open Space Sites Owned by the State of Wisconsin

Park and open space sites owned by the State of Wisconsin in 2005 are listed in Table 2.20 and shown on Map 2.33. In 2005 there were nine State owned park and open space sites encompassing 2,880 acres, or about 2 percent of the planning area. Of these nine sites, eight sites, encompassing approximately 2,585 acres, were owned by the Wisconsin Department of Natural Resources (WDNR) and one site, encompassing 295 acres, was owned by the University of Wisconsin - Milwaukee.

The Wisconsin Department of Natural Resources has acquired large areas of park and open space lands in the planning area for a variety of resource protection and recreational purposes. Sites acquired for natural resource preservation and limited recreational purposes include the Cedarburg Habitat Preservation Area, Cedarburg Bog State Natural Area, and one scattered wetland. Another WDNR owned site, Harrington Beach State Park, has more intensive recreational activities such as swimming, camping, picnicking, and trail facilities. Map 2.34 also reflects project boundaries approved by the Wisconsin Natural Resources Board for additional acquisitions associated with State park, wildlife, and heritage areas. Lands within approved project boundaries are intended to be acquired by the DNR on a “willing seller-willing buyer” basis, for recreational or open space purposes as funding permits.

The DNR established the 19,487 acre North Branch Milwaukee River Wildlife and Farming Heritage Area in 2002. This site lies within the Milwaukee River Basin and is located in portions of northwestern Ozaukee County, northeastern Washington County, and southwestern Sheboygan County. The project site encompasses river and stream corridors, large wetland complexes, agricultural lands, and three minor lakes. Wetlands and agricultural lands comprise 16,549 acres of the heritage area and river corridors comprise an additional 2,938 acres. A total of 8,449 acres of the heritage area lie within the Ozaukee County planning area. The WDNR anticipates using a variety of real estate tools, including fee simple acquisition, easements, and purchase of development rights to protect natural features and agricultural lands with the project area. The North Branch Milwaukee River Wildlife and Farming Heritage Area project boundary is shown on Map 2.33.

The University of Wisconsin-Milwaukee (UWM) owns and operates a field station that encompasses a portion of the Cedarburg Bog. Located in the Town of Saukville, the Cedarburg Bog UWM Field Station site encompasses about 295 acres.

U.S. Fish and Wildlife Service Sites

Table 2.20 and Map 2.33 identify six open space sites in the Ozaukee County planning area owned by the U.S. Fish and Wildlife Service, which encompass 639 acres, or less than 1 percent of the planning area. Four of the open space sites were purchased by the U.S. Fish and Wildlife Service for the primary purpose of preserving and improving habitat for breeding, raising, and releasing waterfowl in Wisconsin. Project boundaries for potential acquisition associated with the U.S. Fish and Wildlife Service sites are also shown on Map 2.33.

Park and Open Space Sites Owned by Local Governments and Public School Districts

In addition to County, State, and Federally owned park and open space sites, there were 152 park and open space sites owned by local governments and public schools in the Ozaukee County planning area in 2005. Those sites encompassed 1,783 acres, or about 1 percent of the planning area. Local governments owned 125 of the park and open space sites and public schools owned 22 of the sites. Appendix 2 sets forth park and open space sites owned by local governments and public school districts in each local government participating in the cooperative planning process. The acreage attributed to school district sites in Appendix 2 includes only those portions of the site used for recreational purposes or in open space. Map 2.34 shows the location of park and open space sites owned by local governments and public schools in the planning area.

Private and Public Interest Resource Oriented Park and Open Space Sites

In 2005 there were 70 of these sites encompassing 3,466 acres, or almost 2 percent of the planning area, as depicted on Map 2.35. These sites include privately-owned golf courses, schools,

subdivision parks, hunting clubs, campgrounds, boat access sites, horse stables, soccer parks, and a dog walking park.

Nine additional sites, encompassing 988 acres, are owned by private organizations for resource preservation purposes. The nine sites are owned by the Ozaukee Washington Land Trust, Riveredge Nature Center, and the Nature Conservancy. Privately owned resource preservation sites are set forth in Table 2.21 and shown on Map 2.35.

Lands Under Protective Easements

Several open space and environmentally sensitive sites in the Ozaukee County planning area are protected under conservation easements. These easements are typically voluntary contracts between a private landowner and a land trust or governmental body that limit, or in some cases prohibit, future development of the parcel. With the establishment of a conservation easement, the property owner sells or donates the development rights for the property to a land trust or governmental agency, but retains ownership. The owner is not prohibited from selling the property, but future owners must also abide by the terms of the conservation easement. The purchaser of the easement is responsible for monitoring and enforcing the easement agreement for the property. Conservation easements do not require public access to the property, although public access is generally required if Wisconsin stewardship funds or other DNR grant funds are used to acquire the property. Conservation easements located in the planning area are listed in Table 2.22 and shown on Map 2.36.

CULTURAL RESOURCES

The term cultural resource encompasses historic buildings, structures, and sites and archeological sites. Cultural resources in Ozaukee County have important recreational and educational value. Cultural resources help to provide the County and each of its distinct communities with a sense of heritage, identity, and civic pride. Resources such as historical and archeological sites and historic districts can also provide economic opportunities for communities and their residents. For these reasons it is important to identify historical and archeological sites located in the Ozaukee County planning area. It is also important to include an inventory of museums and cultural venues such as theaters. While such venues may not be historical or archeological sites in themselves, they are cultural resources in that they may house items of historical or archeological importance, contain historical records and information, be an educational resource, or be an outlet for performances of cultural significance.

Historical Resources

In 2005 there were 32 historic places and districts in the planning area listed on the National Register of Historic Places and the State Register of Historical Places, as set forth in Table 2.23 and shown on Map 2.37. In most cases, a historic place or district is listed on both the National Register and on the State Register. After the State Register was created in 1991, all properties which are nominated for the National Register must first go through the State Register review process. Upon approval by the State review board, a site is listed on the State Register of Historic Places and recommended to the National Park Service for review and listing on the National Register of Historic Places. The only exceptions are Federally owned properties. These properties may be nominated for to the National Register directly by the National Park Service. Of the 32 historic places and districts listed on the National and State Registers, 27 are historic buildings or structures, five are historic districts, and one is a shipwreck. Sites and districts listed on the National Register of Historic Places and the State Register of Historic places have an increased measure of protection against degradation and destruction.

The 32 historic places and districts listed on the National and State registers of historic places are only a small fraction of the buildings, structures, and districts listed in the Wisconsin Architecture and History Inventory. The Wisconsin Architecture and History Inventory is a database administered by the State Historical Society of Wisconsin, which contains historical and architectural information on approximately 120,000 properties Statewide. The listed sites have architectural or historical characteristics that may make them eligible for listing on the National and State registers of historic places. In 2005 there were 2,046 properties in Ozaukee County included in the Wisconsin Architecture and History Inventory. The inventory can be accessed through the State of Wisconsin Historical Society website at www.wisconsinhistory.org/ahi.

In addition to those historic sites and districts nominated to the National and State registers of historic places, there are 119 sites in the Ozaukee County planning area which have been designated as local landmarks by local governments. Local landmarks are set forth in Table 2.24. Like historic sites listed on the National and State registers, properties designated as local landmarks have an extra level of protection against degradation and destruction. A local government is authorized to designate local landmarks after a landmarks commission or historic preservation commission has been established by ordinance. Landmark commissions and historic preservation commissions are typically seven to nine member boards which review applications for local landmark status and may also review proposed alterations to historic properties or properties located in historic districts. Landmark and historic preservation commissions may also designate local historic districts; however, designation of districts typically requires approval from the local governing body. Local governments in the Ozaukee County planning area, which had established landmark or historic preservation commissions as of 2005, include the City of Cedarburg, City of Mequon, City of Port Washington, Village of Thiensville, and Town of Cedarburg.

Archaeological Resources

Preservation of archaeological resources is also important in preserving the cultural heritage of the Ozaukee County planning area. Like historical sites and districts, significant prehistoric and historic archaeological sites provide the County and each of its communities with a sense of community heritage and identity and can provide for economic opportunities through tourism if properly identified and preserved. Archaeological sites found in the Ozaukee County planning area can fall under two categories, prehistoric sites and historic sites. Prehistoric sites are defined as those sites which date from before written history. Historic sites are sites established after history began to be recorded in written form (the State Historical Society of Wisconsin defines this date as A.D. 1650).

As of 2005, there were 393 known prehistoric and historic archaeological sites in the Ozaukee County planning area listed in the State Historical Society's Archaeological Sites Inventory, including prehistoric and historic camp sites, villages, and farmsteads; marked and unmarked burial sites; and Native American mounds. No archaeological sites in Ozaukee County are listed on the National or State Registers of Historic Places.

Local Historical Societies and Museums

There are several local historical societies affiliated with the State Historical Society of Wisconsin in the planning area. These include the Ozaukee County Historical Society, Cedarburg Cultural Center, Mequon Historical Society, Port Washington Historical Society, and Saukville Area Historical Society. Each historical society contains a varying number of facilities housing items of historical or archeological significance, historical records and information, educational facilities, or gallery and performance facilities, which are summarized on Table 2.25.

As indicated in Table 2.25, most of the historical societies in the planning area maintain facilities which contain items of historical or archaeological significance and historical records. The Cedarburg Cultural Center includes galleries which feature exhibits and performances and also two off-site museums. The Mequon Historical Society maintains a historic site listed on the National and State Registers of Historic Places and a reading room. The Ozaukee County Historical Society maintains several sites including a collection of pioneer buildings, a one-room school house, and archives of historical records pertaining to Ozaukee County. As of 2005, the Ozaukee County Historical Society was also working to restore the Interurban Depot in the City of Cedarburg for use as a museum and an archives research center. The Port Washington Historical Society also provides a reading room in the City of Port Washington. Other museums located in the Ozaukee County planning area include the National Flag Day Foundation Americanism Center located in the Town of Fredonia and the Wisconsin Museum of Quilts and Textiles located in the City of Cedarburg.

COMMUNITY RESOURCES (Population and Land Use)

Population Trends

All population data was derived from the 2000 Census and compiled by SEWRPC through the Multi-Jurisdictional Comprehensive Planning process. The historical and current population of Ozaukee County is set forth in Table 2.26 and Figure 2.9. In addition, the historical and current population of each participating city, village, and town is set forth in Appendix 2. As shown, Ozaukee County experienced a population decline during the period between 1860 and 1890. With the exception of the decade between 1910 and 1920, the County experienced relatively modest population growth between 1890 and 1940 as the County population increased from 14,943 to 18,985 residents. The County experienced a rapid growth rate between 1940 and 1980 including population gains of nearly 65 percent between 1950 and 1960 and nearly 42 percent between 1960 and 1970. The County continued to see steady growth between 1980 and 2000 at more modest rates of 8.7 percent between 1980 and 1990 and 14.4 percent between 1990 and 2000. The 2000 population of 82,317 is more than a three-fold increase over the County population in 1940. Map 2.39 depicts Ozaukee County population distribution in 2000.

Age Distribution and Gender Composition

The age distribution of the population has important implications for planning and the formation of public policies in the areas of education, recreation, health, housing, transportation, and economic development. The age distribution and gender composition of the County population is set forth by age group in Table 2.27 and Figure 2.10. The median age of Ozaukee County residents was nearly 39 in 2000. The actual and projected population (2000 to 2035) is also included in Figure 2.11.

In 2000, children less than five years old numbered 5,069 or about 6 percent of the County population, while children between the ages five and 19 numbered 18,935, or 23 percent of the County population. The size of the less than five years old age cohort and the five to 19 year old age cohort is important for planning future educational facilities. Expansion of existing educational facilities and the addition of new facilities should be planned to accommodate projected increases or decreases within these age cohorts.

Table 2.27 shows adults ages 20 through 64 numbered 47,956 or about 58 percent of the total County population, in 2000. The size of this age cohort correlates directly to the size of the workforce residing in Ozaukee County. It will be important to retain and expand existing

businesses and attract new businesses to the County to meet the employment needs of the 20 to 64 year old age cohort in an effort to maintain a stable and healthy economy in the County.

Persons age 65 and older in Ozaukee County numbered 10,357, or nearly 13 percent of the total population of the County, in 2000. There will likely be an increased demand for specialized housing units, transportation, and health care services for the elderly if the elderly population increases in size over the next three decades.

Ozaukee County has a slightly higher number of females, 41,725 or nearly 51 percent of the total population, than males which number 40,592 to make up about 49 percent of the population. There are more males than females within the younger age cohorts of the County, 0 to 24 years old. As the current Ozaukee County population begins to age there are typically more women than men, save for the 50 to 54 year old age cohort in which there are 101.1 males to every 100 females. These trends may indicate a rising number of males to females in the composition of Ozaukee County's population in the coming decades. However, this trend may not be seen in the older age cohorts of the County population as females typically have greater life expectancies than males.

Existing Households

The current number of households and the average household size in Ozaukee County and each local government in the planning area are set forth in Table 2.28. There were 30,857 households in Ozaukee County in 2000, with an average household size of 2.61 persons, compared to 749,039 households, with an average household size of 2.52 persons in the Region. Year 2000 population and household size data will be the base year data used in household projections for the County and participating local governments.

The number of households and average household size are important statistics because households are the unit of consumption for housing units and other utilities and community facilities. Average household size is used to convert a population forecast to a household forecast. Therefore, the forecast number of households and average household size is critical information in determining the number of housing units that likely will be added to County and individual city, village, and town housing stock over the planning period. The number of forecast households is also critical in determining if various utilities and community facilities will require expansion to meet forecast demand over the planning period or whether new facilities will need to be built.

Employment and Occupational Characteristics

The number of employed persons 16 years of age and older by occupation for Ozaukee County and the Region is set forth in Table 2.29. Employed persons are the number of residents holding jobs, regardless of the location of the employer and whether the jobs are part-time or full-time. In the year 2000 there were a total of 44,203 employed persons 16 years of age or older residing in the County, and 954,443 in the Region.

Table 2.30 indicates the general place of work of employed Ozaukee County residents 16 years of age and older in 2000. This table indicates that 22,469 workers living in Ozaukee County, or about 52 percent of the employed workforce, also worked in the County; while 21,086 workers, or about 48 percent, worked outside Ozaukee County. The table also indicates that 15,057, or about 35 percent, of employed Ozaukee County residents worked in Milwaukee County, including the City of Milwaukee. Only about 13 percent of employed Ozaukee County residents worked outside of Ozaukee and Milwaukee Counties. Table 2.30 indicates there were 43,555 employed residents 16 years of age and older in Ozaukee County who were working the last week of March 2004. Table 2.31 indicates the general place of work of employed residents in the Region.

Historical Urban Growth

Historical urban growth in the planning area between 1850 and 2000 is shown on Map 2.40. Urban growth for the years prior to 1940 was identified using a variety of sources, including the records of local historical societies, subdivision plat records, farm plat maps, U.S. Geological Survey maps, and Wisconsin Geological and Natural History Survey records. Urban growth for the years 1950, 1963, 1975, 1985, 1995, and 2000 was identified using aerial photographs.

Small portions of Port Washington, Cedarburg, Grafton, and Thiensville areas were developed prior to 1850. In 1900, urban development was still largely confined to the Port Washington, Cedarburg, Grafton, and Thiensville areas with additional development in the now incorporated areas of Saukville, Fredonia, Belgium, and Newburg. The period from 1900 to 1950 saw expansion around these areas of urban development. The pace of urban development accelerated after 1950. The period from 1950 to 2000 has seen significant urban growth in the southern portion of the planning area in the Village of Grafton, City of Cedarburg, and the City of Mequon in an outward expansion of the Milwaukee metropolitan area. Moderate development in and around the City of Port Washington and the other established urban centers in the northern portion of the planning area has also occurred during this period. In addition, there has been a proliferation of scattered urban enclaves in many portions of the planning area removed from historic urban centers, particularly since 1963. In 2000, urban development encompassed about 42 square miles, or about 16 percent of the planning area.

Existing Land Uses

Land uses in the planning area in 2000 are shown on Map 2.41, and quantitatively summarized in Table 2.32.

The existing land use map is based on the SEWRPC land use inventory conducted in 2000. The land use inventory is intended to serve as a relatively precise record of land use for the entire Region. The land use classification system used in the inventory consists of nine major categories which are divided into 66 sub-categories, and is detailed enough to provide a basis for developing future land use plans. Aerial photographs serve as the primary bases for identifying existing land uses, augmented by field surveys as appropriate. The most recent land use inventory was carried out based on aerial photography taken in the spring of 2000.

Urban Land Uses

Urban land uses consist of residential; commercial; industrial; governmental and institutional; and transportation, communication, and utility uses. As indicated in Table 2.32 and on Map 2.41, urban land uses encompassed about 34,440 acres, or about 22 percent of the planning area, in 2000.

Nonurban Land Uses

Nonurban land uses consist of agricultural lands; natural resource areas, including surface waters, wetlands, and woodlands; quarries and landfills; and unused land. As indicated in Table 2.32 and on Map 2.41, nonurban land uses encompassed about 124,356 acres, or about 78 percent of the planning area in 2000.

Sanitary Sewer Service

Table 2.33 summarizes existing conditions and design capacities of public sewage treatment plants in the planning area, as documented for regional WQMP update. Lands in each sanitary sewer service area served with sanitary sewers in 2000 are also shown on Map 2.42. These areas were identified by SEWRPC by mapping the locations of existing sanitary sewers as part of the regional land use plan update. Sewer locations were provided by municipalities and sewer and utility districts. About 29 square miles, or about 12 percent of the County, were served by public sanitary sewers in 2000. An estimated 64,500 residents, or about 78 percent of Ozaukee County residents, were served by public sewer.

Map 2.42 also shows two sanitary sewer service areas which are not served by sewage treatment plants. These areas, Waubeka and Lake Church, fit the urban characteristics used to delineate sanitary sewer service areas in the regional WQMP and are recommended to be served by sewage treatment plants in the Villages of Fredonia and Belgium, respectively. A refined sewer service area was identified for Waubeka in the Village of Fredonia sewer service area plan prepared in 1984. A refined sewer service area has not yet been identified for the Lake Church area.

Private On-Site Wastewater Treatment

Ozaukee County regulates private on-site wastewater treatment systems (POWTS) for any development that is not served by sanitary sewer in the Ozaukee County portion of the planning area (Washington County regulates development in the Washington County portion of the planning area). Development in this case applies to residential uses and commercial and industrial uses that have employees. The authority to regulate POWTS comes from the Wisconsin Administrative Code, specifically Chapters Comm 5, Comm 16, Comm 82 through 87, and Comm 91. Chapter 9 of the Ozaukee County Code of Ordinances sets forth the regulations for POWTS in both incorporated and unincorporated portions of the County.

There are several different types of POWTS including conventional systems, in-ground pressure systems, mound systems, at-grade systems, holding tank systems, and other experimental systems. All wastewater must discharge into a public sewerage system or a POWTS. The ability of soil to accept wastewater from a development differs depending on the type of soil. For this reason, all development proposed to be served by a POWTS requires a field inspection to determine if the soils present in a specific location are suitable for the proposed development and what method of on-site wastewater treatment is most suitable. In 2005, there were a total of 7,750 POWTS Ozaukee County. The number and type of POWTS in each township are set forth in Table 2.34. As indicated in Graph 2.3, the predominant type of POWTS utilized in every municipality in the County is the Below Ground System. Most of the POWTS listed in Table 2.34 are located in civil towns and the City of Mequon; however a small number may be located in incorporated areas within the townships.

Water Supply

Map 2.43 shows portions of the planning area served by public water utilities and private water supply systems, and those areas where development depends on the use of private wells. Portions of Ozaukee County served by public water utilities encompassed about 18 square miles, or about 7 percent of the County, in 2005. An estimated 45,400 County residents, or about 55 percent of the County population, was served by public water utilities in 2000. There were six public water utilities in the County. Five public water utilities supplied groundwater, and one (the City of Port Washington) supplied Lake Michigan water. Lake Michigan water was also supplied to portions of the City of Mequon by WE Energies, who purchases the water from the Milwaukee Water Works. Private water supply systems in the County served about three square miles in 2005. These water

supply systems typically served residential subdivisions, apartment or condominium developments, and institutions. An additional 23 square miles, or 9 percent of the County, were not served by a public water utility or private water supply system. These areas typically contained sub-urban density single-family residential developments or agricultural areas, which obtained their water supply from private wells.

Stormwater Management Facilities

The dispersal of urban land uses over greater amounts of the planning area increases stormwater runoff, which must be accommodated by the stream network or by engineered storm sewer systems to which new urban development is adjacent. Stormwater management facilities should be adequate to serve a proposed urban development. Such facilities may include: curbs and gutters, catch basins and inlets, storm sewers, and stormwater storage facilities for quantity and quality control such as detention and retention ponds.

Street improvements in areas with urban density development should employ curb and gutter and storm sewer facilities to carry the amount of stormwater runoff that can be generated in such an area (urban areas tend to have a greater percentage of impervious surfaces which produce increased stormwater runoff). To collect the increased stormwater runoff produced by some urban developments, stormwater storage and infiltration facilities may need to be constructed. These facilities consist of dry ponds, wet ponds, and infiltration basins. They serve to store excessive stormwater until drainage facilities have open capacity.

Street improvements in areas with rural density development (and less impervious surfaces) tend to employ roadside ditches and swales, culverts, and overland flow paths to carry stormwater runoff.

As shown on Map 2.44, about 25 square miles, or about 9 percent of the planning area, were served by curb and gutter stormwater management facilities in 2005. The Cities of Cedarburg and Port Washington and the Villages of Belgium, Fredonia, Grafton, Newburg, Saukville, and Thiensville have curb and gutter storm sewer systems which collect stormwater runoff. The Towns of Belgium, Cedarburg, Fredonia, Grafton, Port Washington, and Saukville rely on roadside swales and culverts to collect storm water and runoff. These areas encompassed about 188 square miles, or about 72 percent of the planning area. The City of Mequon had a combination of curb and gutter systems and roadside swales and culverts to handle stormwater collection in 2005.

Electric Power and Natural Gas Service

Wisconsin Electric Power Company (WEPCO) provides the Ozaukee County planning area with electric power service. Electric power service is available on demand throughout the planning area, and does not constitute a constraint on the location or intensity of urban development in the planning area. A WEPCO electric power generation facility is located in the City of Port Washington along Lake Michigan, south of downtown. The City of Cedarburg operates a municipal utility that provides electric power within the City of Cedarburg and a small portion of the Town of Cedarburg adjacent to the City.

WEPCO also provides the Ozaukee County planning area with natural gas service. Natural gas pipeline construction is generally coordinated with public water supply system installations; therefore, the natural gas service area within the county is similar to the areas served by public water utilities.

Solid Waste Management Facilities

Solid waste collection in Ozaukee County was provided by a combination of public and private services in 2005. Solid waste is landfilled at general-use landfills accepting municipal waste in adjacent Counties. There are no landfills in Ozaukee County currently accepting municipal waste, however, the following is a brief summary of several former solid waste facilities in the planning area:

- A former fly ash landfill located adjacent to Sauk Creek near Druecker's Quarry in the Town of Port Washington (~1.5 miles north of Port Washington on west side of CTH KW). Lab analysis results of sediment samples collected along Sauk Creek, by the WDNR in 1994, indicated that contaminant levels were relatively low and not perceived to be at levels of concern. Consequently, the WDNR deemed that Sauk Creek, adjacent the former ash landfill, did not require specific management activities.
- The Cedar-Sauk Ash Landfill [WDNR Landfill License #00603] is a closed, unlined landfill located adjacent to Mole Creek in the Town of Cedarburg (~2.5 miles north of Cedarburg on the east side of CTH I). This former sand/gravel pit was filled with approximately 650,000 cubic yards of fly ash and bottom ash in the 1970's. Sulfate, Boron and Selenium impacts to local groundwater conditions, prompted WEPCO to upgrade the landfill cover to minimize infiltration and leachate generation. Based on the sites proximity to a navigable stream (bounded on the north and east by Mole Creek), the Cedar-Sauk Ash Landfill continues to be monitored for potential impacts to local surface/groundwater conditions.
- The 95-acre Prochnow landfill in the Town of Cedarburg, near the Five Corners area, was operated by the City of Cedarburg as a municipal landfill between 1957 and 1972. Fill material consisted mostly of municipal and commercial wastes. Soil and groundwater contamination was discovered at the landfill and adjacent properties in the late 1980's. The WDNR tested over 40 public and private drinking water wells near the former landfill in the early 1990's for heavy metals, PCBs, and VOCs. The WDNR continues to monitor the southeast migration of a contaminant plume and concludes that groundwater impacts remain highest along Wauwatosa Road and decreases rapidly to the east and south.
- The 280-acre fly ash landfill near I-43 and Highway 32 in the Town of Grafton [WDNR Landfill License #02801]. Detailed information on this former landfill was not readily available. However, both this site and the Cedar-Sauk Ash Landfill are included in the WEPCO Fly Ash Reclamation Project. Beginning in 2001, fly ash at these sites will be mined, transported to the Pleasant Prairie Power Plant in Kenosha County for re-burning, and the combustion byproduct will be sold as a component used in the making of concrete. As of this report date, no mining activities have been observed at either site.
- The Denow landfill in the Town of Grafton, located north of Pleasant Valley Road in Section 1, Township 10 North, Range 22 East. The landfill was a former gravel pit that was previously utilized by local municipalities for disposing of various types of refuse. The landfill was been blamed for contaminating groundwater in the immediate area.

SUMMARY

This chapter provides inventory information on existing agricultural, natural, cultural and community resources in the Ozaukee County planning area and each applicable local unit of government. Information regarding soil types, existing farmland, farming operations, topography and geology, water resources, forest resources, natural areas and critical species habitat sites, environmental corridors, park and open space sites, historical resources, archeological resources, and non-metallic mining resources is included in this chapter. The goals, objectives, strategies and work tasks set forth in Chapter 3 of this report are directly related to the inventory information presented in this chapter. Inventory findings include:

- There are five soil associations in Ozaukee County: the Kewanee-Manawa association, Ozaukee-Mequon association, Hochheim-Sisson-Casco association, Houghton-Adrian association, and the Casco-Fabius association. Soil associations in the Washington County portion of the planning area include: the Casco-Hochhiem-Sisson association, Ozaukee-Martinson-Saylesville association, Houghton-Palms-Adrian association, and Colwood-Boyer-Sisson association.
- The U.S. Natural Resources Conservation Service (NRCS) has created a land evaluation and site analysis (LESA) system for identifying areas to be preserved for farmland. LESA is a numeric system for rating potential farmland preservation areas by evaluating soil quality (LE or land evaluation) and geographic variables (SA or site assessment). To develop the LE rating the NRCS rated each soil type in Ozaukee and Washington Counties and placed the soil ratings into groups ranging from the best to the worst suited for cropland. The best group is assigned a value of 100 and all other groups are assigned lower values. In addition to soil type, the land evaluation component considers slope, the agricultural capability class, and soil productivity.
- Lands used for agriculture were identified in the SEWRPC 2000 land use inventory and include all croplands, pasture lands, orchards, nurseries, and non-residential farm buildings. In 2000, agricultural lands occupied 86,285 acres, or about 35 square miles, representing almost 55 percent of the planning area.
- Ozaukee County farms produce a varied array of agricultural products including many varieties of crops and livestock. Among the most prominent of these agricultural products are corn, forage (hay, grass silage, and greenchop), soybeans, small grains, and dairy products.
- The total number of farms and median farm size in Ozaukee County are no longer recorded. However, the steady decrease in the number of farms previously recorded for Ozaukee County over the past 30 years indicates that this trend will continue in the future. Based on this assumption and the current farm statistics, the remaining farms sites in Ozaukee County have had to increase the number and/or size of farm buildings to accommodate for the consistent number of dairy cows and cattle.
- In 2005, there were 706 Wisconsin Farmland Preservation Program parcels under contract in Ozaukee County encompassing approximately 35,244 acres of farmland. There were 559 CRP contracts and 29 CREP contracts in Ozaukee County. CRP lands encompassed about 5,892 acres and CREP lands encompassed about 120 acres. There were four WRP agreements encompassing about 101 acres of land in Ozaukee County.

- Surface elevations in the planning area range from a low of 580 feet above sea level in the Town of Belgium along Lake Michigan to a high of 988 feet in the southwestern portion of the Town of Cedarburg.
- A total of 16 sites of geological importance, including one glacial feature and 15 bedrock geology sites, were identified in the County in 1994 as part of the regional natural areas study. Together, these sites encompass about 274 acres in Ozaukee County.
- There are approximately 25 linear miles of Lake Michigan shoreline in the Ozaukee County planning area. The shoreline contains areas of substantial bluffs with heights of up to 140 feet, ravines, areas of gently rolling beaches with widths of up to 150 feet, and areas of low sand dune ridges and swales. Shoreline recession rates varied greatly along different segments of the lakeshore.
- In 2000, there were 23 sites encompassing almost 544 acres in the planning area being used for non-metallic mining, based on the SEWRPC land use inventory. There are also no sites in Ozaukee County which are registered as sites with marketable nonmetallic mineral deposits.
- The majority of the planning area is located in the Milwaukee River South Watershed, which covers 168 square miles, or approximately 66 percent of the planning area.
- Surface waters cover an area of 2,280 acres, or about 1 percent, of the planning area. There are two major inland lakes located entirely within the planning area, the 57 acre Lac du Cours in the City of Mequon and the 148 acre Mud Lake in the Town of Saukville. In addition to the major lakes there are 546 minor lakes and ponds distributed throughout the planning area. The total surface area of major and minor lakes / ponds in the planning area is 986 acres. There are approximately 94 miles of perennial streams in Ozaukee County. There are approximately 15 square miles of floodplain and 29 square miles of wetlands in the planning area.
- Groundwater consumption in the County has increased from 6,660,000 gallons per day to 7,620,000 gallons per day, a 14 percent increase, between 1979 and 1995. Over 84 percent of the total water used per day in Ozaukee County was groundwater in 1995.
- The Managed Forest Law (MFL) is an incentive program intended to encourage sustainable forestry on private woodlands in Wisconsin with a primary focus on timber production. In 2005, there were 67 MFL participants encompassing about 1,676 acres of forestlands enrolled in the program. Of the 1,676 acres there was 1,305 acres not open to the public, and about 371 acres open to the public for passive use and hunting.
- 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. Fifty natural areas lying wholly or partially in the Ozaukee County planning area have been identified. These sites encompass 7,446 acres, or about 5 percent of the planning area.
- Critical species habitat sites consist of areas outside natural areas which are important for their ability to support rare, threatened, or endangered plant or animal species. Seven sites supporting rare or threatened plant and animal species have been identified in the Ozaukee County planning area. These sites encompass an area of 294 acres, which is less than 1 percent of the planning area.

There are also 30 aquatic sites supporting threatened or rare fish, herptile, or mussel species in the County planning area, including 73.1 stream miles and 413 lake acres.

- 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.
- The primary environmental corridors in the Ozaukee County planning area are located along the Milwaukee River and major streams, along Lake Michigan, around several lakes, and in large wetland areas. In 2000, about 32.4 square miles, comprising about 14 percent of the planning area, were encompassed within primary environmental corridors. Secondary environmental corridors are located chiefly along the smaller perennial streams and intermittent streams in the planning area. About eight square miles, comprising about 3 percent of the planning area, were encompassed within secondary environmental corridors in 2000. Isolated natural resource areas within the planning area include a geographically well-distributed variety of isolated wetlands, woodlands, and wildlife habitat. These areas encompassed about 5.3 square miles, or about 2 percent of the planning area, in 2000.
- In 2005, there were 10,996 acres of parks and open space land protected for natural resource values in fee simple ownership, which together encompassed about 7 percent of the planning area. An additional 866 acres of land in 24 sites were under conservation or other easements intended to protect the natural resources of a site. In 2005, Ozaukee County owned 14 park and open space sites encompassing 1,236 acres, which is less than 1 percent of the planning area. The Ozaukee County planning area also includes the four-acre Goeden Park along the Milwaukee River in Washington County. Goeden Park, which is owned by Washington County, brings the total county park acreage in the planning area to 1,240 acres.
- In 2005, there were nine State owned park and open space sites encompassing 2,880 acres, or about 2 percent of the planning area. Of these nine sites; the WDNR owned eight sites, encompassing 2,585 acres; and the University of Wisconsin - Milwaukee, owned one site, encompassing 295 acres. In addition to State owned park and open space sites, there were six open space sites owned by the U.S. Fish and Wildlife Service, which encompassed 639 acres, or less than 1 percent of the planning area.
- In addition to County, State, and Federally owned park and open space sites, there were 152 park and open space sites owned by local governments and public schools in the Ozaukee County planning area in 2005. Those sites encompassed 1,783 acres, or about 1 percent of the planning area. Local governments owned 125 of the park and open space sites and public schools owned 22 of the sites.
- Privately owned park and open space sites located in each participating local government have also been inventoried. In 2005, there were 70 such sites encompassing 3,466 acres, or almost 2 percent of the planning area. These sites include privately-owned golf courses, schools, subdivision parks,

hunting clubs, campgrounds, boat access sites, horse stables, soccer parks, and a dog walking park. Nine additional sites, encompassing 988 acres, are owned by private organizations for resource preservation purposes.

- There were 32 historic places and districts in the planning area listed on the National Register of Historic Places and the State Register of Historical Places in 2005. Of the 32 historic places and districts listed on the National and State Registers, 27 are historic buildings or structures, five are historic districts, and one is a shipwreck. In addition to those historic sites and districts nominated to the National and State registers of historic places, there are sites in the Ozaukee County planning area which have been designated as local landmarks by local governments.
- As of 2005, there were 393 known prehistoric and historic archaeological sites in the Ozaukee County planning area listed in the State Historical Society's Archaeological Sites Inventory, including prehistoric and historic camp sites, villages, and farmsteads; marked and unmarked burial sites; and Native American mounds. No archaeological sites in Ozaukee County are listed on the National or State Registers of Historic Places.
- There are several local historical societies affiliated with the State Historical Society of Wisconsin in the planning area. These include the Ozaukee County Historical Society, Cedarburg Cultural Center, Mequon Historical Society, Port Washington Historical Society, and Saukville Area Historical Society.
- Ozaukee County has historically experienced an increase in population since 1890. Between 1940 and 1980 the County experienced a rapid rate of increase in population, followed by a more modest population gain between 1980 and 2000, including a 8.7 percent increase between 1980 and 1990 and a 14.4 percent increase between 1990 and 2000, to reach its current population of 82,317 residents.
- In 2000, 29.2 percent of the County population was under the age of 20; 58.3 percent of the population was between the ages of 20 and 64; and 12.5 percent of the population was age 65 and over. Age distribution in the County has important implications for planning and the formation of public policies in the areas of education, recreation, health, housing, transportation, and economic development.
- In 2000, 44,203 County residents 16 years of age and older were employed. Almost 43 percent of these workers were employed in management, professional, and related occupations. This high percentage may correlate to the relatively high level of educational attainment of County residents. Almost 68 percent of County residents have attended some college or attained an associates, bachelor, or graduate degree. Over 86 percent of employed Ozaukee County residents 16 years of age and older worked in Ozaukee or Milwaukee Counties in 2000.
- Small portions of the Cities of Port Washington and Cedarburg and the Villages of Grafton and Thiensville were developed prior to 1850. In 1900, urban development was still largely confined to the Port Washington, Cedarburg, Grafton, and Thiensville areas with additional development in the now incorporated areas of Saukville, Fredonia, Belgium, and Newburg. The period from 1900 to 1950 saw expansion around these areas of urban development. The period from 1950 to 2000 has seen significant urban growth in the southern portion of the planning area in an outward expansion of the Milwaukee metropolitan area. In addition, there has been a proliferation of scattered urban enclaves in many portions of the planning area removed from historic urban

centers, particularly since 1963. In 2000, urban development encompassed about 42 square miles, or about 16 percent of the planning area.

- 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 are also generally served by a municipal water utility or, in some cases, a private water supply system, local parks, local schools, and shopping areas. Urban service areas in the Ozaukee County planning area include: the City of Mequon / Village of Thiensville, City of Cedarburg, Village of Grafton, Village of Saukville, City of Port Washington, Village of Newburg, Village of Fredonia, and Village of Belgium.
- Urban land uses consist of residential; commercial; industrial; governmental and institutional; and transportation, communication, and utility uses. Urban land uses encompassed about 34,440 acres, or about 22 percent of the planning area, in 2000. Residential land comprised the largest urban land use category in the planning area, encompassing 18,938 acres, or about 55 percent of all urban land and about 12 percent of the total planning area. Commercial land encompassed about 933 acres or about 3 percent of all urban land and less than 1 percent of the total planning area. Industrial land encompassed about 978 acres or about 3 percent of all urban land and less than 1 percent of the total planning area. Land used for transportation, utilities, and communications facilities encompassed about 9,990 acres, or about 29 percent of all urban land and about 6 percent of the total planning area. Land used for government and institutional uses encompassed about 1,145 acres, or about 3 percent of all urban land and less than 1 percent of the total planning area. Intensively used recreational land encompassed about 2,456 acres, or about 7 percent of all urban land and about 2 percent of the total planning area.
- Nonurban land uses consist of agricultural lands; natural resource areas, including surface waters, wetlands, and woodlands; quarries and landfills; and unused land. Nonurban land uses encompassed about 124,356 acres, or about 78 percent of the planning area in 2000. Agricultural land was the predominant land use in the planning area in 2000. It encompassed 85,799 acres, or about 69 percent of nonurban land uses and 54 percent of the total planning area. Natural resource areas consisting of surface water, wetlands, and woodlands combined to encompass 27,892 acres, or about 22 percent of nonurban land uses and about 18 percent of the total planning area. Extractive and landfill uses combined to encompass about 662 acres, or less than 1 percent of nonurban land uses and the total planning area. Open lands encompassed about 10,003 acres, or about 8 percent of nonurban land and about 6 percent of the total planning area.
- Sewer service areas within the planning area include the Villages of Belgium, Fredonia, Grafton, Newburg, and Saukville and the Cities of Cedarburg and Port Washington. The Village of Thiensville and portions of the City of Mequon are located within the Milwaukee Metropolitan Sewerage District (MMSD) and wastewater is treated at MMSD sewage treatment plants in Milwaukee County. About 66 square miles, or 25 percent of the planning area, were within existing sanitary sewer service areas in 2005. There are also two sanitary sewer service areas which are not served by sewage treatment plants in the planning area. These areas, Waubeka and Lake Church, fit the urban characteristics used to delineate sanitary sewer service areas in the regional water quality management plan and are recommended to be served by sewage treatment plants in the Villages of Fredonia and Belgium, respectively.
- Ozaukee County regulates private on-site wastewater treatment systems (POWTS) for any development that is not served by sanitary sewer in the Ozaukee County portion of the planning

area. Development in this case applies to residential uses and commercial and industrial uses that have employees. Chapter 9 of the Ozaukee County Code of Ordinances sets forth the regulations for 7,750 POWTS in both incorporated and unincorporated portions of the County.

- Portions of Ozaukee County served by public water utilities encompassed about 18 square miles, or about 7 percent of the County, in 2005. An estimated 45,400 County residents, or about 55 percent of the County population, was served by public water utilities in 2000. Private water supply systems in the County served about three square miles in 2005. An additional 23 square miles, or 9 percent of the County, were not served by a public water utility or private water supply system. These areas typically contained sub-urban density single family residential developments or agricultural areas, which obtained their water supply from private wells.
- Solid waste collection in Ozaukee County was provided by a combination of public and private services in 2005. Solid waste is landfilled at general-use landfills accepting municipal waste in adjacent Counties. There are no landfills in Ozaukee County currently accepting municipal waste, however, several former solid waste facilities in the planning area are currently being monitored and are being considered for future redevelopment. Each local government in the County has implemented a recycling program.

Chapter 3: GOALS, OBJECTIVES, STRATEGIES and WORK TASKS

The four Goals along with the Objectives, Strategies, and Work Tasks established in the plan will be implemented over the next five-year time period 2006-2010. The goals, objectives, strategies and work tasks were established through a comprehensive review of the inventory data, input from the LWRM Plan Advisory Committee, review of other existing and currently underway planning activities such as the RWQMP update for Southeastern Wisconsin by SEWRPC and MMSD, and comments from citizens and farmers.

Goal 1 – Improved Land and Water Resources

Objective 1: Habitat protection and restoration	
Strategy 1a. Restore, Protect, and Enhance Natural Areas, Critical Species Habitat, and Open Space	
Work Tasks: Work with Ozaukee Washington Land Trust (OWLT), WDNR, USFWS, Friends of the Cedarburg Bog and other Conservation Partners on the acquisition of and fee-simple purchase of Natural Areas identified in the Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin. Develop the Ozaukee Interurban Trail as a greenway corridor (see Map 3.1, Appendix 3). In particular, land adjacent to Cedarburg Bog State Natural Area (NA-1).	
Strategy 1b. Increase Species Diversity and Protect Endangered and Threatened Species Habitat	
Work Tasks: Apply for a Wisconsin Coastal Management Program (WCMP) Grant to inventory fish impediments on waterways countywide. Work on issues involving stream connectivity. Work with WDNR on exploring dam alternatives (replace, remove, or repair).	
Strategy 1c. Protect Riparian Lands Along the Waterways to Help Provide Habitat, Reduce Erosion, Stabilize Bank Erosion, Decrease Stormwater Runoff, and Increase Property Values	
Work Tasks: Provide technical information and assist in applying for monetary assistance to the Mole Creek Restoration Project. Protect and preserve green space corridors and linkages through plat review and strategies 1a and 1c. Implement CREP particularly for Lake Michigan drainage. Pollution prevention through stormwater quality management, storm sewer GIS mapping, public education and outreach, and public involvement and participation.	
Strategy 1d. Manage Invasive Species, Both Plant and Animal	
Work Tasks: Implement Weed Ordinances for County Parks and City Parks by working cooperatively with municipalities. Continue implementation of the Gypsy Moth Suppression Program. Provide for invasive plant education, outreach, monitoring, and control programs, including working with the Invasive Plant Association of Wisconsin (IPAW). Require vegetation management plans for land divisions in the County through the Shoreland Zoning Ordinance revision. Work with the Invasive Plants Association of Wisconsin throughout the county. Work with Friends of Cedarburg Bog at Cedarburg Bog.	
Strategy 1e. Restore, Enhance, Create, and Protect Wetlands, Grasslands and Woodlands	
Work Tasks: Implement CREP (Conservation Reserve Enhancement Program), CRP (Conservation Reserve Program), WRP (Wetland Restoration Program), and WHIP (Wildlife Habitat Incentive Program). Implement the PRW Planning and Prioritized Sites using	

collaborative funding. Operate the County Tree and Prairie Seed Program.

Objective 2: Protect public recreation and access

Strategy 2a. Provide, Protect, and Improve Safety, Public Access and Recreational Opportunities

Work Tasks: Implement Ozaukee County Park and Open Space Plan. Work with OWLT on land and easement acquisition. Continue to support Ozaukee County's Interurban Trail by promoting trail improvements. Support Conservation Subdivisions and conservation subdivision design through education and pilot programs. Support the WDNR North Branch Farming Heritage Area. Implement Wisconsin Statutes Chapter 236 for public access requirements. Work with adjacent landowners regarding public access concerns / issues.

Strategy 2b. Insure The Safe Use Of Beach Water Resources and Make Beaches More Aesthetic For Patrons

Work Tasks: Work with Ozaukee County Health Department on beach monitoring. Work on projects identified by Ozaukee County Highway Department for stormwater management. Work with appropriate municipality, WDNR or County Departments to improve beach facilities.

Objective 3: Pollution reduction and control

Strategy 3a. Reduce Cropland Erosion

Work Tasks: Continue to promote CREP and CRP. Concentrate on installing buffers on 303 (d) list waters, watercourses directly emptying into Lake Michigan, and Sauk/Sucker Creek. Work toward all streams being adequately buffered in the Ulao Creek subwatershed. Enforce guidelines required of participants in the FPP (Farmland Preservation Program). Aim to get 10% of the fields above "T" to goal by 2010. New conservation standards have been adopted as part of the County's FPP Plan.

Strategy 3b. Reduce Nitrogen and Phosphorous to Surface Waters

Work Tasks: Continue to promote through available resources CRP and CREP. Determine farm compliance with the AWAC (Animal Waste Advisory Committee) prohibitions. Reduce amount of winter spread manure on 50% of critical acres in 303 (d) list waters, waters directly emptying into Lake Michigan, and the Sauk/Sucker Watershed. Implement 590 plans on all manure storage systems in Sauk/Sucker Watershed and follow up on plan implementation each year. Continue to promote through available CREP and CRP resources.

Strategy 3c. Remove Contaminated Sediment in Rivers

Work Tasks: Collaborate with USEPA and WDNR to remove PCB's in 303(d) listed waters. Provide for education and public awareness.

Strategy 3d. Reduction of Failing Septic Systems

Work Tasks: Continue to implement the Wisconsin Fund on failing systems. Continue to implement POWTS tracking and monitoring.

Strategy 3e. Investigate Impacts of Thermal Pollution on Water Quality. Plan according to information received

Work Tasks: In the Mole Creek Restoration area look at ways to reduce thermal heating when issuing permits, and provide technical support for stream monitoring.

Strategy 3f. Stormwater and Construction Site Erosion Control - NR216 Revised NOI (January and February)

Work Tasks: Pursue funding for Urban Nonpoint Source and Stormwater Runoff Information and Education. Develop and adopt a countywide Stormwater and Construction Site Erosion Control Ordinance, which will include illicit discharge detection and elimination. Compliance of NR 216 within Ozaukee County through plat and zoning reviews, including construction site pollutant control (including plan review and compliance inspections), and post-construction stormwater management (including plan review and compliance inspections). Pollution prevention through stormwater quality management, SLAMM analysis, storm sewer GIS mapping, public education and outreach (including staff training), and public involvement and participation.

Strategy 3g. Animal waste pollution reduction

Work Tasks: Enforce the Prohibitions and Performance Standards. Target Priority Farms with cost sharing. Implement 590 plans and conduct yearly follow up.

Objective 4: Protect natural systems

Strategy 4a. Promote groundwater infiltration, natural hydrology, and identification of flood fringe areas associated with natural groundwater recharge, including Cedarburg Bog

Work Tasks: Minimize the impermeable area in the Shoreland Area by possibly revising Shoreland Ordinance to address percent impermeable area. Promote wetland creations, enhancements, and restorations through implementing the PRW Planning and Prioritization. Assist in completing and utilizing the SEWRPC regional water supply plan. Focus on the regional water supply study to be completed in 2007. Work with Ulao Creek Partnership, Friends of Cedarburg Bog at Cedarburg Bog, UWM Field Station, and other partners to inventory, identify, and map groundwater recharge and discharge areas.

Strategy 4b. Identify Flood Storage Areas

Work Tasks: Identify Non-conforming structures in the floodplain. Buy flood storage lands with MMSD (Milwaukee Metropolitan Sewer District) and The Conservation Fund through fee simple or easements.

Objective 5: Protecting public safety

Strategy 5a. Focus on water quality impacts to health, safety, and welfare of people

Work Tasks: Identify abandoned wells. Provide property owners with failed septic systems the appropriate well water safety information. Post fish advisories. Update Sanitation Ordinance with health advisory for dredging organic waste. Provide education on Mallard duck advisories on Milwaukee River. Remedy landfill issues through promoting landfill abandonment / monitoring efforts. Provide education for PCB cleanup work by USEPA on Cedar Creek. Continue to update POWTS tracking system and Septic System Maintenance Program. Create GIS layer for the above-mentioned measurable items. Assist County Public Health Department through educational outreach with the transient well monitoring and inspection program.

Strategy 5b. Promote protection of property against flooding and storm impacts
Work Tasks: Implement flood mitigation with the Department of Emergency Management. Provide for National Flood Insurance Program through FEMA and update Floodplain Zoning Ordinance.
Objective 6: Preserve and protect farmland and other working lands
Strategy 6a. Managed Forest Law
Work Tasks: Update GIS and encourage sign-up of the program with WDNR.
Strategy 6b. Implement Farmland Preservation Program
Work Tasks: Insure compliance of FPP rules, especially having all fields planned to "T".
Strategy 6c. Promote Farm and Ranch Protection Program and other farmland incentive programs
Work Tasks: Assist communities, non-profit groups, and DNR in identifying appropriate areas to apply for the federal program and grants. Apply strategy 6d as available. Pursue with partners other federal grants, such as Agricultural Diversification, and other state funding such as Working Lands Initiative.
Strategy 6d. Encourage County and Town programming to protect farmland
Work Tasks: Promote open space and continued farmland uses through education and development of a town and county supported funding program. Provide technical assistance for Town farmland protection programs.
Strategy 6e. Provide technical and financial assistance to North Branch Farming Heritage Area
Work Tasks: Provide maps, tile locations, soils, conservation plans to the WDNR or OWLT on parcels of interest. This includes landowner contacts, if warranted. Participate in Technical and Advisory Committees.
Objective 7: Protect Lake Michigan and associated resources
Strategy 7a. Protect and enhance Lake Michigan Water Quality
Work Tasks: Implement CREP on the direct Lake Michigan drainage. Work with GLNAC, Lake Michigan Federation and other partners. Continue beach monitoring with Public Health Department. Provide technical assistance to identify causes of Cladophora algae along Lake Michigan shorelines. Work with Lake Michigan Shoreland Alliance and Wisconsin Association of Lakes to implement priorities.
Strategy 7b. Control and monitor Exotic and Invasive Species
Work Tasks: Work with private and public groups on programs designed to control and eradicate invasive species associated with Lake Michigan.
Strategy 7c. Inform public on Lake Michigan bluff erosion
Work Tasks: Continue to work with the Wisconsin Coastal Management Program (WCMP) on bluff erosion information and education to the public. Update Ozaukee County website on bluff erosion. Revise county Shoreland Ordinance to address bluff erosion. Work with NRCS (Natural Resource Conservation Service) to become a Plant Material County for bluff erosion.

Objective 8: Wildlife Management	
Strategy 8a. Wildlife Damage Abatement and Claims Program	
	Work Tasks: Continue to provide administrative and technical assistance in the program. Continue to administer the Deer Donation Program. Support an effort to create an early spring goose hunt for local goose population. Support efforts in controlling the raccoon population and nuisance issues.
Strategy 8b. Promote Bluebird Houses and Bat Houses	
	Work Tasks: Continue to work with Friends Of Harrington Beach State Park to sell Bluebird and Bat Houses.
Strategy 8c. Promote working with all non-profit conservation organizations	
	Work Tasks: Continue to work with OWLT, Ulao Creek Partnership, Pheasants Forever, Wings Over Wisconsin, Friends of Cedarburg Bog, and Whitetails Unlimited. Develop new conservation partners and volunteers.

Goal 2 – Regional Leadership, Education and Collaboration

Objective 1: Improved stakeholder education and public participation	
Strategy 1a. Educate the public, decision makers, and media on issues and responsibilities pertaining to Land and Water Resources	
	Work Tasks: Support Citizen Stream Monitoring, provide school talks, create displays and staff County fair booth, generate PRLM Department newsletter called "The Dirt". Give talks to speaking engagements such as Realtors Association, Rotary, Chambers of Commerce, Tourism, etc.. Include educational support for preserving Cedarburg Bog State Significant Area (NA-1).
Strategy 1b. Identify and educate the public, decision makers, students and media on costs of providing different levels of service for addressing water quality concerns.	
	Work Tasks: Go to Town, Village, City, and County Meetings and promote the importance of dollars targeted to conservation issues. Provide annual Powerpoint Presentation that addresses the Five Year Goals, Strategies, Work Tasks, and progress outcomes. Apply for appropriate grants to target conservation issues. Pollution prevention through stormwater quality management, storm sewer GIS mapping, public education and outreach, and public involvement and participation.
Strategy 1c. Promote water resource protection education among stakeholders at all levels.	
	Work Tasks: Continue to provide a scholarship to a student or teacher going into the environmental field. Continue to do the work task in 1a, Comprehensive Plan for Ozaukee County.
Objective 2: Improved collaborative relationships and partnerships	
Strategy 2a. Encourage existing and future partnerships to improve land and water quality	

Work Tasks: When appropriate partner with non-profit groups in applying for grants or promoting programs that meet joint goals and objectives.
Strategy 2b. Promote collaboration among stakeholders at all levels
Work Tasks: Introduce different non-profit entities to each other in meetings or by correspondence. Work collaboratively with other government agencies through comprehensive planning.
Strategy 2c. Create programs and policies focusing on Countywide land and water quality issues
Work Tasks: Develop Ordinances that focus on conservation. Ordinances will include NR 151 Prohibitions and Standards, as well as Comm 83, NR 216, and any other appropriate rule.
Strategy 2d. Develop and assist other government agencies with the Regional Water Quality Management Plan (RWQMP) to ensure a comprehensive regional approach to all Water Systems Management
Work Tasks: Develop and Update LWRM Plan; Work collaboratively with MMSD and SEWRPC on the RWQMP effort.

Goal 3 – Strong Governmental Role in Environmental Protection

Objective 1: Improved policy regulations and enforcement
Strategy 1a. Enforce existing government regulations consistently
Work Tasks: Incorporate NR 151 (Prohibitions and Standards) and NR216 Stormwater Management into County Ordinances. Maintain consistency of these ordinances with NR115 Shoreland and Floodplain Ordinance, NR116 Floodplain, , ATCP. 50, NR 135 Non-Metallic Mining, 66.1001 Comp Planning, and Chapter 236 Platting and review.
Strategy 1b. Promote policies and regulations that improve and protect water quality.
Work Tasks: Develop or update and enforce the following County Ordinances: Manure Storage, Storm Water Management Control, Construction Site Erosion Control, and Land Division. Assist Public Health Department with beach monitoring, source identification, and policy development in accord with the County Beach Ordinance.
Objective 2: Improved government planning and monitoring
Strategy 2a. Establish and improve coordinated planning, monitoring systems, and implementation efforts associated with all levels of government
Work Tasks: Promote and develop the use of GIS data sharing. Coordinate and promote collaborative meetings. Develop new land and water and land use GIS data layers.

Goal 4 – Effective Planning and Design

Objective 1: Comprehensive Planning
--

Strategy 1a. Complete and adopt a County Multi-jurisdictional Comprehensive Plan for Ozaukee County by 2008.

Work Tasks: See attached comprehensive planning timeline (Table 3.2, Appendix 3).

Strategy 1b. Implement County planning review of plat, per Wis. Stats. Chap. 236 and County Shoreland Zoning Ordinance.

Work Tasks: Provide for public access to navigable rivers, streams and lakes information, per Wis. Stats. Chap. 236

Strategy 1c. Provide for public participation in the comprehensive planning process.

Work Tasks: See attached public participation plan (Appendix 1.1 and 1.2).

Objective 2: Implement Park and Open Space Plan

Strategy 2a. Natural Area, Open Space, and Critical Species Habitat Planning

Work Tasks: Promote the purchase of Natural Area and Critical Species Habitat Sites identified by SEWRPC. Develop potential county funding program for purchase of natural areas. Apply for WDNR Stewardship and WCMP Park Grants. Develop the O.I.T. Protect Environmental Corridors through Plat review.

Strategy 2b. Conduct On-Going Planning and Comprehensive Evaluations of Water Quality in the Waterways (see Chapter 8 Monitoring Programs for more details)

Work Tasks: Annually compile monitoring data and determine potential "trends" in the quality of land / water resources. Conduct through Land and Water Resource Management Planning.

Strategy 2c. Prioritize Water Quality Issues in Comprehensive and Land Use Planning

Work Tasks: Provide adequate water quality information to decision-makers. Protect Environmental Corridors through Plat review. Implement non-metallic mining ordinance.

Strategy 2d. Develop and adapt an update to the current Ozaukee County Park and Open Space Plan (2001)

Work Tasks: Assess current Park and Open Space Plan, conduct committee meetings, and develop the Ozaukee County Park and Open Space Plan update (2008 - 2010 timeframe).

Objective 3: Incorporate Regional Water Quality Management and Watershed Basin Planning adopted by County Board

Strategy 3a. Milwaukee River Basin Plan and Milwaukee River Revitalization Council Goals

Work Tasks: Use the Milwaukee River Basin Plan in targeting Priority Farms, by identifying sediment delivery fields & phosphorous runoff sites in 303(d) list areas. Collaborate with SEWRPC and MMSD on the WCMP update and water supply plan.

Strategy 3b. Sheboygan River Basin Plan

Work Tasks: Use the Sheboygan River Basin Plan in targeting Priority Farms.

Strategy 3c. Direct drainage into Lake Michigan

Work Tasks Target gully or direct discharges to Lake Michigan on Priority Farms. Apply for WCMP Grant Funds to address direct drainage runoff and vegetative buffers. Implement CREP.

Objective 4: Integrated funding and implementation of plans	
Strategy 4a. Working On Integrated Plan Goals	
	Work Tasks: Use available funds on a voluntary basis, but still aiming at the water quality needs and Priority Farms; implement with Ozaukee County Comprehensive Plan.
Strategy 4b. Determine Total Costs and Benefits; Identify funding sources for private strategies.	
	Work Tasks: Work on integrated funding opportunities (Including an Assessment of Environmental, Social, Economic and Opportunity Costs). Apply for grant funding through WDNR Stewardship, WCMP, WisDOT and others funding sources.
Objective 5: County Planning and Review	
Strategy 5a. Evaluate all impacts of alternatives on discrete populations	
	Work Tasks: Work to assure water quality, but be aware of alternative uses of land and habitat changes. Implement Land Division review procedures under Shoreland Zoning Ordinance and Wis. Stats. Chap. 236.

***** All highlighted strategies are Ozaukee County's Priorities for implementation. SWRM Grant money will be targeted for these priorities.

Consultation with Wisconsin Department of Natural Resources

Wisconsin Department of Natural Resource officials were contacted to participate on the Ozaukee County Land and Water Resource Management Plan Advisory Committee, which met on October 10 and December 6, 2005. At the October 10, 2005 meeting, Milwaukee River Basin Team Leader (Sharon Gayan), emphasized to the Committee that NR 216 should be emphasized in the plan and that the Basin Plan should be utilized. The Sheboygan River Basin Water Team Leader (Vic Pappas) also attended the October 10, 2005 meeting and his suggestions to the Committee were confirmed in a phone conversation on October 17, 2005. Mr. Pappas mentioned that LWRM Plan should concentrate on Priority Farms as farms which have unlimited cattle access to streams, as well as targeting water quality issues associated with farms located in Impaired Watersheds (303(d) list (Table 3.3 in Appendix 3). The LWRM Plan should also include a joint effort between the PRLM Department and the WDNR to incorporate NR243 issues, such as the location of animal-feeding operations and other county or town level requirements that operations with less than 1,000 animal units must follow to protect water quality, regardless of location. Mr. Pappas also suggested that the County PRLM Department apply for TRM Grants when a situation arises. Other WDNR staff members involved with the development of this LWRM Plan are noted in the LWRM Plan Advisory Committee listing. A final draft was mailed to DATCP and DNR Staff for comments with a deadline on comments due by February 14, 2006.

Key Water Quality and Soil Erosion Critical Areas

Ozaukee County's Transect Survey which now has six years worth of data shows that we have approximately 20% of crop fields above "T". The trend in data shows a steady decrease in soil loss, but still approximately 20% above "T". Ozaukee County will continue to stress soil loss in FPP (Farmland Preservation Program) Plans. See Table 3.4 in Appendix 3 for Transect Survey Reports.

According to the inventory data and additional WDNR research reports, Mole Creek is the only potential cold-water fishery in Ozaukee County. As Mole Creek is a unique, high quality resource in Ozaukee County, the PRLM Department will work with the WDNR and other partners on grant and permit issuances to promote this water resource.

According to the inventory data and Sheboygan River Basin Plan, Sauk and Sucker Creek have a phosphorous and sediment-loading problem. Ozaukee County will target efforts to establish buffers on these two waterways, which also directly drain to Lake Michigan.

According to the inventory data, sediment and phosphorous loading has reduced the water quality of almost every waterway in Ozaukee County. Ozaukee County will pursue stormwater and construction site erosion control ordinances to address these impairments. Impaired waterways in the County, on the 303(d) list, will also be targeted for conservation practices to improve water quality.

According to the inventory, Ozaukee County's natural resources (particularly Natural Area, Critical Species Habitats, and Environmental Corridors) are under pressure from increased population and households in the form of new development. Hence, Ozaukee County has made it a priority to protect and preserve these threatened areas.

According to the inventory data and WDNR research, Ozaukee County has lost a significant amount of acreage devoted to wetlands. Therefore, Ozaukee County has made wetland protection and restoration a priority. The prioritization of Potentially Restorable Wetlands (PRWs) in Ozaukee County has become a major planning focus with a collaborative project initiated by the WDNR.

According to the inventory data many of the subwatersheds in the County are facing a biological threshold of 10% imperviousness within the subwatershed due to increased development. Therefore, Ozaukee County will prioritize a Stormwater Management Ordinance that emphasizes infiltration and reduced imperviousness. Ozaukee County PRLM Department will also emphasize the protection of Environmental Corridors through preservation and plan review.

According to the inventory data presented, farmland and other working lands in Ozaukee County have decreased over the past decades. Therefore, Ozaukee County PRLM Department and its partners will pursue innovative funding and conservation programs to preserve farmland and working lands.

An analysis of the maximum potential for stream buffers along streams adjacent to agricultural lands in each survey township is provided in Tables 2.11, 2.12, Graph 2.2, and Maps 2.16, 2.17. This analysis will provide for targeted implementation of CREP and SWRM funds for installing riparian buffers.

PRIORITY FARMS

Targeted Lands For Identifying "Priority Farms" in Ozaukee County

Ozaukee County will target agricultural lands that are within or adjacent to the following areas:

- Sauk and Sucker Creek Watershed,
- waterways in Ozaukee County flowing directly into Lake Michigan
- Impaired 303 (d) list waters
- and any landowner receiving a Notice Of Discharge (NOD), throughout the county.

Systematic Approach For Identifying “Priority Farms”

From the “targeted lands” listed above, Priority Farms will be identified. A systematic approach for identifying priority farms within 303 (d) list waters, Sauk and Sucker Creek, and areas flowing directly to Lake Michigan will be applied by surveying tax parcel numbers for compliance with Prohibitions and Standards. Starting in the far NE section of the targeted land area and going clockwise in the section until all the tax parcels in the section are completely surveyed for compliance Non-Point Prohibitions and Standards. When that section is completed the next highest numbered section will be selected in a direction going East - West. The number of tax parcels selected for compliance with the states Prohibitions & Standards will be based on how many are in the section. One “section” in each of the three-targeted lands will be surveyed each year. This survey using the priority farm tracking form checklist, **will not be cost share dependent**. If cost share money is still available, a second section in all three targeted areas will be surveyed until all cost share money is used. An example of the priority farm tracking form checklist is in Appendix 3.

Cost Share Assistance Availability for “Priority Farms”

Cost share assistance will be granted on a voluntarily first basis in the “targeted lands” mentioned above. Cost share moneys available will be given to BMP practices, which will help meet Wisconsin’s agricultural performance standards and prohibitions, as defined in NR 151. Controlling discharges from these “Targeted Lands” and “Priority Farms”, which is caused mainly by surface water runoff should have the highest potential for reducing non-point source agricultural pollution.

- 1) The following is a further breakdown on the priority use of cost share dollars (**a.** is the first priority and **d.** is the last priority):
 - a. Landowners receiving a Notice of Discharge (NOD).
 - b. Landowners voluntary requesting cost share assistance for a parcel of land not meeting NR 151.05 and NR 151.08 State Standards and Prohibitions.
 - c. Landowners needing assistance for permit requirements due to the Ozaukee County Animal Waste Management Ordinance (Chapter 9).
 - d. Landowners re-applying for FPP “Agreements”, where the parcel does not meet the states Prohibitions and Standards. Cost share money will also be provided for FPP “Exclusive Agricultural Zoning Certificate” applicants who need to get into compliance before applying for the certificate.
- 2) Second option for use of cost share money: Unused cost share money (available after voluntary approach) will be targeted towards “Priority Farms”, starting with the first full surveyed section in the watershed. Watersheds are given priority in the following sequence: Sauk/Sucker Watershed, Waters Flowing Directly To Lake Michigan, and Impaired 303(d) List Waters.
- 3) Third option for unused cost share money: The second fully surveyed section will be targeted only after all three watersheds have certified the first section as being in compliance with performance standards and prohibitions. Once this is done the same steps shall occur in the manure as option two.

Enforcement of State Performance Standards and Prohibitions:

- a) Landowners identified, as priority farm will have onsite evaluation to determine if State Agricultural Non-Point Performance Standards are being met. See Checklist in appendix 3.

- b) If State Agricultural Non-Point Performance Standards **are being met** – compliance will be documented in their Conservation Plan and a GIS Data Layer will be made for tracking. The landowner will be contacted by mail telling him/her of their status for compliance and their ineligibility for future cost share assistance.
- c) If State Standards **are not being met** officials will contact landowner to inform landowner of status of noncompliance with state standards. This contact will include certified mailing of findings to landowner by the Planning, Resources and Land Management (PRLM) Department.
- d) The landowner will be given opportunity to appeal findings at the regular monthly
 - 1. Environment and Land Use (ELU) Committee meeting.
 - 2. If the ELU Committee agrees with landowners appeal the findings will be amended or discarded.
 - 3. If the ELU Committee disagrees with landowner’s appeal of findings, the PRLM Department staff will proceed with schedule of implementation of BMP conservation practices needed to bring landowner into compliance.
 - 4. Cost share will be offered to a landowner for conservation practices needed. Farms under WPDES program rules do not have to be offered cost share assistance.
 - 5. Landowners will be given two years to comply with schedule of compliance when cost sharing is available.
 - 6. Schedule of compliances with cost share agreements will be recorded on GIS layer and their conservation plan. Landowners who fail to agree to implement a schedule of compliance will be issued a notice of non-compliance and turned over to Ozaukee County Corporation Council for fines, and/or legal action.

County Tracking of State Performance Standards and Prohibitions Compliance.

The PRLM Department will complete a tracking form for each Priority Farm. The tracking form is basically a verification checklist of the agricultural performance standards and prohibitions. The tracking form “checklist” for each tax parcel will be kept in a file cabinet. An example of the tracking form is included in Appendix 3.

Ozaukee County will assemble a priority farm list each year based upon criteria found in chapter 3. The BMP’s installed on the Tax Parcels will meet NR 151 standards. They will be tracked on a county produced GIS Data Layer and/or spreadsheet (not yet developed).

Conservation Practices Needed to Address Key Water Quality and Erosion Problems

Ozaukee County Planning, Resources and Land Management Department will use all conservation practices available. Cost share avenues offered to implement the conservation practices usually come from five sources. These sources include CRP, CREP, TRM, EQIP, and SWRM funding. Additional funds have been received by several other services including WCMP, private non-profits, and the Great Lakes Protection Office. Attached is a list of the most common practices with cost sharing.

COST SHARE RATES

(may change - based on funding program)

	TRM	50	EQIP
Practice	DNR Rates (90% if Economic Hardship)	DATCP Rates* (90% if Economic Hardship)	NRCS- EQIP** (Possibly 90% if Economic Hardship, rules in development)
Manure storage systems	70%	70%	70%, max of \$750,000. 1 / producer 750,000
Manure storage system closure	70%	70%	50%
Barnyard runoff control systems	70%	70%	50%
Access roads and cattle crossings	70%	70%	50%
Animal trails and walkways	70%	70%	50%
Contour farming	70% or \$9.00/ ac, up to 4 yr.	70% or \$9.00/ ac, 4 yr.	Flat Rate
Cover and green manure crop	70% or \$25.00/ ac, up to 4 yr.	70% or \$25.00/ ac, 4 yr.	Flat Rate
Critical area stabilization	70%	70%	Flat Rate
Diversions	70%	70%	50%
Field windbreaks	70%	70%	50%
Filter strips	70% of installation cost + (\$ 500/ ac if riparian)	non- riparian or post-CREP = (70% install.+ \$ 100/ ac/ yr, 4 yr); riparian or before CREP expires = CREP rate	50% of installation cost
Heavy use area protection	70%	70%	50%
Livestock fencing	70% or \$3 to \$8/rod	70%	50%, max of \$1.09/ft. non- barnyard, \$5.00/ft. barnyard
Livestock watering facilities	70%	70%	50%
Milking center waste control systems	70%	70%	Funded as part of manure storage system (50%; \$100,000 max)
Nutrient management	70% or \$6/ ac 1st yr & \$4 add'l yr., up to 4 yr.	70% or \$7.00/ ac, 4 yr.	\$7.00 per acre for three years
Pesticide management	70%	70% or \$7.00/ ac, 4 yr.	Flat Rate
Relocating or abandoning AFO's	70%	70% not to exceed 70% of cost of manure mgm't system or 70% of eligible relocation costs	Not cost- shared
Residue Management	70% or \$18.50/ ac, up to 4 yr	70% or \$18.50/ ac, 4 yr.	Flat Rate
Riparian buffers	70% install.+ \$500/ ac.	CREP rate	75% installation cost

Roofs	70%	70%	50% over manure storage or barnyard system
Roof runoff systems	70%	70%	75%
Sediment basins	70%	70%	75% (50% if barnyard system)
Streambank and shoreline protection	70%	70% (rock and timber riprap for fish habitat limited to 25% of overall project cost)	75%
Field Strip- cropping	70% or \$7.50/ ac, up to 4 yr.	70% or \$7.50/ ac, up to 4 yr.	Flat Rate
Strip- cropping	70% or \$13.50/ ac, up to 4 yr.	70% or \$13.50/ ac, 4 yr.	Contour Stripcropping: \$13.50/ ac, 1 yr. Contour Buffer Strips: \$10/ ac, 1 yr.
Subsurface drains	70%	70%	50%
Terrace systems	70%	70%	50%
Underground outlets	70%	70%	50%
Waste transfer systems	70%	70%	50% as part of manure storage system
Wastewater treatment strips	70%	70%	50%
Water and sediment control basins	70%	70%	50%
Grassed waterways	70%	70%	75%, max of \$7500/ ac
Well decommissioning	70%	70%	50%, max of \$2,000/ abandonment
Wetland restoration	70%	70%	75%

* Under ATCP 50, payments shall be made for land areas greater than .5 ac in size that are forced out of agricultural production by a required conservation practice. If the land is in a riparian area, the rate is equal to the rate received in CREP. If the land is outside a riparian area, the rate is 70% (90% is economic hardship determined) of the FSA soil rental rate. This condition does not apply to land directly occupied by a facility or structure, such as a manure storage facility, installed as part of the practice. Maintenance costs are not known at this time.

** All NRCS practices will have price caps based off of 2006 Draft.

County Strategies to Encourage Voluntary Implementation of Conservation Practices

- Ozaukee County will attempt to use cost- share incentives to get voluntary implementation of conservation practices.
- Farmland Preservation Program sign ups will be used to inform landowners of status regarding State Agricultural non point Performance Standards. See page 83 for FPP monitoring.
- Utilize Information and Education strategies (Chapter 6).
- Provide education and information through workshops, newsletters and the County website on the Performance Standards, Prohibitions, and construction practices, in partnership UW-Extension Ozaukee County.

Chapter 4: PLANNED ACTIVITIES

Priorities Measurements - Implementation Schedule / Work Plan

Goal 1: Improved Land and Water Resources

Objective	Activities based on Strategies (in Chapter 3)	Responsible Agencies (Lead agency listed first)	Total estimated needs	2006	2007	2008	2009	2010	Unit Of Measurement Of Implemented Practices	
(1) Habitat Protection and Restoration	(1a)	Restore, Enhance, And Protect Natural Areas, Critical Habitat, Open Space	OWLT, WDNR, PRLM	Acquire 100 acres	20 acres	20 acres	20 acres	20 acres	20 acres	100 acres
	(1b)	Increase Species Diversity. Protect Endangered Species Habitat	WDNR, PRLM	Talks & Brochures	2 events	2 events	2 events	2 events	2 events	10 events
	(1c)	Protect Riparian Land along Waterways, Reduce Erosion	WDNR, PRLM, Trout Unlimited, FSA	Partner to restore 2 miles of Mole Creek	0.5 miles	0.5 miles	0.5 miles	0.5 miles	0 miles	2 miles
	(1d)	Manage Invasive Species	PRLM, Parks Department, WDNR, NRCS	Gypsy Moth suppression monitoring in all areas of the county.	1 unit	1 unit	1 unit	1 unit	1 unit	5 units
	(1e)	Restore and enhance grasslands and woodlands	NRCS, WDNR, PRLM	Combination equaling 1,000 acres of grassland and woodland	200 acres	200 acres	200 acres	200 acres	200 acres	1,000 acres
	(1e)	Restore and enhance Wetlands	USFWS, WDNR, PRLM, Conservation Organizations	25 acres	5 acres	5 acres	5 acres	5 acres	5 acres	25 acres
(2) Protect Public Recreation and Access	(1e)	EQIP, CREP, Buffer water courses	NRCS, FSA, PRLM, DATCP	miles	1 mile	1 mile	1 mile	1 mile	1 mile	5 miles
	(2a)	Provide public access and recreational opportunities	PRLM, Parks Department, WDNR, OWLT	Partner to protect or acquire two sites of public interest	-	1 site	-	-	1 site	2 sites

Objective		Activities based on Strategies (in Chapter 3)	Responsible Agencies (Lead agency listed first)	Total estimated needs	2006	2007	2008	2009	2010	Unit Of Measurement Of Implemented Practices
(3) Pollution Reduction And Control	(2b)	Beach monitoring	Public Health Department, PRLM, OWLT	4 Months / Year	4 Months	4 Months	4 Months	4 Months	4 Months	20 Months
	(3a)	Reduce Cropland Erosion	PRLM, NRCS, FSA	Transect Survey Shows About 20% Of Fields Over "T".	2%	2%	2%	2%	2%	10% reduction in fields over "T" in Transect Survey
	(3b)	Reduce Phosphorous in Water Quality Management Area	PRLM, NRCS, CCA's, Private Consultants	Implement 590 Plans in the WQMA	100 acres	100 acres	100 acres	100 acres	100 acres	500 acres
	(3c)	Remove contaminated sediments in 303(d) list waters	WDNR, EPA, Army Corps	Partner with EPA and DNR	No Stretch	No Stretch	No Stretch	No Stretch	1 Stretch	1 Stretch Of Cedar Creek
	(3d)	Reduction of failing septic system	PRLM	Work on POWTS	2 sites	2 sites	2 sites	2 sites	2 sites	10 sites
	(3e)	Thermal Pollution Impacts, Provide I and E / technical assistance	PRLM, WDNR	Monitor 2 Creeks	_	1 site	_	_	1 site	2 sites
	(3f)	Develop and adopt Construction Site Erosion Control Ordinance	PRLM, WDNR	County Board			1 ordinance			1 ordinance
	(3f)	Develop and adopt Storm Water Control Ordinance	PRLM, WDNR	County Board			1 ordinance			1 ordinance
	(3g)	Animal waste reduction	PRLM, WDNR, DATCP	Target WQMA Areas. On Priority Farms Install Conservation Practices that Meet NR 151 Prohibitions and Standards	1 Farm	1 Farm	1 Farm	1 Farm	1 Farm	5 Farms

Objective		Activities based on Strategies (in Chapter 3)	Responsible Agencies (Lead agency listed first)	Total estimated needs	2006	2007	2008	2009	2010	Unit Of Measurement Of Implemented Practices
(4) Protect Natural Systems	(4a)	Promote Infiltration and Natural Hydrology	PRLM, SEWRPC, USFWS, WDNR	Finish Water Supply Plan				1 Plan		1 Plan
	(4b)	Identify flood storage areas	PRLM, WDNR, Army Corps	Inventory Non-Conforming Use Structures in floodplain areas	1 Water Course	1 Water Course	1 Water Course	1 Water Course	1 Water Course	5 Water Courses
(5) Protecting Public Safety	(5a)	Focus on water quality issues of health and safety	PRLM, Public Health Department, WDNR	Identify abandoned wells, post fish advisories	Inventory One Township	Inventory One Township	Inventory One Township	Inventory One Township	Inventory Two Townships	6 Townships
	(5b)	Update Floodplain Zoning Ordinance	PRLM, WDNR, SEWRPC	Update Ordinance	1					1 Ordinance
(6) Preserve and Protect Working Lands	(6a)	Promote Managed Forest Law	DNR, PRLM, NRCS	Per Contract	1	1	1	1	1	5 Contracts
	(6b)	Implement FPP	PRLM, DATCP, NRCS	Spot Check 10 Farms / Year	10	10	10	10	10	50 Farms Spot Checked
	(6c)	Promote Purchase Development Rights, Farm and Ranch Program	PRLM, NRCS, WDNR, OWLT	2 Easements	-	-	1	-	1	2 Easements
	(6d)	County programming to protect farmland	PRLM	Develop County Funding Program	-	1	-	-	-	1 County Funding Program
	(6e)	Provide assistance to North Branch Heritage Area	WDNR, PRLM, OWLT	Per Land Acquisition	1	-	1	-	1	3 Land Acquisitions

Objective		Activities based on Strategies (in Chapter 3)	Responsible Agencies (Lead agency listed first)	Total estimated needs	2006	2007	2008	2009	2010	Unit Of Measurement Of Implemented Practices
(7) Protect Lake Michigan and Its Resources	(7a)	Enhance Lake Michigan water quality	PRLM, GLNAC, Coastal Management, WDNR	Use all available cost share avenues to install conservation practices	Install one BMP, which deals with soil erosion	Install one BMP, which deals with soil erosion	Install one BMP, which deals with soil erosion	Install one BMP, which deals with soil erosion	Install one BMP, which deals with soil erosion	5 BMP Practices Installed
	(7b)	Control Exotic Species	Non-profit Groups, PRLM, NRCS, WDNR	Work with public and private groups interested in controlling Garlic Mustard, Zebra Muscles, Buckthorn, Ect	Two I&E Events	Two I&E Events	Two I&E Events	Two I&E Events	Two I&E Events	10 I&E Events
	(7c)	Inform bluff landowners about erosion concerns	PRLM, SEWRPC, WDNR, Coastal Management	Provide I and E materials	As Needed	As Needed	As Needed	As Needed	As Needed	Yearly Accounts Of I&E
(8) Wildlife Management	(8a)	Administer WDC Program	PRLM, WDNR	Approx. 10 participants/year	# Participating	# Participating	# Participating	# Participating	# Participating	# Participated
	(8b)	Bluebird and Bathouse sales	PRLM, Friends of Harrington Beach	Sell Blue Bird and Bat Houses	10	10	10	10	10	50 Houses Sold
	(8c)	Work with non-profit conservation organizations	PRLM, WDNR	Work with all non-profit groups	As Needed	As Needed	As Needed	As Needed	As Needed	# of interactions

Goal 2: Regional Leadership, Education and Collaboration

(1) Improved Stakeholder Education and Public Participation

(1a)	Citizen Monitoring, I and E, and provide yearly scholarship	PRLM	Public talks, Displays, Newsletters	4 / Year	4 / Year	4 / Year	4 / Year	4 / Year	20 / 5 Years
(1b)	Educate public and decision makers on cost of services for water quality protection	PRLM, WDNR, DATCP, NRCS	4 Meetings with PowerPoint Presentation / Year	4 / Year	4 / Year	4 / Year	4 / Year	4 / Year	20 / 5 Years

Objective	Activities based on Strategies (in Chapter 3)	Responsible Agencies (Lead agency listed first)	Total estimated needs	2006	2007	2008	2009	2010	Unit Of Measurement Of Implemented Practices
(2) Improved Collaborative Relationships and Partnerships	(1c) Promote water resource protection by educating stakeholders	PRLM, NRCS	Scholarship	1	1	1	1	1	5 Scholarships
	(2a) Encourage partnerships to work with government and non-government groups	PRLM, Towns, Cities, Villages, SEWRPC, WDNR, DATCP, NRCS	Per talks and brochure	2 / Year	2 / Year	2 / Year	2 / Year	2 / Year	10 / 5 Years
	(2b) Promote collaborations among stakeholders	PRLM	Comprehensive Planning Meetings	12 / Year	12 / Year	12 / Year	12 / Year	12 / Year	60 / 5 Years
	(2c) Create programs and policies focusing on land and water issues	PRLM, WDNR, NRCS, DATCP	Compliance with NR151, Comm83, NR216	1	1	1	1	1	5 Program Events
	(2d) Develop and assist Water Quality Planners	PRLM, SEWRPC, WDNR, DATCP	Per Program	1	1	1	1	1	5 Meetings / 5 Years

Goal 3: Strong Governmental Role in Environmental Protection

(1) Improved Policy Regulations and Enforcement	(1a) Update County Ordinances to Include NR 151 and other appropriate codes	PRLM, WDNR, DATCP, Comprehensive Planning	These Include: NR115, NR116, NR216, ATCP 50, and Wis. Stats. 66.1001	As Needed	As Needed	As Needed	As Needed	As Needed	# of Ordinances Updated or Developed
	(1b) Promote policies and regulations for water quality protection	PRLM, WDNR, DATCP, SEWRPC, Coastal Mngt, Comp. Planning	Update or develop the following Ordinances: Manure Storage, Storm Water Control, Construction Site Erosion, Land Division	-	1	2	-	1	4 New or Updated Ordinances

Objective	Activities based on Strategies (in Chapter 3)	Responsible Agencies (Lead agency listed first)	Total estimated needs	2006	2007	2008	2009	2010	Unit Of Measurement Of Implemented Practices
(2) Improved Government Planning And Monitoring	(2a) Improve on coordinated planning. Ex. Work on GIS data sharing efforts	PRLM, Towns, Cities, Villages, SEWRPC, WDNR, DATCP, NRCS	All times of year	As Needed	As Needed	As Needed	As Needed	As Needed	# Of Maps and New GIS Layers Generated

Goal 4: Effective Planning and Design

(1) Comprehensive Planning	(1a) Complete and Adopt County Multi-Jurisdictional Comprehensive Plan	PRLM, SEWRPC, Towns, Cities and Villages, UWEX	One Plan	-	-	1	-	-	1 Multi-Jurisdictional Comp Plan
	(1b) Implement County Planning review of Plat per Wis Stats Chap 236	PRLM, SEWRPC, WDNR, UWEX	Number Of Plats reviewed per month	As Needed	As Needed	As Needed	As Needed	As Needed	# of Plats Reviewed Per Month
	(1c) Provide for public participation in Comprehensive Planning process	PRLM, SEWRPC, Towns, Cities and Villages, UWEX	# of meetings	As Needed	As Needed	As Needed	As Needed	As Needed	# of Meetings Per Year
(2) Implement Park and Open Space Plan	(2a) Develop Ozaukee Interurban Trail work on acquiring Natural Areas	PRLM, OWLT, WDNR, WisDOT	All times of year	As Needed	As Needed	As Needed	As Needed	As Needed	# of new miles of trail / greenway? # Of Easements Or Purchases From All Partners In The County
	(2b) Conduct evaluations of water quality in waterways	WDNR, SEWRPC, PRLM	Per waterway	As Needed	As Needed	As Needed	As Needed	As Needed	All 7 Watersheds At Least Once Per Five Years
	(2c) Prioritize water quality issues in Comprehensive and Land Use Planning	WDNR, SEWRPC, PRLM	Provide water quality information for Ordinance and permit decisions	As Needed	As Needed	As Needed	As Needed	As Needed	# of Water Quality Reports Per Watershed PRLM Department Receives Per Year

Objective	Activities based on Strategies (in Chapter 3)	Responsible Agencies (Lead agency listed first)	Total estimated needs	2006	2007	2008	2009	2010	Unit Of Measurement Of Implemented Practices
(3) Incorporate Regional Water Quality Management & Watershed Basin Planning	(2d) Develop and update Park and Open Space Plan	PRLM, WDNR, OWLT	Conduct meetings and adopt any potential changes	-	-	2 meetings	2 meetings	Adopt Plan	# of Meetings and Adoption Of Updated Plan
	(3a) Acknowledge Milwaukee River Basin Plan & Milwaukee River Revitalization Council Goals	WDNR, SEWRPC, PRLM	All Times Of Year	As Needed	As Needed	As Needed	As Needed	As Needed	Funds received (grants) ? # Of Times Used In Planning
	(3b) Acknowledge Sheboygan River Basin Plan & Goals	WDNR, SEWRPC, PRLM	All Times Of Year	As Needed	As Needed	As Needed	As Needed	As Needed	Funds received (grants) ? # Of Times Used In Planning
(4) Integrated funding and implementation of Plans	(3c) Direct funds to area's / problems that drain directly into Lake Michigan	PRLM, WDNR, SEWRPC	5 Miles Of Buffers, Grassed Waterways To Be Determined	1 mile Buffer	1 Grassed Waterway	1 Grassed Waterway	1 Mile Buffer	1 Grassed Waterway	2 Miles Buffer and 3 Grassed Waterways Over 5 Years
	(4a) Working on integrated Plan Goals	PRLM, DATCP, WDNR, NRCS	Implement Voluntary BMP Practices, Target Priority Farms, and Implement Comprehensive Plan	Install Two BMP's Meeting NR 151 / Priority Farm Requirements	Install Two BMP's Meeting NR 151 / Priority Farm Requirements	Install Two BMP's Meeting NR 151 / Priority Farm Requirements	Install Two BMP's Meeting NR 151 / Priority Farm Requirements	Install Two BMP's Meeting NR 151 / Priority Farm Requirements	10 BMP's Meeting NR 151 / Priority Farm Requirements
	(4b) Determine total cost and benefits of implementing Plans (LWRM Plan, Comp Mngt Plan, ect..)	PRLM, DATCP, WDNR, SEWRPC	Grant dollars received. Water Quality and Aesthetic Benefits Per Year	Dollars, Water Quality benefit, and any measurable aesthetic benefit	Dollars, Water Quality benefit, and any measurable aesthetic benefit	Dollars, Water Quality benefit, and any measurable aesthetic benefit	Dollars, Water Quality benefit, and any measurable aesthetic benefit	Dollars, Water Quality benefit, and any measurable aesthetic benefit	Dollars, Water Quality Benefit, And Any Measurable Aesthetic Benefit
(5) County Planning and Review	(5a) Evaluate impacts of alternatives on discrete populations	PRLM, UWEX, SEWRPC	All Times Of Year	As Needed	As Needed	As Needed	As Needed	As Needed	# Of Plans Reviewed

**** Yellow Highlighted Activities are based on Strategies. The highlighted areas considered priority activities for Ozaukee County.

Description of activities to ensure compliance with Prohibitions and Standards as related to Priority Farms can be found on pages 71 – 73 of chapter 3.

Multiyear description of Activities to Ensure Compliance with FPP (Farmland Preservation Program) as it relates to the State’s Standards and Prohibitions is described below.

- Schedules of compliance and Notices of Noncompliance will be tracked on a newly created Ozaukee County PRLM Department Data Base (Not Developed As To Date).
- Ozaukee County only has three effective “Farmland Preservation Agreements” and they are not subject to the new soil and water conservation standards until their agreements expire. The soil and water conservation standards only apply to these agreements once they reapply or when any new agreements are signed. At this time the standards need to be met for program compliance. The “agreements” will be tracked for compliance with soil and water standards by the tax parcels involved
- For landowners who are in “Exclusive Agricultural Zoning” and have a certificate showing they are in FPP, the standards apply to them as soon as the county contacts them through a spot check for compliance with FPP rules.

Ozaukee County will spot check 20% of the land in FPP every year. During the spot check Ozaukee County will inform the FPP participant of their compliance status per tax parcel. If the participant has a tax parcel out of compliance with state land and water standards the county will inform them they have five years to get into compliance.

The same “checklist” used in the Priority Farm process will be used for FPP compliance. A separate GIS layer will be used in tracking FPP participants and compliance.

Schedules of compliance and non-compliance, cover page, will be attached to landowner’s Conservation Plan and transfer to future landowners of that tax parcel.

If a tax parcel is out of compliance with FPP requirements, a notice of non-compliance will be filled out and sent to the appropriate agency.

Multiyear Tracking of Goals, Objectives, and Strategies

- Progress in achieving the goals, objectives and strategies through the work tasks assigned will be tracked through the LWRM Program. Annual Accomplishment Report Form. The 2003 example can be seen in Appendix 4.1.
- County completed conservation practices reporting form as Appendix 4.2..

Multiyear Costs of Activities and Sources of Funding

(Goal #)	Objective = Work Task	Staff time (Rate)	Cost share - Source of Funds	Staff Cost (2006 dollars) \$38.00 / hr.
(1) Improved Land and Water Resources	Habitat Protection and Restoration = Buy Natural Areas, Decrease Fish Impediments On Sucker Creek, Sponsor Gypsy Moth Suppression Program, implement CREP, and restore wetlands, grasslands, and woodlands	1,500 hrs/yr - 7,500 hrs total	USFWS Stewardship Funds, OWLT, Coastal Mgmt. Grants, Gypsy Moth Suppression Program, and CREP. Land purchase = \$1.5 million total. All other program implementation cost = \$500,000	\$285,000
	Protect public recreation and access = implement Park and Open Space Plan, improve Ozaukee Interurban Trail, support DNR North Branch Project, conduct beach monitoring	500 hrs/yr - 2,500 hrs total	- USEPA / WDNR funds - Private funds - WisDOT funds - USFWS Stewardship Funds, OWLT, Coastal Mngt Grants = Implementation cost = \$500,000	\$95,000
	Pollution reduction and control = promote buffers, implement FPP, determine farm compliance in WQMA, enforce Prohibitions and Standards, check compliance of 590 Plans, work on 303D listed waters, correct failing septic systems, implement NR216 and develop Storm Water and Construction Site Erosion Control Ordinances.	4,160 hrs/yr - 20,800 hrs total	CREP, TRM, EQIP, WI FUND = Implementation Cost = \$500,000	\$790,400
	Protect natural systems = revise Shoreland Zoning Ordinance and identify all floodplain area's	500 hours - 2,500 hrs		\$95,000
	Protecting public safety = identify abandoned wells, post fish advisories and beach closings. Update Sanitation Ordinance	500 hours - 2,500 hrs	WDNR, WCMP, USEPA	\$95,000
	Preserve and protect Farmland and Working Lands = encourage sign-up in MFL, implement FPP, promote Farm and Ranch Program, encourage Open Space Planning	1,000 hrs/yr - 5,000 hrs	NRCS, WRP, WDNR, MFL, Stewardship Program, FPP, LWRM Plan	\$190,000

Multiyear costs of activities and funding (continued)

(Goal #)	Objective = Work Task	Staff time (Rate)	Cost share - Source of Funds	Staff Cost (2006 dollars) \$38.00 / hr.
	Protect Lake Michigan and Its Resources = Work With GLNAC, Coastal Management Programs, Bluff Erosion	250 hrs/yr - 1,250 hrs total	GLNAC, DNR, WCMP	\$47,500
	Wildlife management = administer Deer Donation Program, sell Blue Bird Houses and Bat Houses, County Tree Program, promote grasslands and woodlots	500 hrs/yr - 2,500 hrs total	County Tree Program, WDC, EQIP, WHIP, CRP, CREP, MFL, WRP. Implementation Cost =\$500,000	\$95,000
(2) Regional Leadership, Education and Collaboration	Improved stakeholder education and public participation = County Fair, Citizen Monitoring, School and organization talks, provide scholarships	500 hrs/yr - 2,500 hrs total	County, UCP, Whitetails Unlimited, Pheasants Forever, Wings Over WI. Implementation Cost = \$50,000	\$95,000
	Improved collaborative relationships and partnerships = partner with non-profit organizations on applying for grants and projects	500 hrs/yr - 2,500 hrs total	Whitetails Unlimited, Ducks Unlimited, PheasantsForever, Wings Over WI, OWLT, UCP etc...	\$95,000
(3) Strong Government Role in Environmental Protection	Improved policy regulations and enforcement = NR 115, 116, 135, 151, 216, ATCP 50, Comm 83, County Ordinances	2,000 hrs/yr - 10,000 hrs total	WDNR, DATCP, COUNTY, NRCS, FSA	\$380,000
	Improved government planning and monitoring = coordinate planning with other partners, develop and maintain GIS data sharing	500 hrs/yr - 2,500 hrs total	All Partners	\$95,000
(4) Effective Planning and Design	Comprehensive Planning	10,400 hrs/yr - 52,000 hrs total	Municipal participants, SEWRPC, all partners = \$433,000	\$1,976,000
	Implement Park and Open Space Plan = promote purchase or protection of Natural Areas identified by SEWRPC	500 hrs/yr - 2,500 hrs total	All Partners	\$95,000

Multiyear costs of activities and funding (continued)

(Goal #)	Objective = Work Task	Staff time (Rate)	Cost share - Source of Funds	Staff Cost (2006 dollars) \$38.00 / hr.
	Incorporate Regional Water Quality Management and Watershed Basin planning = use WDNR's and SEWRPC's Watershed Basin Plans	1,000 hrs/yr - 5,000 hrs	All Partners	\$190,000
	Integrated funding and implementation of Plans = use voluntary approach but enforce BMP's to meet water quality goals	500 hrs/yr - 2,500 hrs total	All Partners	\$95,000
	County Planning and Review = Water Quality is goal, but analyze alternative land uses and changes in land	500 hrs/yr - 2,500 hrs total	All Partners	cost / yr cost / 5 yr 95,000
	TOTALS	12.17 full time employees = 25,310 hrs/yr or 126,550 hrs for five years	Approx. \$4,500,000 for five years	\$961,780 / yr or \$4,808,900 for 5 years

Notes related to Multiyear costs of activities and funding Chart:

The chart is representative of PRLM Department Staff only. No other agency staff time is included in the chart estimates or has been negotiated.

- Staff costs are averaged at \$38.00 per hour for salary and fringe benefits (2006 rates)
- Ozaukee County PRLM Department has an average 9 full time employees. Ozaukee County also has on occasion part-time, intern, and contracted employees.

Chapter 5. Regulations for Plan Implementation

State and Local Regulations Ozaukee County will use to implement Plan

State and Local Regulations Ozaukee County will use to implement the LWRM Plan will include: County Ordinances, Compliance Procedures, Notices, Hearings, Enforcement and Appeal of Agricultural Standards and Prohibitions. Performance standards and prohibitions are a vital component of County Land and Water Resource Management Plans. The WDNR and DATCP have developed performance standards for agriculture and non-agriculture nonpoint pollution sources. In October 2002 after long deliberation and many public hearings new state runoff rules took effect. WDNR rule (**NR 151**) sets performance standards for runoff and to protect water quality. The DATCP rule (**ATCP 50**) identifies conservation practices available to maintain compliance with the WDNR standards. Specifically the DATCP rule sets the requirements that **nutrient management plans (NMP)** must comply with state law. The prohibitions listed in § 281.16(3) Wisconsin Statute.

Please see the end of chapter 3 for the location, enforcement, and tracking of the Priority Farms.

Each Tax Parcel As Applied To Priority Farms Shall Meet Compliance With State Standards and Prohibitions:

Manure Management Prohibitions :

1. That a livestock operation may have no overflow of manure storage structures.
2. That a livestock operation may have no unconfined manure pile in a water quality management area.
3. That a livestock operation may have no direct runoff from a feedlot or storage manure into the waters of the state.
4. That a livestock operation may not allow unlimited access by livestock to waters of the state in a location where high concentrations of animals prevent the maintenance of adequate sod cover.

Ozaukee County Manure Storage Ordinance;

Will be updated to reflect the new NRCS 313 standard and incorporate the states “Manure Management Prohibitions”.

Existing Land Use Regulations

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 land use regulations adopted by Ozaukee County and zoning, subdivision, and official mapping regulations adopted by participating local governments.

Zoning

A zoning ordinance is a public law that regulates and restricts the use of private property in the public interest. The primary function of zoning should be to implement an adopted master or comprehensive plan. Indeed, Section 66.1001(3) of the Wisconsin Statutes requires that zoning, land divisions, and official mapping decisions made by local and county governments be consistent with local and county comprehensive plans as of January 1, 2010.

A zoning ordinance divides a community into districts for the purpose of regulating the use of land and structures; the height, size, shape, and placement of structures; and the density of housing. A zoning ordinance typically consists of two parts: a text setting forth regulations that apply to each of the various zoning districts, together with related procedural and administrative requirements; and a map delineating the boundaries of zoning districts.

County Shoreland and Floodplain Zoning Ordinances

Under the *Wisconsin Statutes*, counties are responsible for the zoning of shoreland areas within unincorporated areas. Shoreland areas are defined in the *Statutes* as lands within the following distance 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.

The Ozaukee County ordinance includes restrictions on uses in wetlands located in the shorelands, and limits the types of uses that can occur in the 100-year recurrence interval flood hazard area to prevent damage to structures and property and to protect the floodwater conveyance and storage capacity of floodplains. The ordinance also includes restrictions on the removal of vegetation and other activities in the shoreland area, and requires that most structures be set back a minimum of 75 feet from navigable waters. Minimum requirements for uses in unincorporated shoreland areas are set forth in Chapter NR 115 of the *Wisconsin Administrative Code*. Minimum floodplain requirements are set forth in Chapter NR 116.

Map V-7 depicts shoreland-wetland areas, including floodplains, in the planning area regulated under the shoreland and floodplain zoning ordinances adopted by Ozaukee County.

County regulations continue to apply to areas annexed by cities and villages after May 7, 1982, unless the city or village adopts shoreland regulations that are at least as restrictive as those included in the County ordinance. Where County regulations continue in effect, the city or village is responsible for enforcing the regulations. Cities and villages are also required to regulate wetlands within shoreland areas, including those that were in the city or village prior to 1982, under Chapter NR 117 of the *Administrative Code*; and to enforce the minimum floodplain standards set forth in Chapter NR 116 of the *Administrative Code* within all floodplain areas of the city or village.

County Nonmetallic Mining Reclamation Ordinance

The Ozaukee County nonmetallic mining reclamation ordinance was established to ensure the effective reclamation of nonmetallic mining sites in Ozaukee County in compliance with Chapter NR 135 of the *Wisconsin Administrative Code* and Subchapter I of Chapter 295 of the *Wisconsin Statutes*. The purpose of this ordinance is to adopt the uniform statewide standards for nonmetallic mining required by Section 295.12(1)(a) of the *Statutes* and Chapter NR 135 of the *Administrative Code*. It is not intended to repeal or interfere with any existing rules, regulations, ordinances, or permits concerning nonmetallic mining reclamation previously adopted pursuant to other Wisconsin law. The requirements of this ordinance apply to all operators of nonmetallic mining sites within Ozaukee County operating or commencing operation after August 1, 2001, except for nonmetallic mining sites located in a city, village, or town within the County that has adopted an ordinance pursuant to Section 295.14 of the *Statutes* and Section NR 135.32(2) of the *Administrative Code*. All reclamation plans must meet the standards set forth by the Ozaukee County nonmetallic mining reclamation ordinance including those addressing: surface water and wetland protection, groundwater protection, topsoil management, final grading and slopes,

topsoil redistribution for reclamation, revegetation and site stabilization, criteria for assessing completion of successful site reclamation, intermittent mining, and maintenance.

County Highway Access Control Ordinance

The purpose of the County highway access control ordinance is to regulate access onto County trunk highways in order to promote safety, convenience, and economic viability and to protect the public investment in existing and proposed highways. The design standards set forth in the ordinance promote the orderly and safe movement in and out of private and public properties to minimize interference to through highway traffic and to control the use of drainage structures and appurtenances as may be necessary to preserve the physical structure of County highways. The ordinance contains regulations regarding existing accesses to County trunk highways, vacated accesses, access prohibitions, subdivision of land, access spacing and frequency along County trunk highways, and access design standards. Administration and enforcement practices are also included.

Local Zoning Ordinances

Each city, town, and village in Ozaukee County has adopted a zoning ordinance. Zoning district regulations for each participating local government are summarized in Appendix H.

Map V-8 depicts generalized zoning in the planning area based on zoning in effect in 2000. To prepare the map, local zoning districts were converted to a uniform classification system and mapped. The composite map reflects general zoning as well as floodplain and shoreland zoning. On the map, floodplain zoning districts in undeveloped areas are shown as conservancy, regardless of any underlying general zoning district regulations, if the provisions of the floodplain district effectively preclude new urban development. Both the Ozaukee and Washington County floodplain zoning regulations, which are contained in the county shoreland zoning ordinances, prohibit development in the floodway portion of the floodplain. Also, where the provisions of a county shoreland zoning ordinance and a town general zoning ordinance differ, the map reflects the more restrictive ordinance.

A number of communities require nonmetallic mining restoration plans for nonmetallic mining sites through local zoning ordinances. Communities with zoning ordinances that require restoration plans include: the Town of Cedarburg, Town of Fredonia, Village of Fredonia, Town of Grafton, City of Port Washington, and Town of Port Washington. Local zoning requirements are in addition to State nonmetallic mining site reclamation requirements. All nonmetallic mining operations must comply with Chapter NR 135 of the Wisconsin Administrative Code as enforced by Ozaukee County, unless the municipality has adopted a nonmetallic mining reclamation ordinance that complies with Chapter NR 135. The Town of Saukville adopted a nonmetallic mining reclamation ordinance, in February 2005, that meets the State requirements.

Extraterritorial Zoning Regulations

The Wisconsin Statutes authorize cities and villages to adopt extraterritorial zoning regulations for adjacent unincorporated areas, in cooperation with the adjacent town, within three miles of a city of the first, second, or third class; and within 1.5 miles of a city of the fourth class or villages. The City of Mequon is the only municipality in Ozaukee County which has adopted an extraterritorial zoning ordinance. The ordinance applies to an approximately 1,528 acre area in the Town of Grafton, adjacent to the northeast portion of the City. The Mequon extraterritorial zoning regulations were approved by the joint City-Town zoning committee in October, 2004. The Village of Saukville initiated the process of adopting an extraterritorial zoning ordinance,

which will apply primarily to the Town of Saukville, in July 2005. The Village of Newburg also initiated preparation of an extraterritorial zoning ordinance in July 2005.

Land Division Regulations

A land division ordinance is a public law that regulates the division of land into smaller parcels. Land division ordinances provide for appropriate public oversight of the creation of new parcels and help ensure that new development is appropriately located; lot size minimums specified in zoning ordinances are observed; arterial street rights-of-way are appropriately dedicated or reserved; access to arterial streets and highways is limited in order to preserve the traffic-carrying capacity and safety of such facilities; adequate land for parks, drainage ways, and other open spaces is appropriately located and preserved; street, block, and lot layouts are appropriate; and adequate public improvements are provided. Land division ordinances can be enacted by cities, villages, and towns and by counties, with the latter applying only to unincorporated areas. Thus, within unincorporated areas, it is possible for both counties and towns to have concurrent jurisdiction over land divisions. Cities and villages also have “extraterritorial” plat approval jurisdiction over subdivisions proposed near their corporate boundaries.

Chapter 236 of the *Wisconsin Statutes* sets forth general requirements governing the subdivision of land, including, among others, surveying and monumenting requirements, necessary approvals, recording procedures, and requirements for amending or changing subdivision maps. The *Statutes* also grant authority to county and local governments to review subdivision maps, commonly referred to as plats, with respect to local plans and ordinances. Section 236.45 authorizes county and local governments to adopt their own land division ordinances, which may be more restrictive than State requirements.

The Ozaukee County shoreland and floodplain zoning ordinance includes land division regulations for areas located in the shoreland. Ozaukee County also has authority under Section 236.10 of the *Statutes* to review and approve all subdivisions located in unincorporated portions of the County. All cities and villages in the planning area have adopted a land division ordinance, and all of the towns except the Town of Belgium have adopted a land division ordinance. Under Chapter 236, local governments are required to review and take action on plats for subdivisions. Subdivisions are defined in the *Statutes* as “a division of a lot, parcel, or tract of land by the owner thereof or the owner’s agent for purpose of sale or of building development, where the act of division creates five or more parcels or building sites of 1.5 acres each or less in area; or five or more parcels or building sites of 1.5 acres each or less in area are created by successive divisions within a period of five years.” Local subdivision ordinances may be broader in scope and require review and approval of land divisions in addition to those meeting the statutory definition of a “subdivision.” Table V-5 provides a summary of the scope of land division ordinances adopted by local governments in the planning area.

Extraterritorial Platting Authority

Under Section 236.10 of the *Statutes*, a city or village may review, and approve or reject, subdivision plats located within its extraterritorial area if it has adopted a subdivision ordinance or an official map. Section 236.02 of the *Statutes* defines the extraterritorial plat review jurisdiction as the unincorporated area within three miles of the corporate limits of a city of the first, second, or third class, or within 1.5 miles of the corporate limits of a city of the fourth class or a village. In accordance with Section 66.0105 of the *Statutes*, in situations where the extraterritorial plat approval jurisdiction of two or more cities or villages would otherwise overlap, the extraterritorial jurisdiction between the municipalities is divided on a line, all points of which are equidistant from the boundaries of each municipality concerned, so that no more

than one city or village exercises extraterritorial jurisdiction over any unincorporated area. The extraterritorial plat review area for each city and village in the County is depicted in Map V-9. The extraterritorial area changes whenever a city or village annexes land, unless the city or village has established a permanent extraterritorial area through a resolution of the common council or village board or through an agreement with a neighboring city or village. A municipality may also waive its right to approve plats within any portion of its extraterritorial area by adopting a resolution that describes or maps the area in which it will review plats, as provided in Section 236.10(5) of the *Statutes*. The resolution must be recorded with the County register of deeds.

Official Mapping Ordinances

Section 62.23(6) of the *Wisconsin Statutes* allows the Common Council of any City to establish an official map for the precise identification of right-of-way lines and boundaries of streets, highways, waterways, and parkways and the location and extent of railroad rights-of-way, public transit facilities, parks, and playgrounds. An official map is intended to be used as a precise planning tool for implementing master and comprehensive plans and for insuring the availability of land for the above features.

Section 61.35 of the *Statutes* applies the authority provided cities under Section 62.23 to develop an official map to villages. Similarly, Section 60.10(2)(c) authorizes towns to engage in the same planning activities, including preparation of an official map, as a village provided the town board has adopted village powers and created a town plan commission. All of the towns in Ozaukee County have adopted village powers and created a town plan commission. The clerk of any city, village, or town in the County that adopts an official map by ordinance or resolution must record a certificate showing that the city, village, or town has established an official map with the Ozaukee County register of deeds.

One of the basic purposes of the official map is to prohibit the construction of structures and their associated improvements on land that has been designated for future public use. The official map is a plan implementation device that operates on a communitywide basis in advance of land development and can thereby effectively assure the integrated development of the street and highway system. Unlike subdivision control, which operates on a plat-by-plat basis, the official map can operate over the entire community in advance of development proposals. The official map is a useful device to achieve public acceptance of long-range plans in that it serves legal notice of the government's intention well in advance of any actual improvements. Table V-6 lists those communities in the planning area that have adopted an official map.

Summary

Southeastern Wisconsin, Ozaukee County, and Ozaukee County's communities have a rich history of planning. Numerous plans have been developed at the regional level including a regional land use plan, regional transportation system plan, freeway reconstruction plan, regional bicycle and pedestrian plan, regional natural areas plan, water quality management plan, regional groundwater plan, and regional water supply plan. Plans developed at the County level include a farmland preservation plan and County park and open space plan. In addition, each community in the County has adopted a land use, master, or comprehensive plan, and many of the communities in the County have developed park and open space plans and bicycle and pedestrian plans. These existing plans provided the foundation for developing this multi-jurisdictional comprehensive plan for Ozaukee County.

The comprehensive planning law requires that zoning, subdivision, and official mapping ordinances be consistent with a governmental unit's comprehensive plan as of January 1, 2010. As of that date, the County shoreland zoning ordinance and subdivision regulations must be consistent with the comprehensive plan adopted by the County Board, and city, village, and town zoning, subdivision, and official mapping ordinances must be consistent with the comprehensive plan adopted by the Common Council, Village Board, or Town Board. To assist in meeting this requirement, all local zoning, subdivision, and official mapping ordinances as well as the County shoreland and floodplain zoning ordinance have been inventoried and summarized in this chapter. The Implementation Element (Chapter XIV) identifies modifications to existing ordinances needed to implement the comprehensive plan presented in this report.

Chapter 6. INFORMATION AND EDUCATION

Information and Education Strategy

This strategy is an integral part of each goal and objective listed in Chapter 3. The Information and Education (I & E) strategy is critical to accomplishing each resource goal, since the goals require many individuals in the county to make behavioral changes to protect land and water resources. Individuals will most likely not make these changes unless they understand the importance of land and water resources, how they are inter-connected, ways to protect these resources, and what instruments are available to assist them.

Just as each goal is accompanied with a list of objectives to fulfill this function, so are the objectives used in the I & E Strategy. The educational objectives for each goal have been detailed and list ways to accomplish these objectives.

GOALS

Plan Goal 1: Improve land and water resources by raising awareness of the financial assistance opportunities available through various funding sources, and providing education and information on the Performance Standards, Prohibitions, and construction practices.

Educational Objectives:

- Increase awareness of the benefits of buffers through public information and educational programs.
- Help farmers and other landowners in rural areas to become aware of the problem of rural sediment loading from cropland.
- Advise farmers of the benefits of Residue Management and how this practice can help reduce the problem of rural sediment loading.
- Provide education and information through workshops, newsletters and the County website on the Performance Standards, Prohibitions, and construction practices, in partnership UW-Extension Ozaukee County.

Ways to accomplish objectives:

- One-on-one contact with landowners
- Newsletters
- Mailings
- No-till demonstrations

Plan Goal 2: Improve regional leadership, education and collaboration by informing citizens about the ecological, recreational and economic value of land and water conservation.

Educational Objectives:

- Educate the Public, Decision Makers, and Media on Issues and Responsibilities Pertaining to Land and Water Resources
- Identify and Educate the Public, Decision Makers, Students and Media on Costs of Providing Different Levels of Service for Water Quality
- Promote Water Resource Protection Education Among Stakeholders at All Levels
- Encourage Existing and Future Partnerships to Improve Land & Water Quality
- Promote Collaboration Among Stakeholders at All Levels

- Create Programs and Policies Focusing on County Wide Land and Water Quality Issues
- Develop a Facilities Plan and Regional Water Quality Management Plan to Ensure a Comprehensive Regional Approach to All Water Systems Management

Ways to accomplish objectives:

- PLRM will use photos and stories about county conservation experiences at Town, Village, City, and County Meetings to illustrate their previous Plan's successes and current Plan priorities and issues.
- Conduct Citizen Stream Monitoring, school talks, County Fair booth/display, Department Newsletter called "The Dirt". Give talks to speaking engagement such as Realtors Association, Rotary, Chambers of Commerce, etc.
- Attend Town, Village, City, and County Meetings and relay the importance of dollars targeted to conservation issues. Apply for appropriate grants to target conservation issues.
- Continue to provide a scholarship to a student or teacher going into the environmental field.
- When proposed activities correspond to the LWRM Plan goals, objectives, and strategies, the County will partner with non-profit groups in applying for grants or promoting a program.
- Introduce different non-profit entities to each other in meetings or by correspondence.
- Develop ordinances that focus on conservation. Ordinances will include NR 151 Prohibitions and Standards, as well as Com 83, NR 216 and any other appropriate rule.
- Develop and update LWRM Plan (2006-2010)
- Attend conferences (eg. Water Quality Initiative)

Plan Goal 3: Strong Governmental Role in Environmental Protection by encouraging local municipalities to adopt management practices initiated at the county level.

Educational Objectives:

- Enforce existing government regulations consistently.
- Promote policies and regulations that improve and protect water quality.
- Establish and improve coordinated planning, monitoring systems, and implementation throughout all levels of government.
- Integrate the priority farms strategy into the agricultural performance standards implementation strategy and work plan.

Ways to accomplish objectives:

- Incorporate NR 151 (Prohibitions and Standards) into County Ordinances. Follow the following: NR115 Shoreland and Floodplain Ordinance, NR116 Floodplain, NR216 Stormwater Control, ATCP. 50, NR 135 Non-Metallic Mining, 66.1001 Comp Planning, and Chapter 236 Platting and review.
- Develop or update and enforce the following County Ordinances: Manure Storage, Stormwater control, construction site erosion, and Land Division.
- Develop a data-driven, systematic approach to identifying Priority Farms, such as targeting specific geographic areas (e.g. in WQMA), focusing on resource issues (e.g. exceeding T), or basing the strategy on other factors (e.g. size).
- Develop and promote the use of GIS data sharing. Collaborate meetings.
- Pollution prevention through stormwater quality management, storm sewer GIS mapping, public education and outreach, and public involvement and participation.

Plan Goal 4: Effective Planning and Design by encouraging landowners to adopt new management practices.

Educational Objectives:

- Implement planning for Natural Areas, Open Spaces, and Critical Species Habitat Sites to assess new management practices.
- Conduct on-going planning and comprehensive evaluations of water quality in County waterways.
- Prioritize water quality issues in Comprehensive and Land Use Planning
- Incorporate Regional Water Quality Management and Watershed Basin Planning for Milwaukee River, Sheboygan River, and other area's draining to Lake Michigan.
- Integrate funding and implementation of Plan goals and determine total costs (including an assessment of environmental, social, economic and opportunity costs) and benefits of alternatives.
- Evaluate all impacts of alternatives on discrete populations.

Ways to accomplish objectives:

- Promote the purchase of Natural Areas and Critical Species Habitat Sites identified by SEWRPC.
- Conduct and report on Land and Water Resource Management Planning efforts. Reports will include the following minimum content:
 - Major accomplishments from previous Plan
 - Major resource concerns
 - Priority goals, objectives and activities for new Plan
 - Measures of success
- Use the Milwaukee River and Sheboygan River Basin Plans in targeting Priority Farms.
- Use available funds on a voluntary basis, but still aiming at the water quality needs and Priority Farms.
- Work on integrated funding opportunities.
- Work to assure water quality, but be aware of alternative uses of land and habitat changes.

Chapter 7: COORDINATION

Coordination with federal, state and local agencies, roles and responsibilities

Voluntary cost share components of this plan will rely upon Federal, and State cost share programs. These programs include: Environmental Quality Incentive Program (EQIP) from USDA, Priority Watershed cost share funding from WDNR, Land and Water Resource Management Plan funding from DATCP, and Conservation Reserve Enhancement Program (CREP) from USDA and DATCP. Additional sources of funding include the WCMP, WDNR Stewardship funding and local non-profit organizations.

Staffing assistance from the Joint WDNR, DATCP allocation process will be key to the success of the LWRM Plan.

Ozaukee County PRLM Department staff are responsible for the implementation, design and construction of the conservation practices identified in this plan. Engineering assistance and job approval will be coordinated with the DATCP area engineering staff.

Regulatory compliance related to State Agricultural Nonpoint Performance Standards and Ozaukee County ordinances will be coordinated between the Ozaukee County PRLM Department and the Ozaukee County Corporation Counsel.

Many agencies, units of government, and organizations are involved in protecting land and water resources in Ozaukee County. Each agency has its own particular mission and leadership, but has a common goal to preserve and protect the environment for future generations. Cooperation is imperative to guarantee successful plan implementation. Many of these agencies are included in the LWRM Plan and will be relied upon for technical support, funding, cooperation and guidance.

Finally, Ozaukee County will use its comprehensive planning process, involving 14 local units of government, regional (SEWRPC), state and federal agencies to assist in long-term coordination efforts for land and water resource management.

A list of partnering organizations, agencies and government units can be accessed at the Ozaukee County Comprehensive Planning web site at: <http://www.co.ozaukee.wi.us/SmartGrowth/Index.htm>

Chapter 8. MONITORING AND EVALUATION

Monitoring the improvement of the land and water resources of Ozaukee County will indicate the true measures of the success of the Land and Water Resource Management Plan. While there may not be dollars available for in-depth monitoring such as installing Master Monitoring Sites; there are a number of less detailed monitoring programs already in existence.

Below is a list of monitoring programs, which Ozaukee County PRLM Department will utilize:

Program	Participants	Activities
Testing the Waters	High School students throughout Ozaukee County	Sampling the Milwaukee River and Cedar Creek for turbidity, phosphorus, dissolved oxygen, etc.
Water Action Volunteers	Ulao Ceek Partners, teachers, landowners, interested citizens	Sampling Ulao Creek and Milwaukee River for turbidity, stream depth / velocity, macroinvertebrates, and recording rainfall events
Multi-Stream comparison	Wisconsin Department of Natural Resources	Sampling several tributaries of Milwaukee River for suspended solids, phosphorus, macroinvertebrates, etc.
National Water Quality Assessment Program	United States Geological Survey	Sampling in Milwaukee River watershed for suspended solids, B.O.D., phosphorus, macroinvertebrates, etc.
Signs of Success	Wisconsin Department of Natural Resources	Focus on one BMP with sampling of stream habitat, limited chemical monitoring and fish sampling, and photographs
Lake Michigan Beach Monitoring	Ozaukee County - Public Health Department	Sampling at low, medium and high priority beaches in Ozaukee County
Water Quality Initiative	MMSD, SEWRPC, WDNR	Water Quality Presentations, Data Collection and Forecasting Conditions, Watershed Planning Conferences

The PRLM Department will continue to work closely with the participants of these monitoring programs to provide the department with information regarding “trends” in the quality of the land and water resources. The term “trends” is used because water resource biologists have indicated that parameters such as in-stream habitat may take years to show a response. The PRLM Department will also encourage expansion of their monitoring programs.

LWRM Plan strategies and work tasks can be redirected on a monthly basis, during ELU Committee meetings. The progress of LWRM Plan objectives will be discussed during annual meetings with WDNR staff. Annual reporting to the ELU Committee, County Board, WDNR and DATCP will also document LWRM Plan strategy successes / setbacks and progress of objectives. The measured success of the LWRM Plan will be included in annual reporting required for grant funded programs (WCMP and WDNR Stewardship) and DOA Comprehensive Planning reports. The PRLM Department will also provide annual reporting to the WDNR on MS4 permitting for stormwater management and construction site erosion control.

In addition, the PRLM Department will provide annual Powerpoint presentations to the ELU Committee, County Board, etc. The presentations will include recent results of monitoring programs and address the success of Five Year Goals, Strategies, Work Tasks, and progress of implemented conservation practices.

REFERENCES SITED

Best Management Practices, ATCP 50 – WDATCP and NR 120 - WDNR

Census of Agriculture, State and County Data, - USDA, National Agricultural Statistics Service.

PUBLIC PARTICIPATION PLAN, Multi-Jurisdictional Comprehensive Plan for Ozaukee County, Adopted by the Ozaukee County Board of Supervisors, December 1, 2004, Resolution No. 04-58

COUNTYWIDE COMPREHENSIVE PLANNING PUBLIC OPINION SURVEY OF OZAUKEE COUNTY RESIDENTS, Multi-Jurisdictional Comprehensive Plan for Ozaukee County, June 2005

A Nonpoint Source Control Plan for the Milwaukee River South Branch Priority Watershed Project, WDNR, December 1991

A Nonpoint Source Control Plan for the Menomonee River Priority Watershed Project, WDNR, March 1992

A Nonpoint Source Control Plan for the Milwaukee River North Branch Priority Watershed Project, WDNR, July 1998

A Nonpoint Source Control Plan for the Milwaukee River East/West Branch Priority Watershed Project, WDNR, February 1989

A Nonpoint Source Control Plan for the Cedar Creek Priority Watershed Project, WDNR, August 1993

Sheboygan River Basin – State of the Basin Environmental Report, WDNR, April 1999
http://dnr.wi.gov/org/gmu/sheboygan/sheboygan_final_10_01.pdf

Milwaukee River Basin – State of the Basin Environmental Report, WDNR, August 2001
http://dnr.wi.gov/org/gmu/milw/milwaukee_801.pdf

Ozaukee County Agricultural Soil Erosion Control Plan, Community Assistance Planning Report #171, SEWRPC, February 1989

A Regional Land Use Plan for Southeastern Wisconsin – 2010, Planning Report #40, SEWRPC, January 1992

A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin, Planning Report #42, SEWRPC, September 1997
http://www.sewrpc.org/publications/pr/pr-042_nat_areas_critical_species_habitat_protection_management_plan.pdf

Groundwater Resources of Southeastern Wisconsin, Technical Report #37, SEWRPC, June 2002.
http://www.sewrpc.org/publications/techrep/tr-037_groundwater_resources.pdf

A Farmland Preservation Plan for Ozaukee County Wisconsin, Community Assistance Planning Report #87, SEWRPC, May 1983

Lake Michigan Recession and Bluff Stability in Southeastern Wisconsin: 1995, Technical Report #36, SEWRPC, December 1997

A Park and Open Space Plan for Ozaukee County (2nd Edition), Community Assistance Planning Report #133, SEWRPC, June 2001

Water Quality Conditions and Sources of Pollution in the Greater Milwaukee Watersheds, Technical Report #39, SEWRPC, 2006 (under composition)

Lake Michigan Drainage - State of the Watershed, Milwaukee Metropolitan Sewerage District, Water Quality Initiative Program, Watershed Booklet, 2005

Menomonee River Watershed - State of the Watershed, Milwaukee Metropolitan Sewerage District, Water Quality Initiative Program, Watershed Booklet, 2005

Milwaukee River Watershed- State of the Watershed, Milwaukee Metropolitan Sewerage District, Water Quality Initiative Program, Watershed Booklet, 2005

GLOSSARY

303(d) Waters: This list identifies waters which are not meeting water quality standards, including both water quality criteria for specific substances or the designated uses. It is used as the basis for development of Total Maximum Daily Loads (TMDLs) under the provisions of Section 303(d)(1)(C) of the Clean Water Act, U.S. Environmental Protection Agency (USEPA) USEPA requires that the WDNR update its list ever two years. It is also called the List of Impaired Waters. In Ozaukee County, Cedar Creek and the southern portion of the Milwaukee River are on the 303(d) list of impaired waters.

Environment and Land Use Committee (ELUC) and Land Conservation Committee (LCC): The portion of county government empowered, by Chapter 92 of the Wisconsin Statutes, to conserve and protect the county's soil, water and related natural resources.

Animal Unit (AU): Single animal types or combination of animal types, which are fed, confined, maintained or stabled in an animal feeding operation. 1000 pounds of livestock live weight is equivalent to one AU.

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 State Statutes. It identifies those conservation practices that may be used to meet performance standards.

Best Management Practices (BMPs): The most effective practice or combination of practices for reducing nonpoint source pollution to acceptable levels.

Conservation Plan: A record of decisions and intentions made by land users regarding the conservation of the soil, water and related natural resources of a particular unit of land.

Conservation Reserve Program (CRP): A provision of the federal Farm Bill that takes eligible cropland out of production and puts it into grass or tree cover for 10 – 15 years.

Conservation Reserve Enhancement Program (CREP): Program partnership between USDA / FSA, DATCP and Ozaukee County that enhances the conservation payments of the regular CRP, particularly for buffers along streams.

Critical Species Habitats: Defined by the SEWRPC as tracts of land or water, which support Federally or State-listed rare, threatened, and/or endangered plant or animal species.

Wisconsin 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-sharing funds for a variety of LCC operations, including support for staff, materials and conservation practices.

Wisconsin Department of Natural Resources (WDNR): The state agency responsible for managing state owned lands and protecting public waters. WDNR also administers programs to regulate, guide and assist PRLM and individual land users in managing land, water, fish, and wildlife. The WDNR administers state cost-sharing funds for priority watershed project, Targeted Runoff Management (TRM) grants, and Urban Nonpoint Source Construction and Planning grants, Gypsy Moth Suppression Program funds, Knowles-Nelson Stewardship Grants, and other land and water related funding.

United States Environmental Protection Agency (USEPA): 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.

Environmental Corridor: Environmental corridors are areas in the landscape containing especially high value natural, scenic, historic, scientific, and recreational features. In Ozaukee County they generally lie along major stream valleys and lakes, and consist of almost all of the remaining high-value woodlands, wetlands, and wildlife habitat areas within the County. These corridors also include the undeveloped floodland and shorelands associated with the major surface water bodies within the County.

Environmental Quality Incentives Program (EQIP): Federal program to provide technical and cost-sharing assistance to landowners for conservation practices that provide water quality protection.

Ephemeral Erosion: Channeled, concentrated erosion that results in gullies.

Farm Service Agency (FSA): USDA agency that administers agricultural assistance programs including price supports, production controls and conservation cost sharing.

Fish Consumption Advisory (FCA): Food and Drug Administration imposed limit or restriction on fish consumption based on elevated toxicity levels – generally mercury or PCBs.

Farmland Preservation Program (FPP): A state program that provides property tax relief to Wisconsin farmland owners while at the same time preserving farmland through local land use planning and soil conservation practices.

Geographic Information System (GIS): A computerized system of maps and layers of data about land including parcels, soils, land cover, topography, watersheds, roads and streams. Such geographically based data layers improve the ability to analyze complex data for decision-making.

Grassland Reserve Program (GRP): Voluntary program that helps landowners and operators restore and protect grassland, including rangeland, and pastureland, and certain other lands, while maintaining the areas as grazing lands.

Impaired Waters List: Same as the 303(d) list.

Planning, Resources and Land Management Department (PRLM): The department of county government responsible for administering planning, Land and Water Conservation Programs and the [Sanitary](#), [Shoreland Zoning](#), [Manure Storage](#), and [Nonmetallic Mining](#) Ordinances. The department operates under the oversight of the Ozaukee County Board of Adjustment, Environment and Land Use Committee, and Comprehensive Planning Board.

Land and Water Resource Management Plan (LWRM): A locally developed and implemented multi-year strategic plan with an emphasis on partnerships and program integration. The plan includes a resource assessment, identifies the applicable performance standards and related control of pollution from nonpoint sources, identifies a multiyear description of planned activities, established a progress tracking system, and describes an approach for coordinating information and implementation programs with other local, state and federal agencies, communities and organization (ATCP 50.12).

Natural Resources Conservation Service (NRCS): Part of USDA, NRCS provides soil survey, conservation planning and technical assistance to local land users.

Natural Areas: Defined by the SEWRPC as tracts of land or water that have not been significantly impacted by human activity and are considered to be representative of the pre-European-settlement landscape.

Notice of Discharge (NOD): A written notice to any person not in compliance with Ozaukee County Ordinance – Chapter 9. This code involves the proper design, construction, and/or operation of animal waste storage facilities that may cause pollution of the surface and groundwater of Ozaukee County.

Nonpoint Source Pollution (NPS): Pollution from many small or diffuse urban and rural sources. Livestock waste finding its way into a stream and causing water pollution is an example of nonpoint source pollution.

Nonpoint Source Pollution Abatement Program: A WDNR water quality program under Chapters 120 and § 281, Wisconsin Statutes that provides technical assistance and cost sharing to landowners to develop and maintain management practices to prevent or reduce nonpoint source water pollution in designated watersheds.

NR 151: WDNR administrative code that established runoff pollution performance standards for non-agricultural facilities and transportation facilities, including performance standards and prohibitions for agricultural facilities and practices designed to meet water quality standards.

Nutrient Management Plan: The Nutrient Management Plan means any of the following: (a) A plan required under § ATCP 50.04 (3) or 50.62 (5) (f). (b) A farm nutrient plan prepared or approved, for a landowner, by a qualified nutrient management planner.

ORW/ERW: WDNR classifies streams as Outstanding Resource Waters (ORW) and Exceptional Resource Waters (ERW) as listed in NR 102.10 and NR 102.11. ORW waters have excellent water quality and high-quality fisheries and do not receive wastewater discharges. ERW waters have excellent water quality and valued fisheries but may already receive wastewater discharges. There are no ORWs in Ozaukee County, and the only ERW in the County is at the headwaters of Onion Creek.

RUSLE II: Revised universal soil loss equation – equates various factors to determine erosion rates on cropland for sheet and rill erosion.

Shoreland Zoning Area: The unincorporated areas of Ozaukee County regulated by Ozaukee County Code Ordinance - Chapter 7. These areas are within 1,000 feet of navigable lakes, ponds or flowages; areas within 300 feet of navigable rivers or streams; and land within the 100-Year floodplain (floodway and flood fringe).

Soil and Water Resource Management Program (SWRM): DATCP program that provides counties with funds to hire and support Land Conservation Department staff and to assist land users in implementing DATCP conservation programs (ATCP 50).

Soil Loss Tolerance (T): Erosion rate in tons per acre per year at which a soil could maintain productivity.

Soil Survey: NRCS conducts the National Cooperative Soil Survey and publishes soil survey reports. Soils data is designed to evaluate the potential of the soil and management needed for maximum food and fiber production.

SSURGO Certified Soil Survey: “SSURGO” is the current format utilized by the USDA/NRCS for storing soil survey data. That data includes the digitized detailed soil maps for each soil survey area (spatial data) and the accompanying soil property and interpretations database (tabular data).

Southeastern Wisconsin Regional Planning Commission (SEWRPC): The official regional and metropolitan planning agency for Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha Counties. The Commission provides basic information and planning services for proper design of public works systems and provides a regional approach for addressing several environmental issues, such as flooding, air and water pollution, Natural Resource Base Deterioration, and changing land use.

United States Department of Agriculture (USDA): Branch of federal government with responsibilities in the areas of food production, inspection, and storage. Agencies with resource conservation programs and responsibilities, such as FSA, NRCS and Forest Service and others are agencies of the USDA.

University of Wisconsin-Extension (UWEX): The outreach of the University of Wisconsin system responsible for formal and informal educational programs throughout the state.

Waters of the State: Those portions of Lake Michigan and Lake Superior within the boundaries of Wisconsin, all lakes, bays, rivers, streams, springs, ponds, wells, impounding reservoirs, marshes, water courses, drainage systems and other surface water or groundwater, natural or artificial, public or private within the state or under its jurisdiction, except those waters which are entirely confined and retained completely upon the property of a person.

Water Quality Management Area (WQMA): Areas within 300 feet of any stream found on U.S. Geological Survey Quad maps and within 1,000 feet of a lake ordinary high water mark.

Watershed: The geographic area from which a particular river, stream or water body receives its surface water supply.

Wetland Reserve Program (WRP): A provision of the federal Farm Bill that compensates landowners for voluntarily restoring and protecting wetland on their property in perpetuity.

Wildlife Habitat Incentives Programs (WHIP): Federal program administered by NRCS and FSA to help improve wildlife habitat on private lands.

** Glossary terms located in this document are **bold and italicized** the first time they appear and their abbreviations are included if necessary. After the first use most of the terms are abbreviated throughout the rest of the plan.

Appendices