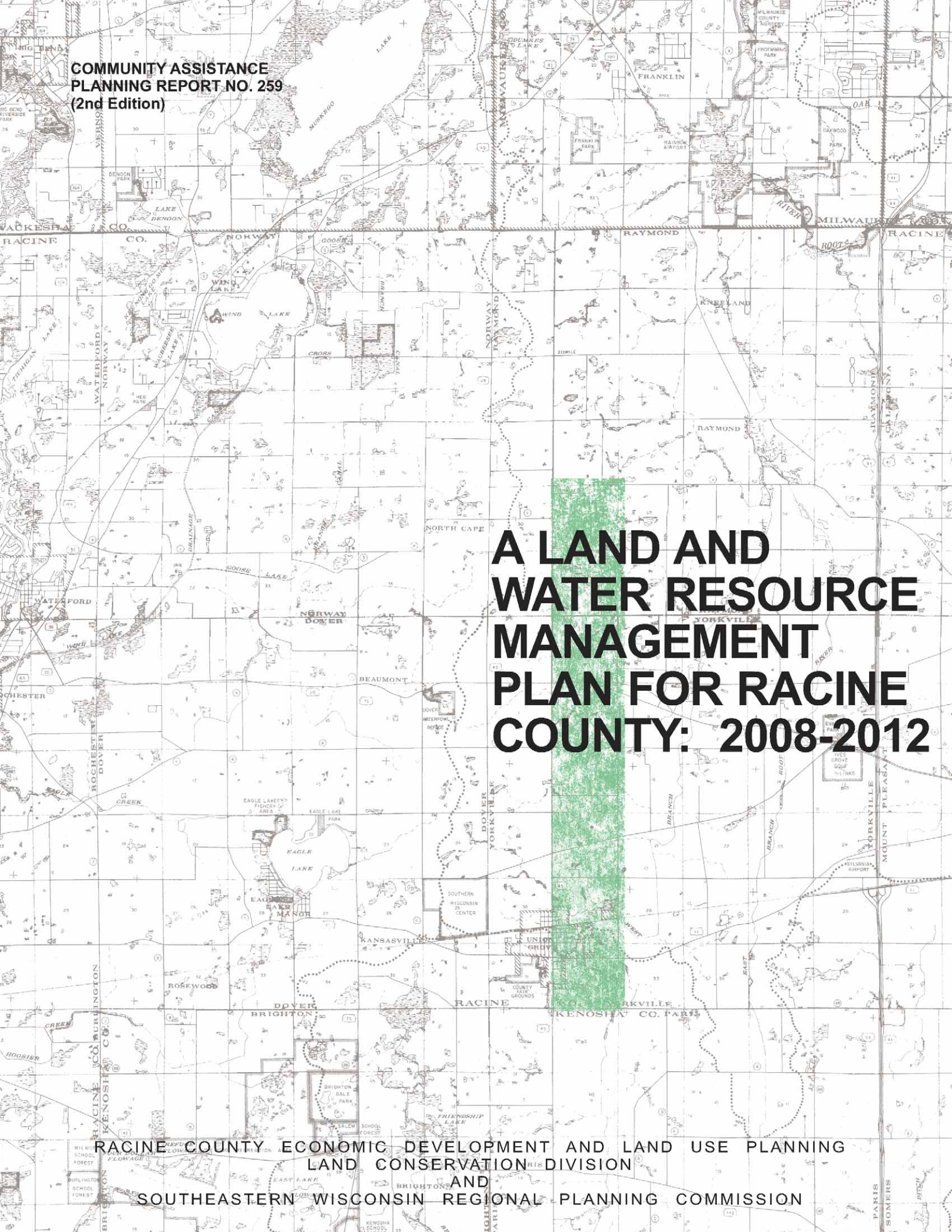


COMMUNITY ASSISTANCE
PLANNING REPORT NO. 259
(2nd Edition)

A LAND AND WATER RESOURCE MANAGEMENT PLAN FOR RACINE COUNTY: 2008-2012

RACINE COUNTY ECONOMIC DEVELOPMENT AND LAND USE PLANNING
LAND CONSERVATION DIVISION
AND
SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

KENOSHA COUNTY
Anita M. Faraone
Adelene Greene
Robert W. Pitts

RACINE COUNTY
Susan S. Greenfield
Mary A. Kacmarcik
Michael J. Miklasevich

MILWAUKEE COUNTY
William R. Drew, Treasurer
Lee Holloway

WALWORTH COUNTY
Richard A. Hansen, Vice-Chairman
Gregory L. Holden
Allen L. Morrison

OZAUKEE COUNTY
Thomas H. Buestrin, Chairman
William E. Johnson
Gustav W. Wirth, Jr., Secretary

WASHINGTON COUNTY
Charlene S. Brady
Daniel S. Schmidt
David L. Stroik

WAUKESHA COUNTY
James T. Dwyer
Anselmo Villarreal
Paul G. Vrakas

RACINE COUNTY LAND CONSERVATION COMMITTEE

A SUBCOMMITTEE OF THE ECONOMIC DEVELOPMENT AND LAND USE PLANNING COMMITTEE

Jeffery Halbach, Chairman

Robert D. Grove, Vice-Chairman

Q.A. Shakoor, II, Secretary

Mark M. Gleason
Kenneth Hall
Karen A. Nelson
Thomas Pringle

INTERGOVERNMENTAL STAFF FOR THE RACINE COUNTY LAND AND WATER RESOURCE MANAGEMENT PLAN

RACINE COUNTY

Julie A. Anderson..... Director, Racine County Economic Development and Land Use Planning
Frank A. Risler.....Planning Manager, Racine County Economic Development and Land use Planning
Ann Mertens ..... Plan Reviewer, Racine County Land Conservation Division
Chad Sampson.....Racine County Conservationist Land Conservation Division

SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

Philip C. Evenson ..... Executive Director
Michael G. Hahn..... Chief Environmental Engineer
Daniel R. Treloar..... Conservation Planner
Thomas M. Slawski..... Principal Planner
Patricia M. Kokan..... Environmental Division Secretary
Sara W. Teske..... Research Analyst

RACINE COUNTY LAND AND WATER RESOURCE MANAGEMENT PLAN CITIZEN ADVISORY COMMITTEE

Ronald L. Johnson, Chairman

Daniel R. Treloar, Secretary

Julie A. Anderson
Sara A. Arnold
Kathy A. Aron
Melanie Bohl
Dave Daniels
Mark Edquist
Michael G. Hahn
Jeffery Halbach
Chuck Haubrich
Gerald L. Hebard
Kimberly M. Iczkowski
Judy Jooss
Michael A. Luba
Ann Mertens
Jeffery Paap
John F. Roth
Chad Sampson
Brian Schaal
Richard Schroeder
Charles L. Seeger
Rose Skora
Mike Weinkauf

COMMUNITY ASSISTANCE PLANNING REPORT
NUMBER 259, 2nd Edition

A LAND AND WATER RESOURCE MANAGEMENT PLAN FOR RACINE COUNTY: 2008-2012

Prepared by the

Racine County Economic Development and Land Use Planning
Land Conservation Division

and the

Southeastern Wisconsin Regional Planning Commission

October 2007

$20.00

(This page intentionally left blank)

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF TABLES

LIST OF MAPS

REPORT SUMMARY

MISSION STATEMENT

To maintain, enhance, and preserve the land and water resources of Racine County. To conserve energy, prevent urban sprawl, maintain open space, retain natural systems and natural processes, preserve natural resource base, promote local self-sufficiency, and preserve the rural lifestyle.

INTRODUCTION

In 1997, Chapter 92 of the *Wisconsin Statutes* was amended to require, and give authority for, counties to develop their own land and water resource management plans (LWRMP). The LWRMP is a State-mandated long-range planning document intended to guide the activities of the County Land and Water Conservation Department (LCD) in its efforts to protect and improve the land and water resources. The initial Racine County LWRMP was adopted by the County Board in September of 2000. This first revision of the LWRMP has been prepared following the requirements of Chapters ATCP 50 and NR 151 of the *Wisconsin Administrative Code*, as adopted in 2002. The developments of such plans are intended to serve as a multi-year workplan which will:

- Specifically address the implementation of State nonpoint source pollution abatement performance standards developed by the Wisconsin Departments of Natural Resources and Agriculture, Trade and Consumer Protection;[1]
- Identify local land and water resources concerns, issues, and priorities;
- Establish goals and objectives in response to the identified concerns and issues;
- Develop a comprehensive program integrating existing and proposed resource management programs, plans, and funding sources designed to achieve the established goals and objectives;
- Establish partnerships between agencies, municipalities, and other organizations;
- Incorporate an informational and educational strategy in response to the identified concerns and issues; and
- Identify a method to evaluate and monitor progress.

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

[1]*Proposed Chapter NR 151 and proposed revisions to Chapter ATCP 50 of the* Wisconsin Administrative Code *and Chapter 92 of the* Wisconsin Statutes.

Committee. The principal issues and concerns that were identified by the Citizen Advisory Committee and include the following:

- Increase natural resource, environmental, and State performance standards information and education;
- Implement the State agricultural and nonagricultural performance standards to reduce nonpoint pollution;
- Invasive and nonnative species management and control;
- Protect and preserve land and water resources; and
- Increase cooperation with local, State and Federal Partners.

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

Chapter I–Introduction and Plan Development Process

Chapter II–Resource Assessment

Chapter III–Related Plans, Regulations, and Programs

Chapter IV–Goals, Objectives, and Estimated Costs

Chapter V–Progress Monitoring and Evaluation

PUBLIC PARTICIPATION

The plan was developed under the guidance of a Citizen Advisory Committee (CAC) that was comprised of individuals that had natural resource, nonpoint source, agricultural, or environmental backgrounds. The Committee included agency personnel from the Wisconsin Department of Natural Resources, the University of Wisconsin-Extension, the Natural Resources Conservation Service, Farm Services Agency, and SEWRPC; County elected officials, and planning and land conservation staff, and municipal representatives; as well as citizens of the County, including farmers, naturalists, a lake organization representative, and an environmental consultant. The revision to the Racine County Land and Water Resource Management Plan began in July of 2006 with a conservation survey page included in the July/August–2006 newsletter; *Ties to the Land*. Survey results were utilized by the CAC in order to identify major conservation concerns. Two Citizen Advisory Committee meetings were held on March 26, 2007 and June 20, 2007. The Committee reviewed each chapter of the plan in draft form and provided comments and recommendations, which were then addressed in the final plan. On August 6, 2007, the County Land Conservation Committee met to approve the plan; this meeting was open to the public for citizen comment and input. This meeting was announced twice in the *Racine Journal Times* prior to the meeting as a Class II public notice. This plan was approved by the Citizen Advisory Committee on June 20, 2007; the Racine County Land Conservation Committee and the Racine County Economic Development and Land Use Planning Committee on August 6, 2007; and the Racine County Board of Supervisors on August 28, 2007, with final approval by the Wisconsin Land and Water Conservation Board on October 2, 2007.

ASSESSMENT OF WATER QUALITY AND NONPOINT SOURCE POLLUTION ISSUES

The water resources and the watershed areas of Racine County are illustrated on Map 23 in Chapter III of this report. Most of the rivers, streams, and lakes in Racine County currently are designated for a warmwater sportfish water use objective. However, some of those resources are determined to have limited forage fish or limited aquatic life use objectives. The majority of the water resources in the County are currently partially meeting the established water use objectives. The waterbodies in Racine County that have been listed as Section 303(d) waters are included for various reasons and include all or portions of the following: the Fox River, Root River, the Root River Canal, West Branch of the Root River Canal, Racine Harbor, and Wind Lake are designated as low-priority

waters, the North Branch of the Pike River are designated as medium-priority waters. The priority is assigned based on the schedule for establishing total maximum daily loads for the pollutant causing the impairment.

Racine County has an approved soil erosion control plan.[2] According to the results from the 2005 Cropland Erosion Survey, it was estimated at that time that approximately 90 percent of the fields that were surveyed were at or below the tolerable soil loss rate. This suggests that past local, State, and Federal conservation program efforts have been successful in helping farmers manage soil erosion, but continued monitoring will still be carried on to insure this success. Additionally, groundwater quality is a concern, especially in the western portion of the County due to the fact that the soils are highly permeable and groundwater is the source of potable water. In addition to agricultural land soil erosion and groundwater issues, nonpoint source pollution from urban areas was identified in the plan as one of the primary issues to specifically address.

SUMMARY OF WORK PLAN

The land and water resources plan focuses on reducing the nonpoint source pollution from rural and urban areas in Racine County to the levels needed to achieve the water use objectives. Additionally, groundwater quality issues are also emphasized. The workplan elements are designed to meet the State nonpoint source pollution abatement performance standards and prohibitions. In addition, the plan also has specific objectives for the preservation and protection of land and water resources. The goals, objectives, and recommended actions contained in this plan were developed to focus on the priority issues and concerns identified by the LWRMP Citizen Advisory Committee and public survey responses. The objectives of the plan were divided into categories, including educational programming, agricultural and nonagricultural performance standards implementation, invasive species control, land and water quality protection, and improved partner relationships. The recommended goals, workplan objectives, and planned actions for the years 2008-2012 are summarized in the following section, and are presented in Table 23 in Chapter IV of this report.

Education and Information
Achieving the educational goal of increasing overall education and awareness on natural resources and the environment involves several objectives. These include:

- Educating landowners about Wisconsin's agricultural performance standards and prohibitions, County ordinances, applicable conservation practices, and cost-share grant opportunities;
- Promoting the principals of nutrient and chemical management and raising awareness of State requirements to landowners, producers, agricultural supply businesses, lawn maintenance companies, and golf course superintendents;
- Providing information to area contractors on best management practices for storm water management and erosion control;
- Providing information to riparian property owners and landscape contractors on the effectiveness of riparian buffers and design options;
- Providing information to Lake Michigan property owners on shoreline erosion;
- Developing new, and promoting existing, in-school curricula;
- Providing information to County residents on appropriate best management practices for yard maintenance; and

[2]*SEWRPC Community Assistance Planning Report No. 160,* Racine County Agricultural Soil Erosion Control Plan, *July 1988.*

- Maintaining an up-to-date County conservation website.

Agricultural Nonpoint Pollution
The principal agricultural land management plan goals and workplan objectives include controlling nonpoint source pollution. The implementation strategy will include developing farm conservation plans for agricultural producers and encouraging landowners and farmers to utilize a wide variety of best management practices designed to target soil erosion. The County LCD will continue to conduct the annual cropland erosion survey to monitor the use of conservation practices and their effectiveness in reducing agricultural erosion. Until a State buffer standard is adopted, the County and municipalities will promote the establishment of appropriate riparian buffers designed according to NRCS standards, in order to reduce sediment delivery to water resources. The major actions to accomplish the goals and workplan objectives include:

- Developing farm conservation plans;
- Identifying and evaluating priority farms for compliance with standards and prohibitions;
- Establishing a GIS database to monitor and track compliance status;
- Continuing to conduct the annual transect cropland erosion survey;
- Encouraging the installation of riparian buffers;
- Developing nutrient management plans; and
- Managing livestock manure in accordance with State performance standards.

Nonagricultural Nonpoint Pollution
The nonagricultural and urban land use goals and workplan objectives include reducing nonpoint source pollution by reducing construction site erosion and managing storm water runoff more effectively. In addition, it is recommended that urban-density land use be confined to identified urban service areas by limiting agricultural rezoning to planned urban service areas. The principal actions identified in the plan to accomplish these goals and workplan objectives will include:

- Encouraging the adoption of storm water management and construction site standards and guidelines;
- Developing a consistent inspection and monitoring program to reduce construction site erosion;
- Encouraging municipalities to take on responsibility associated with maintenance of storm water detention facilities;
- Implementing the State Nonagricultural Performance Standards;
    - Control 80 percent of sediment from construction sites;
    - Control 80 percent of post-construction total suspended solids (TSS) from new developments and 40 percent from redevelopments;
    - Maintain pre-development peak discharge rates for the two-year, 24-hour design storm for new developments;
    - Infiltrate 90 percent of pre-development runoff volumes for new residential developments and 60 percent for nonresidential or demonstrate exemption;
    - Maintain protective areas between new impervious surfaces and lakes, streams, and wetlands; and

— Control petroleum runoff (visible sheen) from fueling and vehicle maintenance areas.

- Encouraging urban-density land use to be confined to and within the identified urban service areas; and

- Complying with the Municipal Separate Storm Sewer System (MS4) permit requirements under Chapter NR 216 of the *Wisconsin Administrative Code*.

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

- Distribute informational material and respond to phone and direct inquiries;

- Organize and educate local work and youth groups to identify and eliminate nonnative and invasive species;

- Continue to conduct periodic workshops and presentations on nonnative and invasive plant and animal species control;

- Encourage the development and adoption of aquatic plant management plans for all inland lakes; and

- Host a garlic mustard pull-a-thon event, assist the clean boats, clean waters volunteer program, and support purple loosestrife biological control.

Protect and Preserve Land and Water Resources
In order to improve overall land and water quality, the goals and workplan objectives include reducing erosion from unstable streambanks, reducing sedimentation of wetlands, supporting the acquisition of important identified natural areas, encouraging riparian buffer establishment, utilizing GIS technology to identify important water quality management areas, and protecting shoreland areas from actions which have negative impacts on water quality. Continue to monitor Lake Michigan shoreline, especially in those reaches with relatively high unprotected bluffs and where shoreline protection structures are in need of maintenance, failing or failed, and where shoreline protection structures have been placed in isolated situations and are likely to cause differential erosion processes acting on unprotected portions of the shoreline in the vicinity of those structures. To protect and enhance the groundwater resources, failing and noncompliant onsite sewage disposal systems will be identified for maintenance or replacement; management of storm water runoff will be improved; groundwater related water quality management areas will be delineated, reducing the potential for groundwater contamination from agricultural inputs; and livestock and manure will be managed more effectively in areas susceptible to groundwater contamination. The principal actions associated with achieving the goals and workplan objectives include:

- Encourage farmers to continue farming through sustainable and alternative agricultural practices and other initiatives which may include the purchase of development rights, comprehensive land use plans, farmland protection, farm-to-table programs (connecting local farmers with local buyers), cooperative farm approaches, trusts, deeded outlots, and conservancies;

- Promote riparian buffers along all water resources in the County;

- Create, restore and enhance wetland, riverine, and wildlife habitat throughout the County;

- Prevent the degradation and disturbance of wetlands;

- Support efforts to protect and enhance our forests and woodlots, continue the annual tree program and work with the area forester to provide forestry assistance and long-term management plans to landowners;

- Encourage lake districts and associations to apply for lake protection and similar grants for water quality improvement and provide grant writing assistance when needed, as resources allow;

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

- Identify failing septic systems or those no longer in compliance with State codes;

- Incorporate surface and groundwater protection information into the County GIS system; and

- Incorporate groundwater protection and potential for data on contamination potential into future land use planning activities.

Increase Cooperation with Local, State and Federal Partners
Coordination with Federal, State and local agencies is necessary to protect land and water resources in Racine County. In order to increase cooperation with local, State, and Federal partners, specific goals and workplan objectives have been identified as follows:

- Develop a countywide comprehensive plan to guide future land use in Racine County;

- Foster existing relationships with WDNR, FSA, DATCP, and NRCS

- Look for new opportunities to coordinate plan implementation efforts with local grass roots groups, conservation and wildlife clubs, local, State and Federal agencies to help implement the goals of this LWRMP.

Estimated Costs
Fully implementing the Racine County Land and Water Resource Management Plan will require additional staff as well as additional sources of funding to cost-share recommended best management practices. At present, county source funding will be inadequate; therefore implementation will be dependent upon future funding levels being available largely from outside sources. A brief summary of costs that are estimated to be needed to maintain existing program efforts is presented in Table 24 in Chapter IV of this report.

PROGRESS MONITORING AND EVALUATION

Monitoring program effectiveness will be carried out by analyzing and quantifying of soil erosion and sediment delivery, tracking the level of protection of environmentally important lands and water quality, and administrative reporting of the implementation of program recommendations. The principal methods that will be used to evaluate soil erosion and sediment delivery will include State and Federal farm plan monitoring, plan revisions, random field checks, and conducting the annual cropland erosion survey. Additionally, nonagricultural and shoreline erosion will be monitored through quantification of shoreland permits, and determining the effectiveness of construction site best management practices through cooperation and partnership with municipal building inspectors.

Protection of environmentally valuable lands will be quantified by utilizing GIS and other computer resources to determine ownership of properties and protection measures for environmental corridor areas and other important environmental lands identified in the regional natural areas and critical species habitat plan and the watershed management plans. GIS will also be utilized to identify priority farms and monitor compliance with the nonpoint performance standards and to generate annual reports of activities such as plan reviews, permits issued, inspections conducted and enforcement action taken. Water quality monitoring is an important endeavor not only

to monitor the present condition of water resources, but also to gauge the effectiveness of land conservation related activities and best management practices. Available data will be summarized on an annual basis. Regular meetings to report progress to the Land Conservation Committee regarding conservation plans and nutrient management plans that were developed, buffers implemented, contacts made, and educational activities that were carried out. These meetings will be used to evaluate the effectiveness of current programs and to change or modify those programs to better address current conditions.

Consistent and thorough evaluation and monitoring of conservation efforts is essential to ensure the effectiveness of the Racine County Land and Water Resource Management Plan. An annual progress report will be the primary method used to evaluate progress of implementing the planned activities outlined in this plan. The progress report will consist of a summary of the annual outcomes and accomplishments of planned activities outlined in the workplan. This summary may include, but is not limited to: completed information and education activities, landowners contacted, BMP's designed and installed, conservation and nutrient management plans written or revised, cost-share agreements developed, erosion control plans reviewed, compliance monitoring and status, and other planned program results. These annual progress reports will be compiled and forwarded to the Department of Agriculture, Trade and Consumer Protection and the WDNR. Periodic updates will also be posted on the Racine County website. The results of the monitoring and evaluations conducted over the term of this plan (2008-2012), will be used to improve the next land and water resource management plan.

(This page intentionally left blank)

Chapter I

INTRODUCTION AND PLAN DEVELOPMENT PROCESS

OVERVIEW OF STUDY AREA

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

The County covers about 340 square miles and contains two cities, nine villages, and seven towns. There are all or parts of five natural watersheds and a total of about 4,000 acres of inland surface waters within the County. Because of the importance of considering entire watersheds in water resource planning, consideration has been given to the entire watershed areas impacting on or impacted by the County, even though the focus of this planning effort is Racine County itself. The subcontinental divide between the Mississippi River and Great Lakes drainage basins traverses the County and has important implications for some aspects of land and water resources planning.

The majority of the population resides in the eastern portion of Racine County, within the City of Racine, the Villages of Sturtevant, North Bay, Wind Point, Elmwood Park, Mt. Pleasant, and Caledonia. However, population centers are also found in the western communities including the City of Burlington and Villages of Rochester, Union Grove, and Waterford, and in the vicinity of the major lakes, including the Wind Lake, Tichigan Lake, Eagle Lake, Browns Lake, Waubeesee Lake, Long Lake, and Bohner Lake areas. Much of the land in the County remains in agriculture, but the dairy industry has steadily declined. The primary form of agriculture involves cash-grain farming for corn and soybeans. There also remains significant farm acreage devoted to cabbage production primarily in the eastern one-half of the County. There are also several large poultry rearing and processing operations in the County. The major industries within the County are generally located east of IH 94, with smaller industrial development being located west of IH 94 and in the other urban centers.

Racine County is undergoing significant urban growth and development, and faces the challenge of balancing this growth in conjunction with protecting and maintaining its natural resources. The County has a diversified natural resource base, including the Lake Michigan nearshore area, several inland lakes, as well as major river systems. Additionally, the County contains significant areas of quality wetlands, woodlands, and grasslands, the most important of which are incorporated into the areas designated as environmental corridors.

PLAN BACKGROUND AND PURPOSE

In 1997, the State Legislature, through Wisconsin Act 27, amended Chapter 92 of the *Wisconsin Statutes*, requiring that all counties develop a land and water resource management plan (LWRMP). The intent of this

charge is to foster and support a locally led process which is intended to address each individual county's unique natural resources; identify particular problems associated with the resource base; and establish a plan to help protect and restore those resources. Additionally, the County plans are intended to focus on State minimum nonpoint source pollution performance standards related to agriculture and urban development. The plan development process is intended to encourage innovative programming and leadership and to build local support. The plan identifies the natural resources and the current condition of those resources, the limitations of those resources, and sets forth a strategy that addresses the natural resource issues and problems. This plan also provides a means to educate the public about these issues and problems and include them in the steps necessary to protect the natural resource base.

The initial Racine County Land and Water Resource Management Plan was approved in 2000. Chapter 92 of the *Statutes* requires that LWRMP must be updated every five years for counties to be able to receive conservation staff funding and cost-share grant monies. In 2003 Racine County requested and received a 3-year extension of its existing LWRMP from the Wisconsin Land and Water Conservation Board. This plan is, therefore, the first revision of the initial LWRMP. The revised multi-year land and water resource management plan must meet the requirements of Wis. Stats., 92.06, and additional guidelines established by the Wisconsin Department of Agriculture, Trade and Consumer Protection and the Wisconsin Land and Water Conservation Board. This plan will serve as a program guide for local conservation efforts in Racine County.

PLAN DEVELOPMENT AND PUBLIC PARTICIPATION

The Racine County Land and Water Resource Management Plan was developed through a collective effort of a number of agencies and organizations under the overall direction of the Racine County Land Conservation Committee (LCC). Like the original plan an important aspect of the development of the revised plan relied on the participation from both citizens of the County, as well as representatives from various intergovernmental agencies. The agencies that were involved include the Racine County Land Conservation Division, the Southeastern Wisconsin Regional Planning Commission (SEWRPC), the Wisconsin Department of Natural Resources (WDNR), the University of Wisconsin-Extension Service, the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP), and the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) and the USDA Farm Services Agency (FSA). The plan was developed under the guidance of the Racine County Land and Water Resource Management Plan Citizen Advisory Committee (CAC), which was created by the County specifically for plan development purposes and is, comprised of elected and appointed officials, agency personnel and citizens knowledgeable in land and water resource matters. The members of the Citizen Advisory Committee and their affiliation are listed in Table 1.

The revision to the Racine County Land and Water Resource Management Plan began in July of 2006 with a conservation survey page included in the July/August - 2006 newsletter; *Ties to the Land.* Survey results were utilized by the CAC in order to identify major conservation concerns. Two Citizen Advisory Committee meetings were held on March 26, 2007 and June 20, 2007. The Committee reviewed each chapter of the plan in draft form and provided comments and recommendations, which were then addressed in the final plan. On August 6, 2007, the County Land Conservation Committee met to approve the plan; this meeting was open to the public for citizen comment and input. This meeting was announced twice in the *Racine Journal Times* prior to the meeting as a Class II public notice. This plan was approved by the LWRMP Citizen Advisory Committee on June 20, 2007, the Racine County Land Conservation Committee and the Racine County Economic Development and Land Use Planning Committee on August 6, 2007 and the Racine County Board of Supervisors on August 28, 2007, with final approval by the Wisconsin Land and Water Conservation Board on October 2, 2007.

LAND AND WATER RESOURCE MANAGEMENT PLAN PRIORITY ISSUES

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

Table 1

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

Name	Title or Affiliation
Committee Members	
Ronald L. Johnson, Chairman	Chairman, Kenosha County Land and Water Conservation Committee, Kenosha County Board Supervisor
Jeff Halbach	Chairman, Racine County Land Conservation Committee, Racine County Board Supervisor
Jeffery Paap	Farmer
Dave Daniels	Dairy Farmer
Gerald L. Hebard	District Conservationist, U.S. Department of Agriculture, Natural Resources Conservation Service
Kathy A. Aron	Aron & Associates/Lake Specialist
Judy Jooss	Lakes Specialist
Kimberly Iczkowski	Executive Director, U.S. Department of Agriculture, Farm Services Agency
Brian Schaal	Farmer
Mark Edquist	Farmer
Michael A. Luba	Root/Pike Basin Team Leader, Wisconsin Department of Natural Resources
Chuck Haubrich	Board Member, Racine/Kenosha Land Trust
Melanie Bohl	Executive Director, Root/Pike Watershed Initiative
Richard Schroeder	Assistant City Planner, City of Kenosha
Mike Weinkauf	Farmer, Supervisor -Town of Rochester
Charles L. Seeger	Racine County Resident, Racine County Conservationist, Retired
Rose Skora	Agriculture Educator, University of Wisconsin-Extension Service
Supporting Staff Members	
Michael G. Hahn	Chief Environmental Engineer, Southeastern Wisconsin Regional Planning Commission
Daniel R. Treloar, Secretary	Conservation Planner, Southeastern Wisconsin Regional Planning Commission and Kenosha Long Range County-wide Planning Division
Chad Sampson	County Conservationist, Racine County Land Conservation Division
Ann Mertens	Plan Reviewer, Racine County Land Conservation Division
Julie A. Anderson	Director, Racine County Economic Development and Land Use Planning

Source: SEWRPC.

- Increase Natural Resource, Environmental, and State Performance Standards Information and Education;
- Implement the State Agricultural and Nonagricultural Performance Standards to reduce nonpoint pollution;
- Invasive and Nonnative Species Management and Control;
- Protect and Preserve Land and Water Resources; and
- Increase Cooperation with Local, State and Federal Partners.

The goals, objectives, and recommended actions contained in this plan were developed to focus on those issues and concerns identified by the CAC and public survey and also to address the minimum State performance standards and prohibitions.

(This page intentionally left blank)

Chapter II

RESOURCE ASSESSMENT

INTRODUCTION

The conservation and wise use of agricultural and natural resources and the preservation of cultural resources are important factors influencing the growth and development potential of the County. Aside from the County's physical location, the natural resource base is one of the assets that make the County a desirable community in which to reside and work. The natural resources of Racine County not only provide recreational and aesthetic value, but also provide economic value. Protecting this resource base is also important to maintain biological diversity, which is vulnerable to the misuse that is associated with inappropriate development. Accordingly, future development should be guided to be consistent with the ability of the natural resource base to support various forms of urban and rural development without deterioration of the existing natural resources in the County.

The natural resources in Racine County are susceptible to permanent damage resulting from inappropriate land use, transportation, and public facility development. Additionally, traditional occupations such as farming, silvaculture, horticulture, and the expanding horse industry, place significant burdens on the natural resource base. Sufficient understanding of the characteristics and elements of the natural resources must exist in order to prevent the environmental degradation and monetary costs associated with overuse and alteration of the existing natural resource base. A sound land and water resource planning program must recognize that natural resources in the County are limited. Racine County and the local governments within the County must work together to develop a sound planning process that acknowledges the potential threats to the resource base, and provides goals and objectives to preserve, protect and enhance that resource base, and also, educates the public on the value of natural resources and the benefits of good land stewardship.

This chapter provides inventory information on existing agricultural, natural, and cultural resources in Racine County. The resource assessments that are discussed include soil types, existing farmland, farming operations, topography and geology, nonmetallic mining resources, water resources, forest resources, natural areas and critical species habitats, environmental corridors, park and open space sites, cultural (historical and archeological) resources, and demographics and land use.

The base year for inventory data presented in this chapter ranges from 1994 to 2006. 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 and by Racine County, local units of government, and State and Federal agencies including the Wisconsin Department of Natural Resources (WDNR); Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP); State Historical Society of Wisconsin, and the U.S. Department of Agriculture (USDA).

SOILS AND AGRICULTURAL RESOURCES

Soil Survey

The USDA Soil Conservation Service, now the Natural Resources Conservation Service (NRCS), issued a soil survey for Racine County in 1970.[1] Soils were identified and mapped and organized by soil association, soil series, and soil type. The soil survey results, including the attributes of each soil type, are now available on the NRCS website as part of the Soil Survey Geographic (SSURGO) database. Unless otherwise noted, the soil information in this chapter was obtained from the SSURGO database.

Soil properties exert a strong influence on the manner in which the land is used, especially where land use is continually changing and evolving, as it is in Racine County. Soils directly affect the types of land use that can take place, whether those uses are agricultural, recreational, commercial, or residential. Any comprehensive land and water resource management plan needs to evaluate how soils are currently being used, and also, how soils should best be used and managed over time. The soil survey can play an important role in land use decisions. The information contained in the soil survey can help identify which areas of the County are suitable for agricultural use and areas with limitations for development due to wet soils or bedrock near the surface.

Soil Associations

A soil association is a landscape that has a distinctive pattern of soils. There are nine soil associations in Racine County and Map 1 shows their spatial distribution across the County. Soils are typically grouped into an association by drainage patterns, as well as surface horizon thickness. The general soil associations can be used for comparing suitability of relatively large areas for various land uses. However, for specific applications, the aforementioned detailed soil survey information should not be solely relied upon, an onsite field survey may be necessary for confirmation purposes. Soils, as a whole, are very diverse and polymorphic, making it necessary to field verify what is actually on the landscape.

Topographical features, particularly slopes, have a direct bearing on the potential for soil erosion and the sedimentation of surface waters. Slope steepness affects the velocity and, accordingly, the erosive potential of runoff. The amount of slope or relief on the land is one of the most important factors governing soil development processes and determines many of the physical and chemical properties of a specific soil. Additionally, slope is also one of the principal factors involved in soil erosion. As slopes increase, so also does the erosion rate. Much of Racine County is fairly flat with gently rolling slopes, with the areas of more significant relief being in the western half of the County (Map 2). Highly erodible lands (HEL) are those areas in the County that have slopes greater than 6 percent. Although areas that have slopes less than 6 percent are still prone to erosion without proper management, the areas that are greater than 6 percent slope are of most concern. The NRCS considers a farm field to be HEL if one-third or more of that field contains slopes of 6 percent or greater.[2] The soils in these areas are difficult to manage, not only for agriculture, but also for urban development. Land surface slopes, based on soils classification interpretations, within Racine County range from less than 1 percent to over 20 percent. The majority of land area in Racine County, approximately 85 percent, has slopes that are between 0 and 6 percent based upon soil interpretations. The remaining classes of 6 to 12, 12 to 20, and greater than 20 percent occupy approximately 8 percent, 2 percent, and 2 percent, of the County land area respectively. Additionally, about 1 percent of the land areas is described as disturbed land, such as landfills and gravel pits, and is not assigned a slope classification.

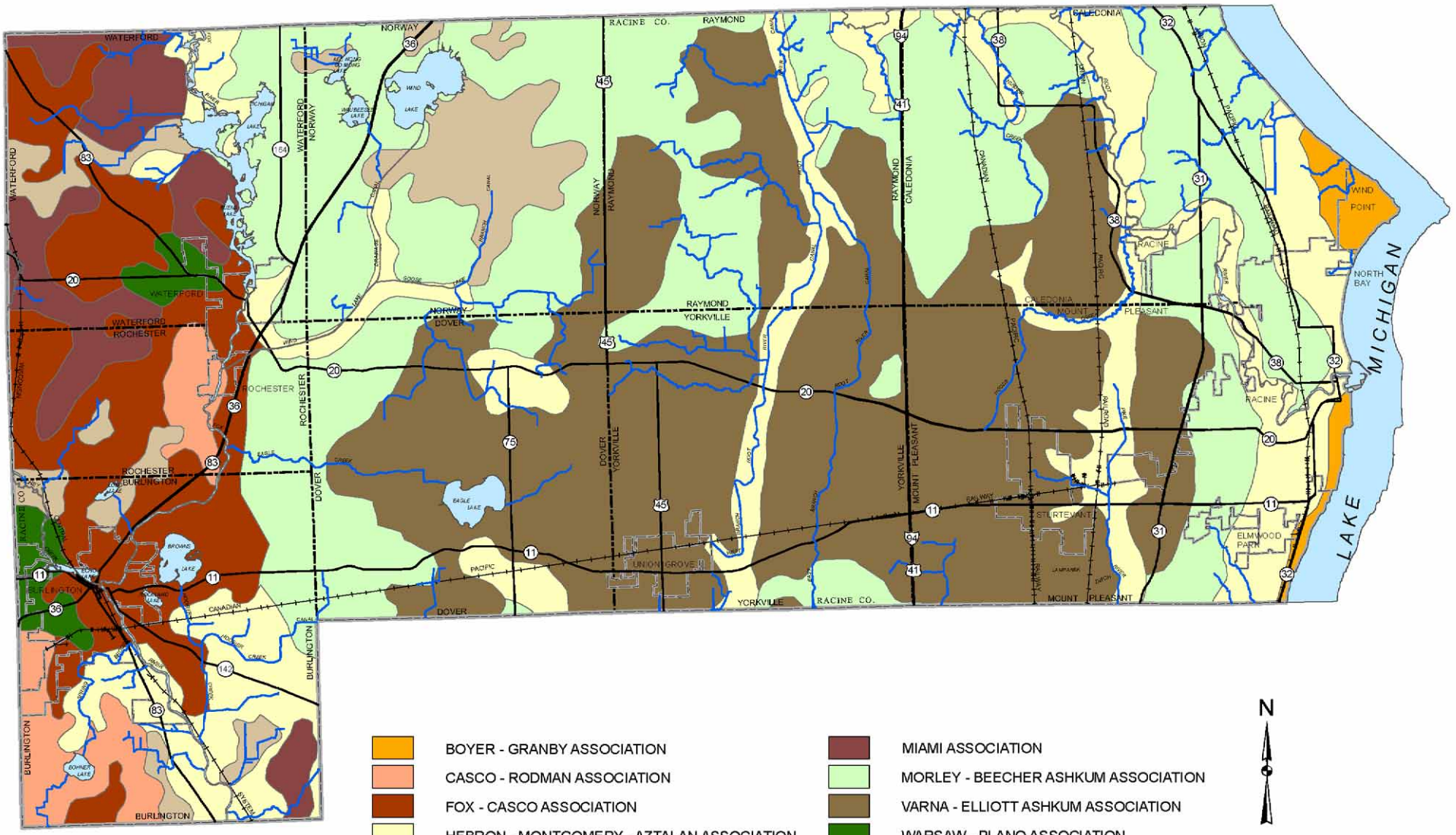
---

[1] *Documented in the USDA Soil Conservation Service,* Soil Survey of Kenosha and Racine Counties, Wisconsin*, 1971.*

[2] *U.S. Department of Agriculture, Soil Conservation Service, Report No. 180-V-NFSAM,* National Food Security Act Manual*, Third Edition, March 1994.*

Map 1

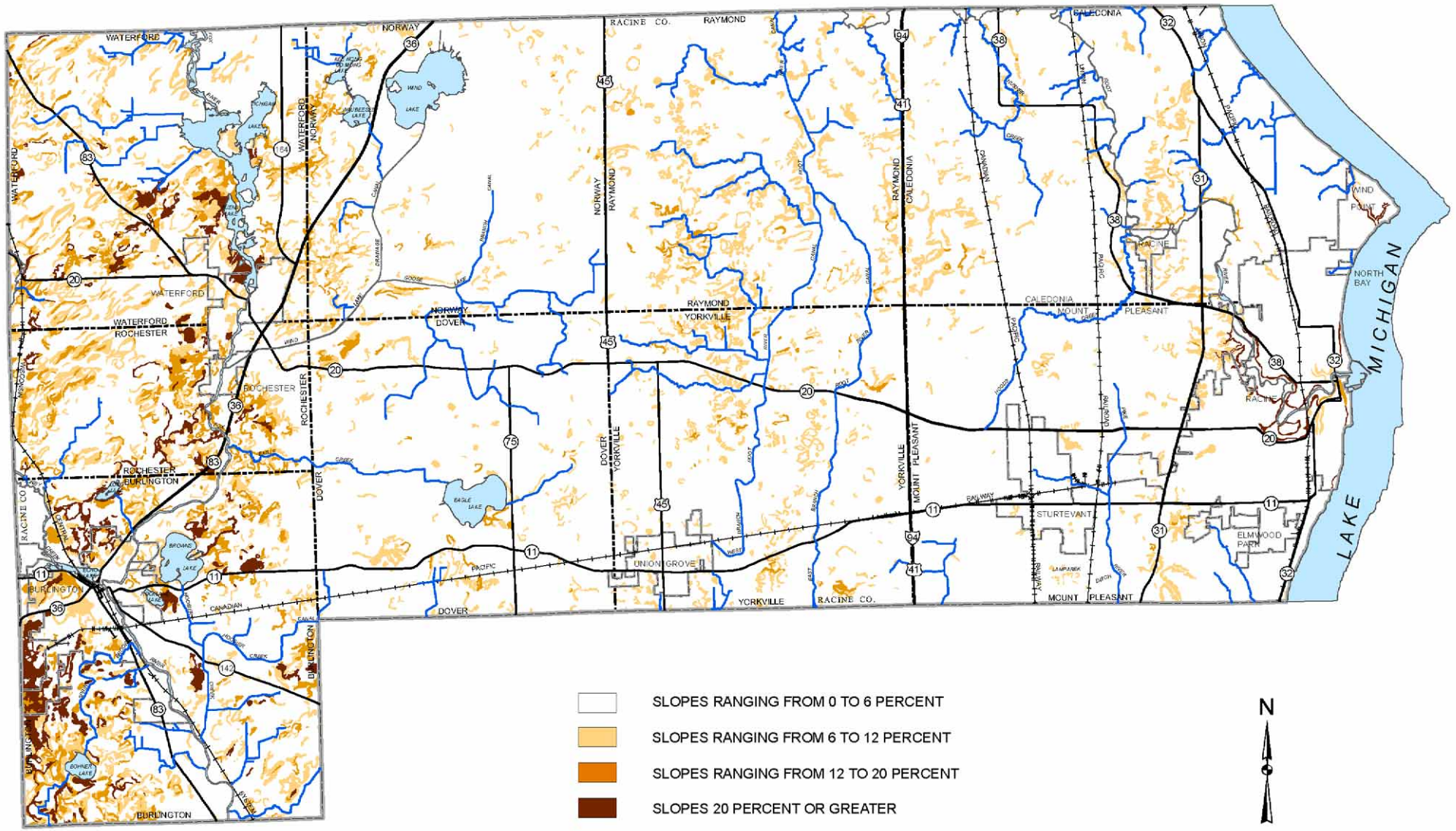
GENERAL SOIL ASSOCIATIONS IN RACINE COUNTY



Source: U.S. Department of Agriculture, Natural Resources Conservation Service and SEWRPC.

Map 2

SLOPE ANALYSIS FOR RACINE COUNTY



Source: U.S. Department of Agriculture, Natural Resources Conservation Service and SEWRPC.

Soil Limitations for Development

A variety of soil characteristics can impact the suitability of land for development. Severe structural soils, as identified by the NRCS, impose significant limitations on development of dwellings with or without basements and structures requiring septic tank absorption fields. Severe structural soils possess properties or site features that are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. A high water table, flooding, shrinking and swelling, and organic layers can cause the movement of footings and affect dwellings with or without basements. Likewise, a high water table, depth to bedrock, large stones, slope, and flooding affect the ease of excavation and construction and also influence the performance of septic tank absorption fields.

Soils that are saturated with water or that have a water table at or near the surface are known as hydric soils, and pose significant limitations for most types of development. High water tables often cause wet basements and poorly-functioning absorption fields for private onsite waste treatment systems. The excess wetness may also restrict the growth of landscaping plants and trees. Wet soils also restrict or prevent the use of land for crops, unless the land is artificially drained. Although such areas are generally unsuitable for development, they may serve as important locations for restoration of wetlands and wildlife habitat.

Soil Suitability for Agricultural Production

The U.S. Natural Resources and Conservation Service (NRCS) has classified soils into capability groupings that indicate their general suitability for most kinds of farming. The groupings are based upon composition and limitations of the soils, the risk of damage when they are used, and the way they respond to treatment. Under the NRCS system, there are eight capability classes ranging from Class I, which have few limitations, to Class VIII, which have severe limitations due to soils and land forms so rough, shallow, or otherwise limited that they do not produce economically worthwhile yields of crops, forage, or wood products.[3] In general, Class I soils have the widest range of uses, the least risk of damage, and are most suitable for cropland; Class II soils have some limitations that reduce the choice of plants that can be grown, or require moderate conservation practices to reduce the risk of damage when used; Class III and IV soils have severe limitations that reduce the choice of plants, require special conservation practices, or both. The soils in the remaining classes have progressively greater natural limitations not suitable for cropland, but used for pasture, grazing, woodland, wildlife, recreation, and esthetic purposes. Generally, lands with Class I and II soils are considered "National Prime Farmlands" and lands with Class III soils are considered "Farmlands of Statewide Significance."

The location and amount of Class I, II, and III soils were critical in identifying farmland preservation areas under the Racine County Farmland Preservation Plan, adopted by the County in 1982.[4] Under that plan, prime farmlands were identified as consisting of individual farm units meeting the following criteria: 1) at least 35 acres in size; 2) at least 50 percent of soils classified as Class I, II, or III; and 3) occurs within a farming area of at least 100 acres.

The location of the Racine County Class I, II, and III soils are shown on Map 3. As shown on that map, the majority of the County is covered by soils which are well suited for agricultural use (mainly Class II soils).

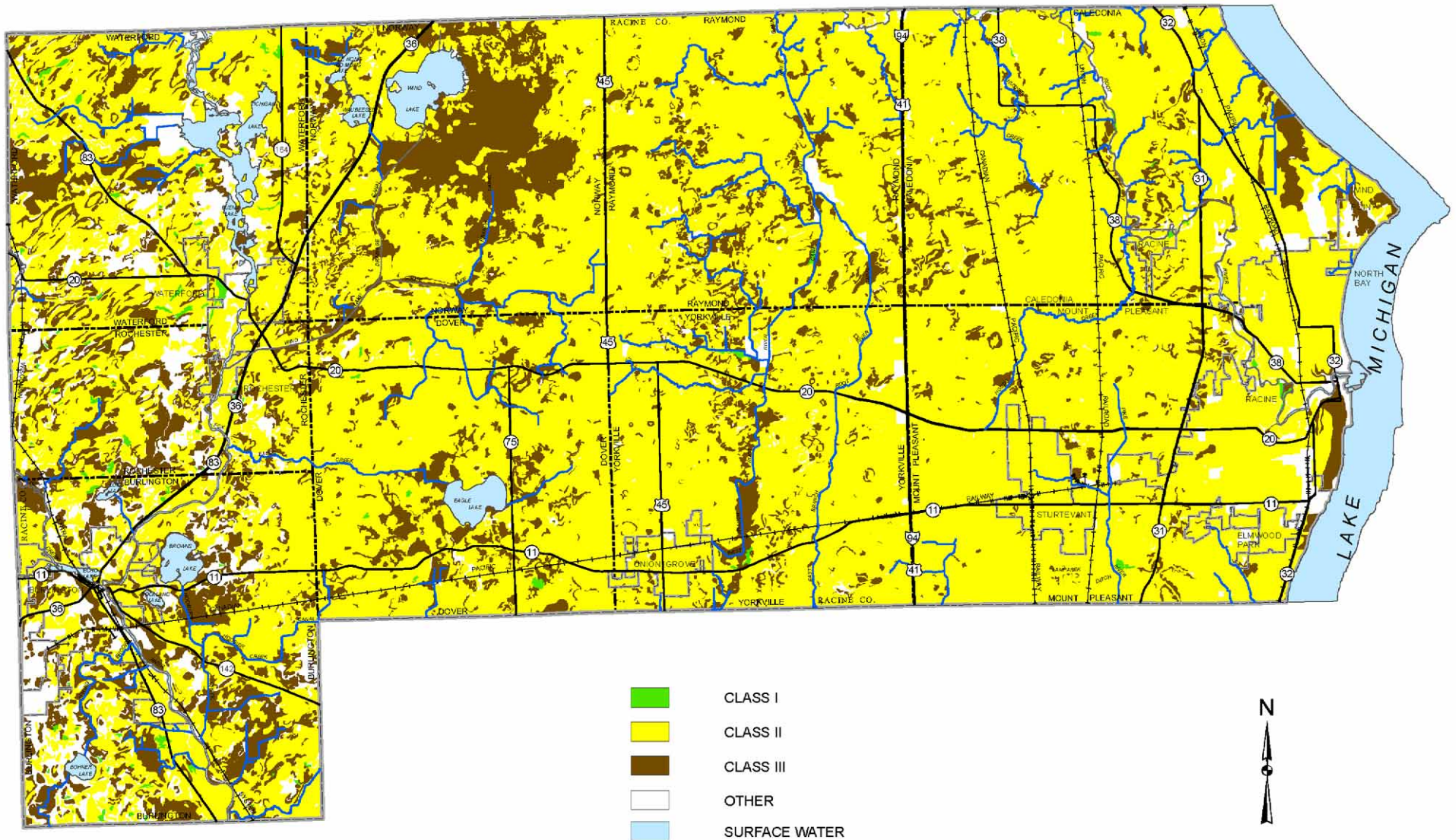
---

[3]*It should be noted that the NRCS has also developed a land evaluation system for farming that considers soil-based factors, including a soil productivity factor, the capability class, and others. The land evaluation rating may be combined with site assessment factors that are not related to soil characteristics, through a land evaluation and site assessment system ("LESA" system) that integrates soil-based and nonsoil-based factors for evaluating farmland. Site assessment factors may include the level of on-farm investment, compatibility with adjacent uses, and proximity to urban development, distance to public utilities, and others. It is envisioned that, given the long history of reliance upon the capability class system in planning and zoning in Racine County and the widespread familiarity with that system, the capability class system would be used for purposes of rating farmland under the Land and Water Resource Management Plan.*

[4]*Documented in SEWRPC Community Assistance Planning Report No. 45* A Farmland Preservation Plan for Racine County, Wisconsin*, June 1981.*

Map 3

AGRICULTURAL SOIL CAPABILITY IN RACINE COUNTY



Source: U.S. Department of Agriculture, Natural Resources Conservation Service and SEWRPC.

Existing Farmland
The Regional Planning Commission's land use inventory indicates that agricultural land encompassed about 125,100 acres (195.5 square miles), or 57 percent of the Racine County planning area, in 2000. This figure includes cultivated land, pasture land, land used for horticulture and nurseries, and land occupied by farm buildings; it excludes wetland and woodland areas on existing farm units. Existing (2000) agricultural lands in the Racine County are shown on Map 4. The area devoted to agricultural land is indicated for cities, villages, and towns in the Racine County planning area in Table 2.

From 1999 to 2006, the Racine County LCD has conducted an annual Transect Cropland Erosion Survey program, which is a method to determine the average rate of cropland erosion throughout the County. In 1999, 91 percent of all cropland within the County was eroding at or below tolerable soil loss rates. In 2005, 90 percent of all cropland was eroding at or below tolerable soil loss rates. This continuing trend suggests that local, State and Federal conservation program efforts have been successful in helping farmers manage soil erosion.

Farms and Farm Production
Farms and farm production are valuable indicators in determining the economic impact of agricultural operations in Racine County. As part of the Federal Census of Agriculture, farms are defined as operations from which $1,000 or more of agricultural products were sold, or normally would be sold, during the year. Further, a farm includes land owned and operated by the farmer as well as lands rented from others. As reported in the most recent Census of Agriculture, there were a total of 631 farms in Racine County in 2002. As indicated in Table 3, of the total of 631 farms in Racine County, 336 encompassed less than 50 acres; 162 encompassed 50 to 179 acres; 77 encompassed 180 to 499 acres; and 56 encompassed more than 500 acres. Racine County has nearly double the amount (53 percent) of farms that are less than 50 acres in size compared to the State of Wisconsin (28 percent).

The Census of Agriculture reported that the total value of agricultural products sold in Racine stood at $73.2 million in 2002. This represents the total market value before taxes and production expenses of all agricultural products sold from farms. It is reported that of the 631 farms in the County, 356 farms reported agricultural sales of less than $10,000; 83 reported $10,000 to $24,999; 51 reported $25,000 to $49,999; 42 reported $50,000 to $99,999; and 99 reported $100,000 or more.

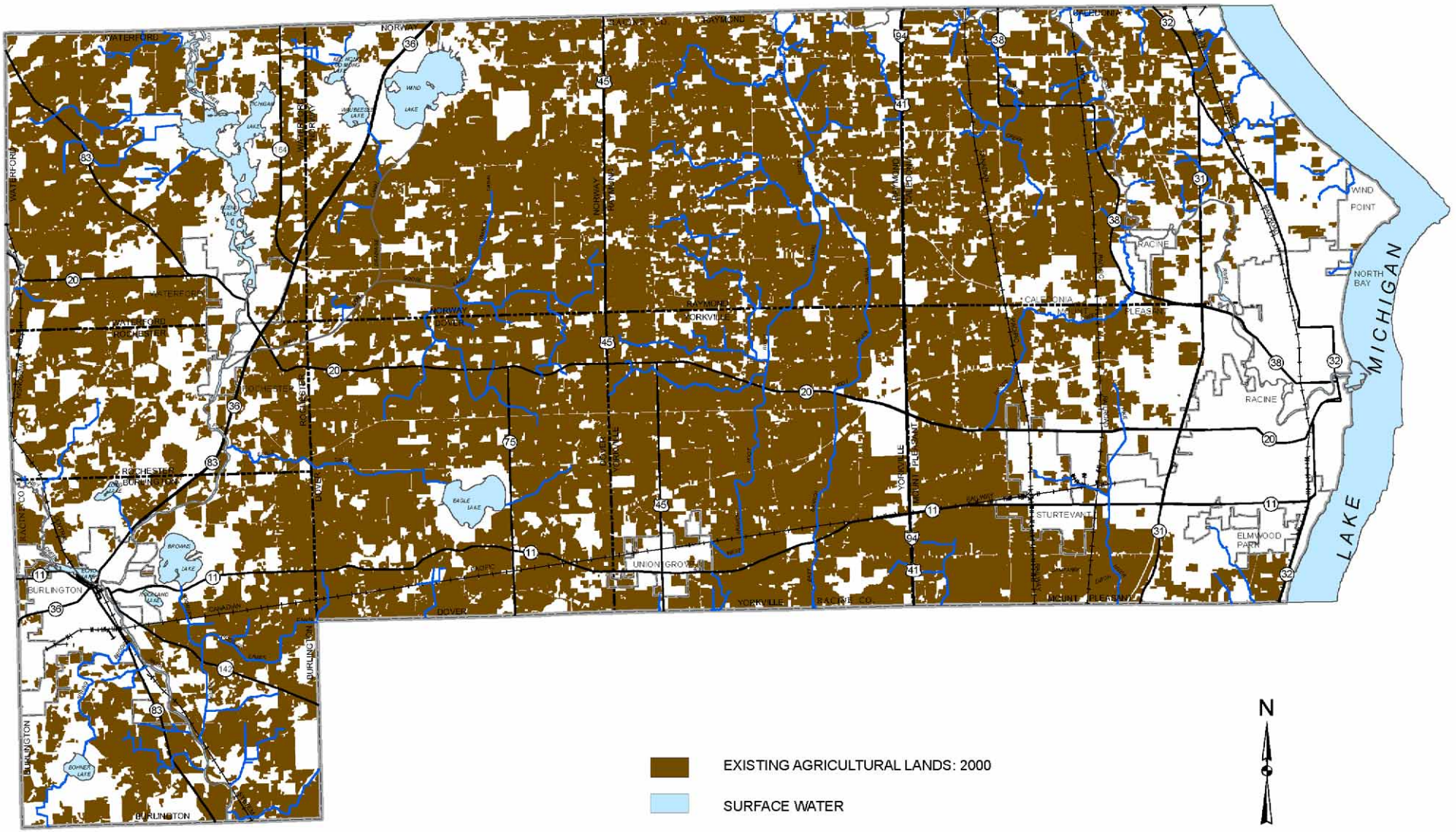
As indicated in Table 4, of the total agricultural sales of $73.2 million for Racine County in 2002, the top commodity sales were crop-related ($16.7 million), or 23 percent; followed by vegetables ($11 million), or 15 percent; nursery and greenhouse ($8.7 million), or 12 percent; hogs and pigs ($0.4 million), or 0.5 percent; and horses and ponies ($0.1 million), or 0.1 percent. It is apparent from the foregoing statistical trends that Racine County agriculture is diverse and traditional crops such as corn, vegetables, and nurseries and greenhouses are important for the County's farm economy.

Long-term trends in acres harvested for selected crops are presented for Racine County in Table 5. The acreage of corn harvested for grain has fluctuated over the past three decades, and stood at 38,500 acres in 2005. The acreage of corn harvested for silage has slowly decreased from 8,000 acres in 1985 to 3,300 acres in 2005. The acreage of soybeans harvested increased from 22,300 in 1975 to 42,300 by 2000, and then dropped to 34,000 in 2005. The acreage in wheat has fluctuated over the past three decades, and stood at 7,500 in 2005. The acreage in hay (dry) dramatically decreased from 15,000 acres in 1975 to 6,000 in 2005. Similarly, the acreage in oats has significantly declined from 6,800 acres in 1975 to 500 in 2005.

Long-term trends in the number of different agricultural products grown in Racine County by the total number of farms involved in producing each product are presented in Table 6. As indicated in that table, while the total number has decreased over the 1987-2002 time period, the total number of farms increased from 554 in 1997 to 631 in 2002. Generally, all categories show a steady reduction in farms producing a variety of agricultural products from 1987 to 2002, with the exception of hay-alfalfa farms, which increased between 1997 and 2002, from 234 to 260.

Map 4

EXISTING AGRICULTURAL LANDS IN RACINE COUNTY: 2000



Source: SEWRPC.

Table 2

AGRICULTURAL LAND IN RACINE COUNTY BY CIVIL DIVISION: 2000

Civil Division	Agricultural Land (Acres)	Percent of Civil Division Area
Cities		
Burlington	732	16.0
Racine	25	0.2
Villages		
Caledonia	15,726	53.9
Elmwood Park	0	0.0
Mt. Pleasant	12,043	55.5
North Bay	0	0.0
Rochester	49	14.3
Sturtevant	1,131	42.0
Union Grove	371	28.9
Waterford	352	21.8
Wind Point	11	1.3
Towns		
Burlington	11,381	51.0
Dover	17,501	75.6
Norway	14,267	62.5
Raymond	16,875	73.8
Rochester	5,707	52.0
Waterford	12,127	56.3
Yorkville	16,887	77.1
Total	125,185	57.4

Source: SEWRPC.

Table 3

FARM SIZE IN RACINE COUNTY, THE SOUTHEASTERN WISCONSIN REGION, AND THE STATE OF WISCONSIN: 2002

	Racine County		Southeastern Wisconsin Region		Wisconsin	
Size (acres)	Number	Percent	Number	Percent	Number	Percent
Less than 10 Acres	77	12.2	515	12.0	4,141	5.4
10 to 49 Acres	259	41.1	1,520	35.3	17,152	22.2
50 to 179 Acres	162	25.7	1,278	29.7	29,458	38.2
180 to 499 Acres	77	12.2	664	15.4	20,021	25.9
500 to 999 Acres	28	4.4	183	4.3	4,465	5.8
1,000 Acres or More	28	4.4	142	3.3	1,894	2.5
Total	631	100.0	4,302	100.0	77,131	100.0

Source: USDA National Agricultural Statistics Service (2002 Census of Agriculture) and SEWRPC.

Table 4

AGRICULTURAL SECTORS IN RACINE COUNTY AND THE STATE OF WISCONSIN BY PRODUCT SALES: 2002

Sector	Racine County		State	
	Sales (in thousands $)	Percent of Total Agricultural Revenues	Sales (in thousands $)	Percent of Total Agricultural Revenues
Dairy	--[a]	N/A	2,651,018	47.2
Cattle and Calves	--[a]	N/A	834,895	14.8
Grains (crops)	16,739	23.0	893,272	15.9
Vegetables	10,951	15.0	341,615	6.1
Horticulture	8,672	12.0	197,439	3.5
Other	540[b]	0.1	705,036	12.5
Total	73,164[c]	100.0	5,623,275	100.0

[a]*Data was withheld to avoid disclosing data for individual farms.*

[b]*Data on fruits, trees, nuts, berries and cut Christmas trees or a rotation woody crop was withheld to avoid disclosing data for individual farms.*

[c]*Undisclosed data included in total.*

Source: U.S. Census Bureau and USDA National Agricultural Statistics Service.

Table 5

TRENDS IN SELECTED CROP HARVESTS IN RACINE COUNTY: 1975-2005

Year	Acres Harvested					
	Corn for Grain	Corn for Silage	Soybeans	Wheat	Hay (dry)	Oats
1975	30,400	7,800	22,300	9,100	15,000	6,800
1980	41,700	5,500	35,800	9,000	12,700	3,000
1985	41,000	8,000	26,000	8,700	13,000	2,200
1990	40,000	5,000	29,800	9,800	10,300	2,200
1995	42,600	3,600	40,800	6,500	8,400	1,300
2000	37,100	3,400	42,300	7,100	7,500	800
2005	38,500	3,300	34,000	7,500	6,600	500

Source: USDA National Agricultural Statistics Service (2002 Census of Agriculture) and SEWRPC.

Table 6

TRENDS IN SELECTED AGRICULTURAL PRODUCTS BY FARM IN RACINE COUNTY: 1987-2002

Agricultural Product[a]	1987	1992	1997	2002
Number of Farms Producing:				
Corn for Grain	358	291	225	213
Corn for Silage	119	117	78	62
Soybeans	250	256	213	199
Hay-Alfalfa (forage)	343	297	234	260
Oats	152	111	62	59
Wheat	N/A	N/A	N/A	111
Total Number of Farms	710	607	554	631

[a]*The total number of selected agricultural products by farm per year is greater than total farms because many farms produce more than one agricultural product.*

Source: USDA National Agricultural Statistics Service and SEWRPC.

NATURAL RESOURCES

Topography and Geology

Glaciation has largely determined the topography and geology, as well as the soils of Racine County. Of the four major stages of glaciation, the last and most influential in terms of present physiography and topography was the Wisconsin Stage, which is believed to have ended in this area about 11,000 years ago. Racine County varies from gently rolling glacial plains, or ground moraines, in the eastern half to steeper hills in the western half. Ground moraines are typically comprised of dense basal till, which frequently contains a combination of silt and clay. The eastern edge of Racine County also contains the lake terrace, which runs parallel to and contiguous with the shoreline of Lake Michigan. In the western area of Racine County, the western side of the Fox River is comprised of sand and gravel outwash deposits. Glacial outwash deposits are common along the major rivers and streams of Racine County. Outwash is alluvial in origin and was deposited by glacial meltwaters. A few places in the County also contain lacustrine deposits, which include the sediments of glacial lakebeds. Land surface elevations in the Racine County planning area are depicted on Map 5. Elevations range from 580 feet above sea level at the Lake Michigan shoreline to approximately 950 feet in the far western portion of the County.

The bedrock formations that underlie the unconsolidated surficial deposits in Racine County primarily consist of Silurian Age dolomite. Eastern Racine County has prominent areas in which the Racine formation, one of five Silurian formations, of dolomite reef strata are exposed either through natural outcroppings along the Root River and Lake Michigan or in old quarries. This reef stratum has a rich diversity of fossil marine organisms. Southwestern Racine County provides good examples of glacial topography extending from Walworth County. Specifically, kettle and kame glacial formations can be found in this area. The advances of glacial ice sheets resulted in a wide range of glacial deposits over the bedrock. As indicated on Map 6, the most substantial glacial deposits, represented as depth to bedrock, are 100 to 300 feet thick, and located in the central portion of the County. Areas where bedrock ranges from zero to less than 100 feet are generally found in the eastern and western portions of the County.

Lake Michigan Bluff and Ravine Areas

Shoreline erosion 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 shoreline areas. In 2005, S.D. Mackey & Associates-Habitat Solutions in cooperation with SEWRPC and the WDNR, and with funding from the Wisconsin Costal Management program completed a GIS-based coastal structure inventory to guide permitting and regulate future shoreline protection projects along the entire length of Lake Michigan in Racine County. The findings for shoreline protection and nonprotection areas are depicted in Map 7. Of the approximately 14.8 miles of Lake Michigan shoreline along Racine County, about 73 percent is designated as protected. That protection is provided by approximately 220 shoreland protection structures consisting of groins, revetments, and seawalls or bulkheads.

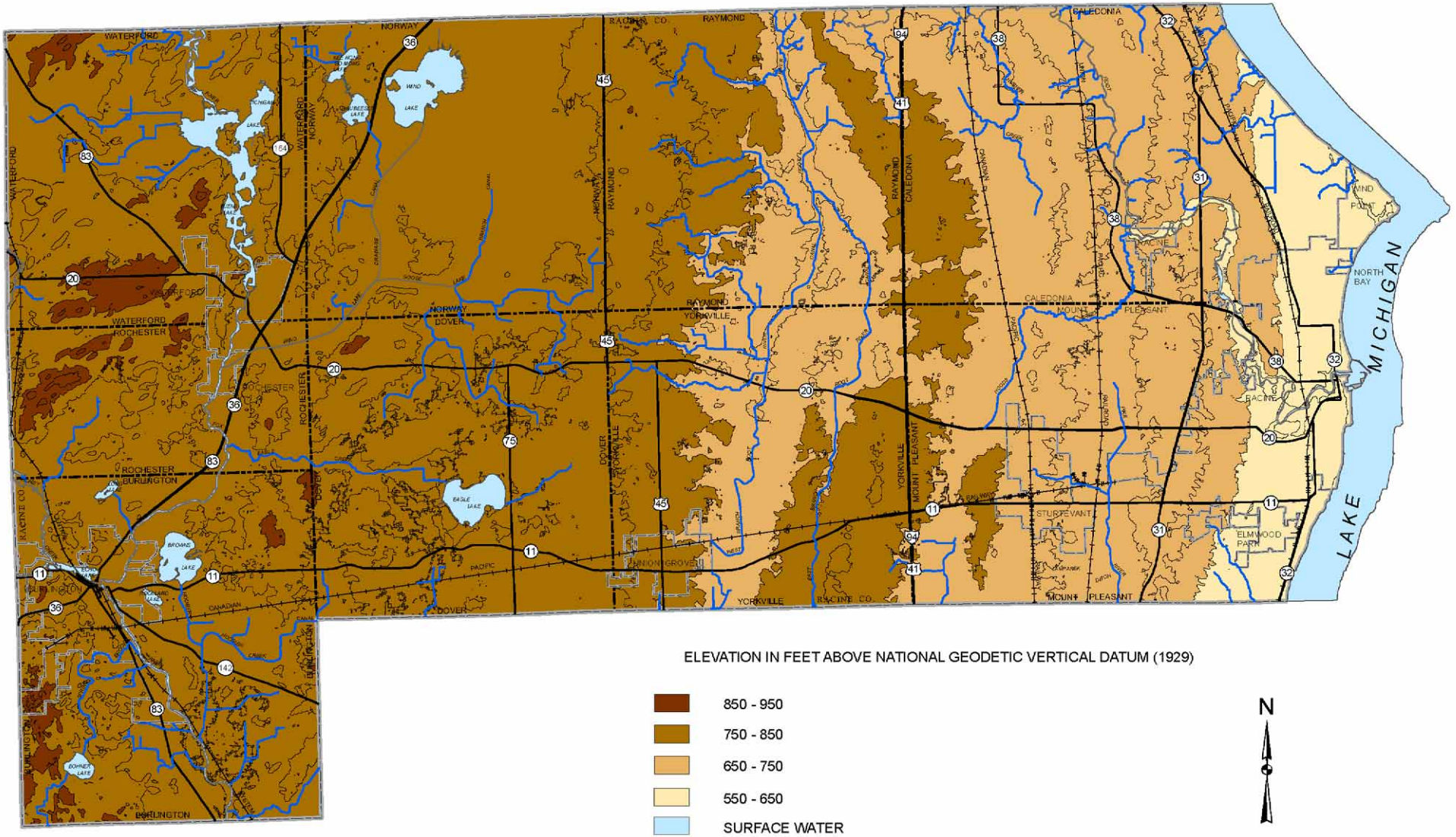
Nonmetallic Mineral Resources[5]

Nonmetallic minerals include, but are not limited to, crushed stone (gravel), dimension stone, peat, clay, topsoil, asbestos, beryl, diamond, coal, feldspar, talc, and sand. Nonmetallic mines (quarries) in southeastern Wisconsin provide sand, gravel and crushed limestone or dolomite for road building; peat for gardening and horticulture; and dimension stone for use in buildings, landscaping, and monuments. Nonmetallic minerals are important economic resources that should be taken into careful consideration whenever land is being considered for development. If an adequate supply of stone and sand is desired for the future, wise management of nonmetallic mineral resources and access to them is important. Existing sand and gravel mining operations in Racine County are shown on Map 8 and listed in Table 7. The mines produce sand and gravel. Approximately 2,443 total acres in Racine County are located within nonmetallic mining sites.

[5]*There are no marketable metallic mining resources in Racine County.*

Map 5

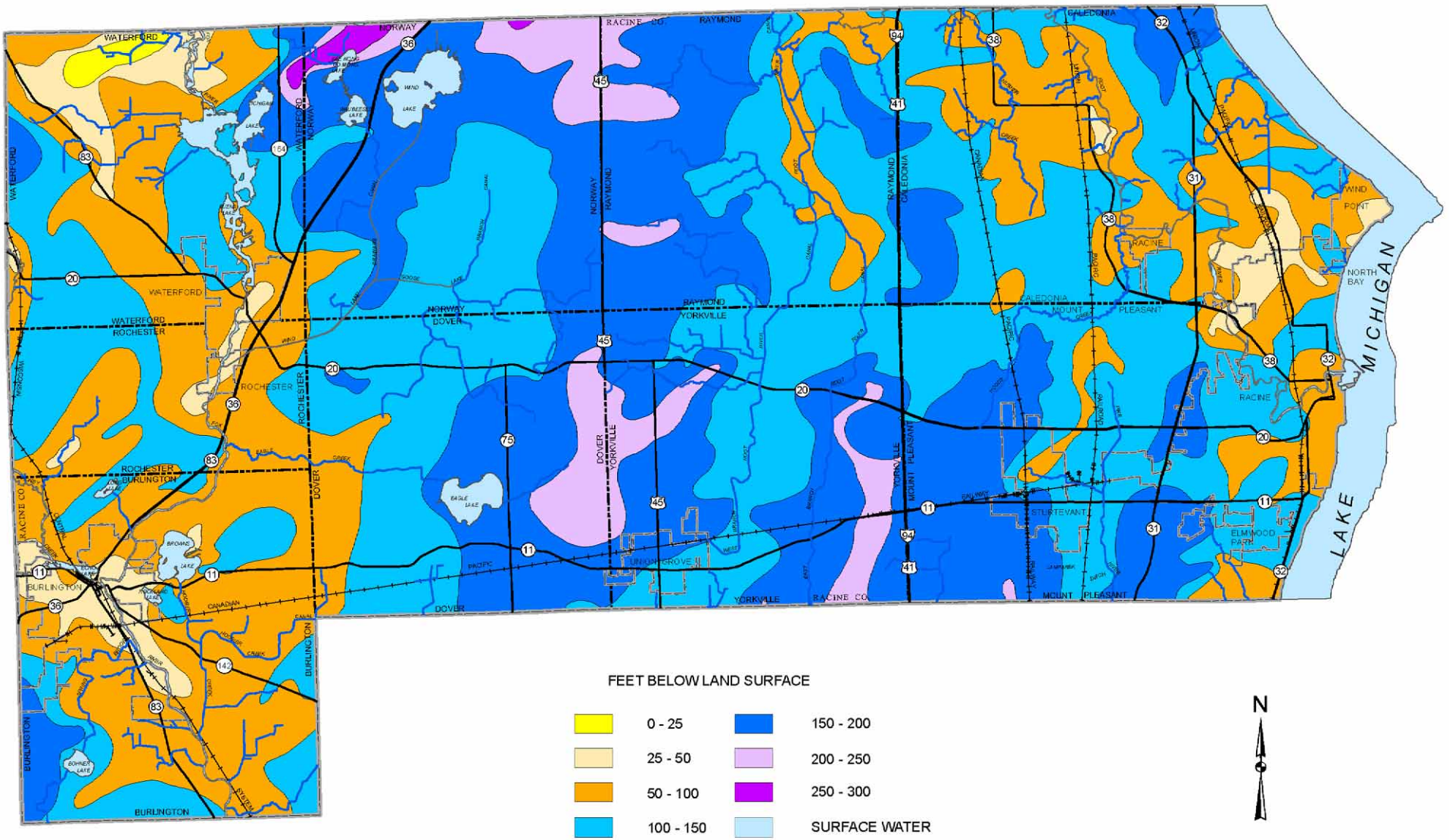
GENERALIZED TOPOGRAPHIC CHARACTERISTICS IN RACINE COUNTY



Source: U.S. Geological Survey and SEWRPC.

Map 6

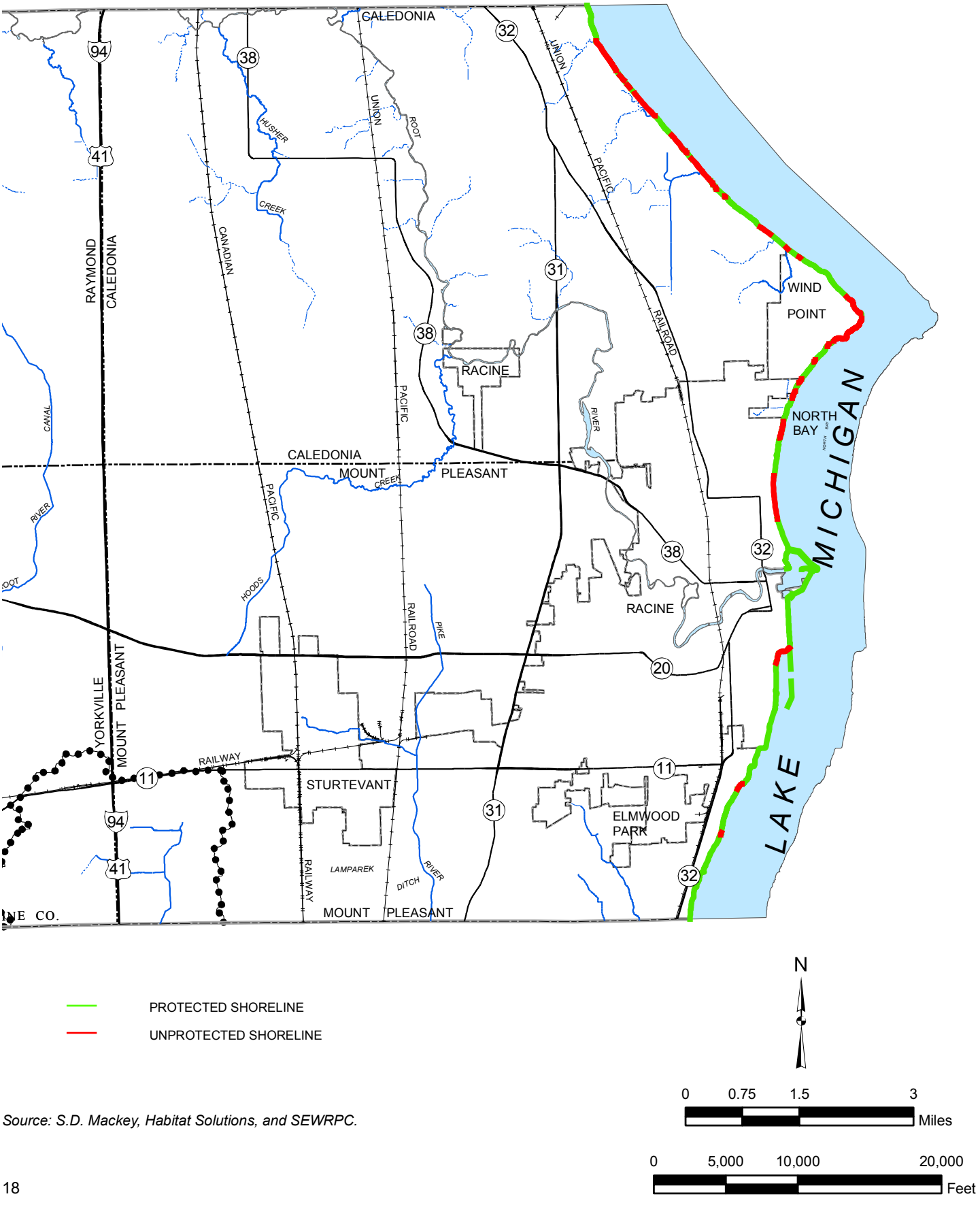
GENERALIZED DEPTH TO BEDROCK IN RACINE COUNTY



Source: University of Wisconsin-Extension, Wisconsin Geological and Natural Survey, and SEWRPC.

Map 7

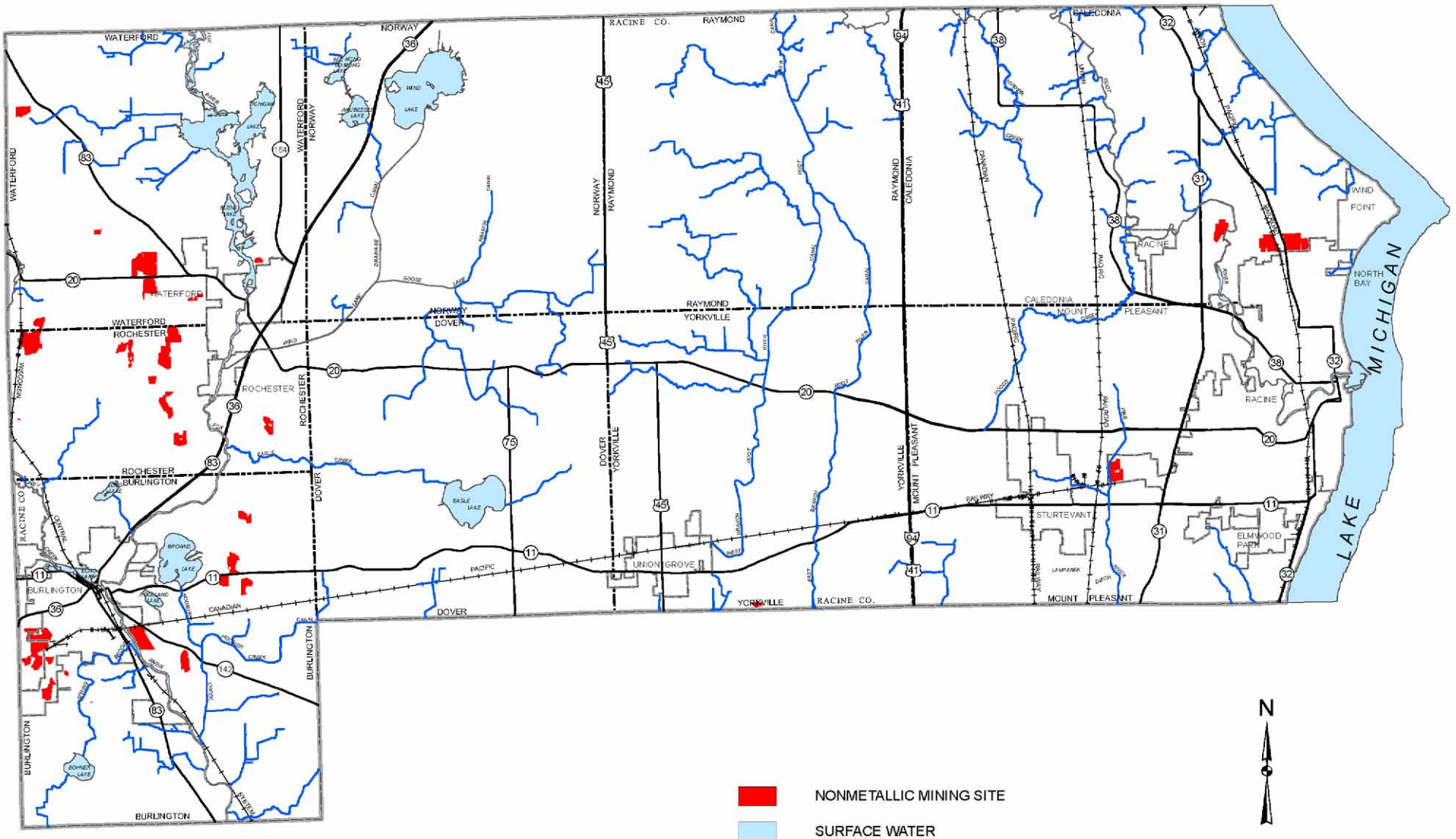
LAKE MICHIGAN SHORELINE/EROSION PROTECTION IN RACINE COUNTY: 2005



Source: S.D. Mackey, Habitat Solutions, and SEWRPC.

Map 8

NONMETALLIC MINING SITES IN RACINE COUNTY



Source: SEWRPC.

Table 7

NONMETALLIC MINING SITES IN RACINE COUNTY: 2006

Location	Operator/Owner	Active	Material Mined	Reclamation Plan	Total Area (acres)	Unreclaimed Area (acres)	Permanent Unreclaimed Area (acres)
Town of Waterford	Alby Materials, Inc. (North Site)	Yes	Sand and gravel	Yes	160	97.00	33.00
	Alby Materials, Inc. (South Site)	Yes	Sand and gravel	Yes	120	4.13	0.00
	LaFarge Corp.(Himebauch Farms Pitt)	No	Sand and gravel	Yes	40	9.00	0.00
	Payne & Dolan (Prager Pit)	Yes	Gravel	Yes	153	11.00	2.00
Towns of Waterford and Rochester	Payne & Dolan (Honey Creek Pit)	Yes	Sand and gravel	Yes	439	72.00	35.00
	Illinois Mining (Park View Sand & Gravel Site)	Yes	Sand and gravel	Yes	180	116.25	24.25
Town of Rochester	Racine County Public Works (Frost Pit)	Yes	Gravel	Yes	30	9.00	8.00
	Racine County Public Works (Krueger Pit)	No	N/A	No	19	9.20	0.00
	Payne & Dolan (Buss-Kramer Pit)	Yes	Sand and gravel	Yes	24	9.00	0.00
	Oakes & Jung, LLC	Yes	Gravel	Yes	64	20.00	5.00
Town of Burlington	B.R. Amon & Sons (Baumeister Pit)	Yes	Sand and gravel	Yes	145	10.00	0.00
	Trenton Ventures (Epping) - former SEKAO Site	Yes	Sand and gravel	Yes	151	26.00	8.00
	Wanasek Corporation	Yes	Sand and gravel	Yes	72	7.00	2.00
	J.W. Peters & Sons, Inc. (Warrenville Corp.)	Yes	Sand and gravel	Yes	126	4.50	1.50
	B.R. Amon & Sons	Yes	Sand and gravel	Yes	108	35.80	2.40
	J. W. Peters & Sons (Ketterhagen Site)	Yes	Sand and gravel	No	43	0.00	0.00
City of Burlington	J. W. Peters & Sons (Cerami/Nine-T Bar)	Yes	Sand and gravel	Yes	353	31.00	42.00
Town of Yorkville	OBCO, LLC (Terrence J. O'Brien)	No	Clay	Yes	Site not started	Site not started	Site not started
Village of Caledonia	Vulcan Construction Materials	Yes	Sand and gravel	Yes	216	112.40	0.00

Source: Racine County Economic Development and Land Use Planning Department and SEWRPC.

Areas Suitable for Sand and Gravel Extraction

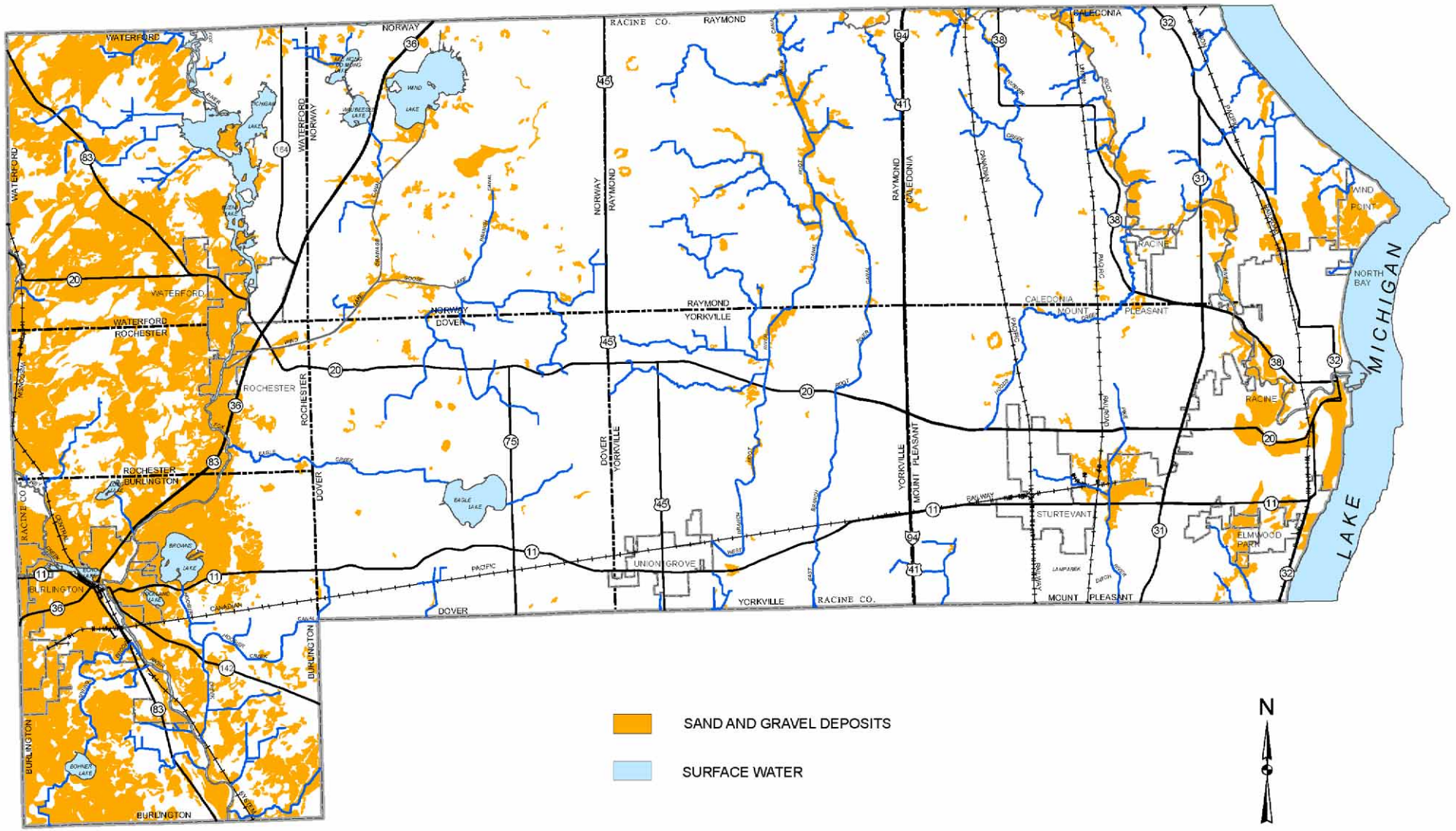
Map 9 shows the location of potential commercially workable sand deposits and the location of potential commercially workable gravel deposits in the County, as identified by the NRCS. The NRCS rates each soil mapping unit as probable or improbable sources of sand or gravel. Racine County has a moderately abundant supply of sand and gravel deposits. Potential sand and gravel deposit areas comprise about 130 square miles, or 38 percent of the total land area of the County. These areas are concentrated in the western portion of the County in the outwash areas, particularly west of the Fox River, where the washing action of glacial meltwaters has sorted the sand and gravel into somewhat homogeneous deposits, which are commercially more attractive. Therefore, the most abundant sources of the sand and gravel occur in the Towns of Waterford, Rochester, and Burlington. In addition, there are many other small deposits scattered throughout the remainder of the County. The occurrence of such deposits is extremely variable, and onsite investigations are necessary to determine the suitability of any given site for sand and gravel or rock extraction purposes.

Surface Water Resources

Surface water resources, consisting of streams and lakes and their associated wetlands, floodplains, and shorelands, form a particularly important element of the natural resource base. Surface water resources provide recreational opportunities, influence the physical development of the County, and enhance its aesthetic quality. Watersheds, subwatersheds, and the subcontinental divide within the County are shown on Map 10. Both surface water and groundwater are interrelated components of a single hydrologic system. The groundwater resources are hydraulically connected to the surface water resources inasmuch as the former provide the base flow of streams and contribute to inland lake levels.

Map 9

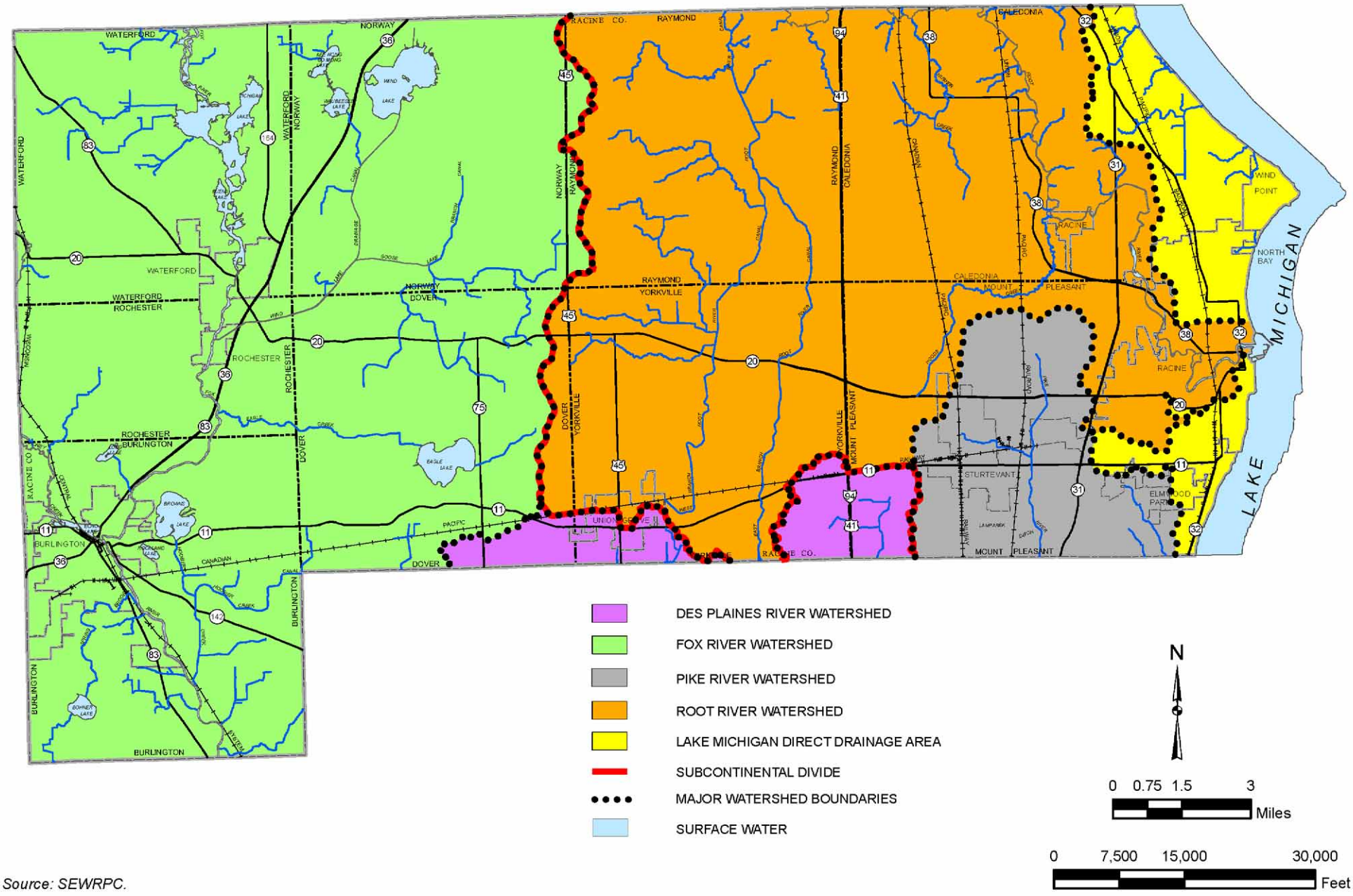
SAND AND GRAVEL DEPOSITS IN RACINE COUNTY



Source: SEWRPC.

Map 10

WATERSHED FEATURES IN RACINE COUNTY



Source: SEWRPC.

Watersheds

Racine County is traversed by a subcontinental divide that not only exerts a major physical influence on the overall drainage pattern of the County, but also carries with it legal constraints that, in effect, prohibit the diversion of any substantial quantities of Lake Michigan water across the divide.[6] On a macro level, the subcontinental divide separates the Great Lakes-St. Lawrence River drainage basin from the Mississippi River drainage basin.

As shown on Map 10, there are five major drainage systems within Racine County, and several minor drainage systems, based upon the direction of surface water flow. The Root River and Pike River and their tributaries are part of the Great Lakes-St. Lawrence River drainage system; together these watersheds encompass 145.5 square miles or and 42 percent of the County planning area. The Fox River drainage system covers the western portions of the County which drain to the southwest, and ultimately discharge into the Mississippi River system. In addition, a small portion of the south-central area of the County comprises the headwaters of the Des Plaines River watershed which drains to the Mississippi River system. Together these watersheds encompass 178 square miles or 52 percent of the County planning area. A fifth watershed encompasses those areas adjacent to Lake Michigan which drain directly into the Lake through intermittent streams. This watershed encompasses 20.1 square miles or 6 percent of the County. The Regional Planning Commission has developed comprehensive plans for the Fox River watershed,[7] Pike River watershed,[8] and the Des Plaines River watershed.[9] Another source of information concerning the conservation of Racine County watersheds refer to SEWRPC Planning Report No. 259, *A Land and Water Resource Management Plan for Racine County: 2000-2004,* September 2000.

Lakes and Streams

Perennial rivers and streams are defined as those which maintain, at a minimum, a small continuous flow throughout the year except under unusual drought conditions. There are approximately 101 miles of such streams in Racine County, located within the Fox, Root, Pike, and Des Plaines River watersheds. The Fox River watershed includes the Fox River, White River, Eagle Creek, Honey Creek, Hoosier Creek, Wind Lake Drainage Canal, Goose Lake Drainage Canal, and Spring Brook. The Root River watershed includes the Root River, East and West Branch Root River Canal, Husher Creek, and Hoods Creek. The Pike River watershed includes the Pike River and Pike Creek. The Des Plaines River watershed includes the Des Plaines River and Kilbourn Road Ditch. Major streams are shown on Map 11 and stream characteristics are shown in Table 8. Stream characteristics in Table 8 include the following; stream length, total drainage area, water quality problems and other known impairments.

---

[6]*Areas east of the divide can utilize Lake Michigan as a source of water supply, with the spent water typically returned to the lake via the sanitary sewerage system. In Racine County, areas west of the divide utilize the groundwater reservoir as the supply source. A recent accord—the Great Lake Charter Annex—signed by the governors of the eight States bordering the Great Lakes and the premiers of the Canadian provinces of Ontario and Quebec would ban most diversions of Great Lakes water outside the drainage basin, but make limited exceptions for communities and counties that straddle the watershed boundary. The accord must be approved by each State Legislature and the U.S. Congress before taking effect. If approved, each state and province would develop regulations to carry out the accord.*

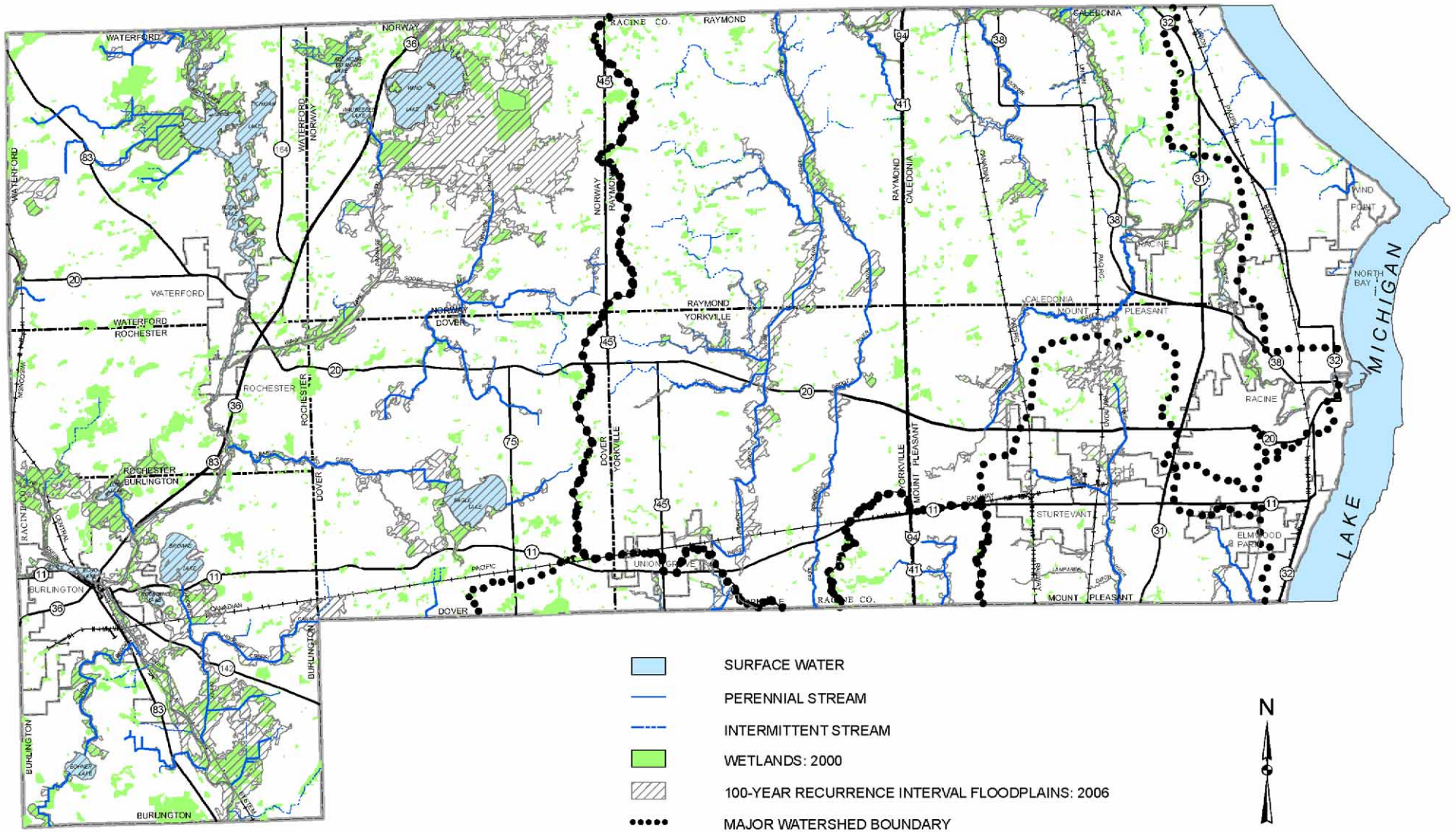
[7]*Documented in SEWRPC Planning Report No. 12*, A Comprehensive Plan for the Fox River Watershed, *April 1969, and amended September 1973.*

[8]*SEWRPC Planning Report No. 35,* A Comprehensive Plan for the Pike River Watershed*, June 1983.*

[9]*Documented in SEWRPC Planning Report No. 44*, A Comprehensive Plan for the Des Plaines River Watershed, *June 2003.*

Map 11

SURFACE WATERS, WETLANDS, AND FLOODPLAINS IN RACINE COUNTY



Source: SEWRPC.

Table 8

STREAM CHARACTERISTICS WITHIN RACINE COUNTY

Watershed and Stream	Stream Length (miles)	Mean Width (feet)	Total Drainage Area (square miles)	Biotic Index Rating[b]	Record Fish Kill	Water Quality Problems[a]					Other Known Impairments[c]
						D.O.	NH_3	Nutrients	Fecal Coliform	Toxics	
Des Plaines River Watershed											Streambed sedimentation; channel modification
Des Plaines River	0.5	- -	1.32	- -	No	Yes	No	Yes	Yes	- -	Streambed sedimentation; channel modification
Unnamed Tributary No. 37[d] to Des Plaines River	0.8	- -	0.40	- -	- -	- -	- -	- -	- -	- -	Channel modification
Unnamed Tributary No. 38[d] to Des Plaines River	1.2	- -	0.39	- -	- -	- -	- -	- -	- -	- -	Channel modification
Unnamed Tributary No. 39[d] to Des Plaines River	0.7	- -	0.37	- -	- -	- -	- -	- -	- -	- -	Channel modification
Union Grove Industrial Tributary	0.9	- -	2.12	- -	- -	- -	- -	- -	- -	- -	Channel modification
Fonk's Tributary[d]	0.7	- -	1.12	- -	- -	- -	- -	- -	- -	- -	Channel modification
Kilbourn Road Ditch[d]	1.4	- -	6.20	- -	No	- -	No	Yes	Yes	- -	Channel modification
Unnamed Tributary No. 18 to Kilbourn Road Ditch	0.7	- -	2.08	- -	- -	- -	- -	- -	- -	- -	Channel modification
Unnamed Tributary No. 19 to Kilbourn Road Ditch	0.1	- -	0.98	- -	- -	- -	- -	- -	- -	- -	Channel modification
Brighton Creek[d]	0.0	- -	1.65	- -	- -	- -	- -	- -	- -	- -	- -
Fox River Watershed											
Fox River from Waukesha/ Racine County Line to Waterford Impoundment Dam	6.5	- -	357.00	- -	- -	- -	- -	- -	- -	- -	Streambed sedimentation
Fox River from Downstream of Waterford Impoundment Dam to Echo Lake Inflow	10.6	- -	767.00	- -	No	Yes	No	No	No	- -	Streambed sedimentation; channel modification
Fox River Downstream Echo Lake Outlet to Racine/ Kenosha County Line	6.1	- -	811.00	- -	No	No	No	No	No	- -	Streambed sedimentation
Bohner Creek	4.2	6	3.50	- -	- -	- -	- -	- -	- -	- -	- -
Browns Lake Outlet	1.5	6	4.50	- -	- -	- -	- -	- -	- -	- -	- -
Eagle Creek	5.5	- -	15.53	- -	No	No	No	No	Yes	- -	Streambed sedimentation
East Eagle Lake Ditch	1.0	3	1.50	- -	- -	- -	- -	- -	- -	- -	- -
East Wind Lake Canal	6.8	28	16.00	- -	- -	- -	- -	- -	- -	- -	- -
Goose Ditch	2.9	12	5.00	- -	- -	- -	- -	- -	- -	- -	- -
Honey Creek	1.5	- -	88.32	- -	No	Yes	No	Yes	Yes	- -	Streambed sedimentation; channel modification
Hoosier Creek	5.0	18	6.00	- -	No	- -	- -	- -	- -	- -	Streambed sedimentation; channel modification
Long Lake Channel	0.5	8	2.50	- -	- -	- -	- -	- -	- -	- -	- -
Muskego Canal	0.5	- -	31.60	- -	Yes	No	No	Yes	No	- -	Streambed sedimentation; channel modification

Table 8 (continued)

Watershed and Stream	Stream Length (miles)	Mean Width (feet)	Total Drainage Area (square miles)	Biotic Index Rating[b]	Record Fish Kill	Water Quality Problems[a]					Other Known Impairments[c]
						D.O.	NH_3	Nutrients	Fecal Coliform	Toxics	
Fox River Watershed (continued)											
Tichigan Creek	1.6	6	3.50	- -	- -	- -	- -	- -	- -	- -	- -
White River	1.0	- -	35.65	- -	No	No	No	No	Yes	- -	Streambed sedimentation; channel modification
Wind Lake Drainage Canal	12.8	- -	55.58	- -	No	No	No	No	No	- -	Streambed sedimentation; channel modification
Lake Michigan Direct Drainage Area											
Racine Harbor	0.0	- -	20.04	- -	- -	- -	- -	- -	- -	- -	- -[e]
Pike River Watershed											
Pike River	4.7	- -	12.00	Very poor-fair	Yes	Yes	No	No	Yes	- -	Streambed sedimentation; channel modification
Root River Watershed											
Downstream Milwaukee/ Racine County Line Road to Nicholson Road	5.7	- -	152.00	Fair-poor	No	Yes	No	Yes	Yes	- -	- -
Downstream Nicholson Road to STH 38	12.5	- -	190.00	Fair-poor	No	Yes	No	No	No	- -	- -[e]
Downstream STH 38 to Lake Michigan	6.0	- -	199.00	Fair-poor	No	No	Yes	Yes	Yes	- -	- -
Root River Canal	4.9	- -	12.18	Fair-poor	No	Yes	No	- -	Yes	- -	- -[e]
Root River Canal East Branch	11.6	- -	15.05	Very Poor	No	Yes	No	- -	Yes	- -	- -
Root River Canal West Branch	11.5	- -	38.82	Fair-poor	No	Yes	No	- -	Yes	- -	- -[e]
Hoods Creek	8.6	- -	15.80	Fair-poor	Yes	Yes	No	No	Yes	- -	- -
Raymond Creek	1.6	- -	3.19	- -	- -	- -	- -	- -	- -	- -	
Husher Creek	3.4	40	10.84	Fair	No	Yes	No	No	No	- -	- -

[a] *SEWRPC Memorandum Report No. 93*, A Regional Water Quality Management Plan for Southeastern Wisconsin: An Update and Status Report*, March 1995.*

[b] *Biotic Index ratings were determined by the Wisconsin Department of Natural Resources staff based upon either the Hilsenhoff Biotic Index (HBI) and/or the Index of Biotic Integrity (IBI).*

[c] *As defined in SEWRPC Memorandum Report No. 93, channel modification was only reported when 50 to 100 percent of the stream channel has been structurally altered, deepened, and/or straightened; moderate stream modification occurs when 25 to 50 percent of the channel has been modified; high channel modification occurs when 50 percent or more of the channel has been modified.*

[d] *Tributary streams of the Des Plaines River System within Racine County. Designations are as set forth within SEWRPC. Planning Report No. 44*, A Comprehensive Plan for the Des Plaines River Watershed*, June 2003.*

[e] *Wisconsin Department of Natural Resources Wisconsin 303(d) listed waters within Racine County (see Table 18).*

Source: Wisconsin Department of Natural Resources and SEWRPC.

There are a total of 18 named lakes in Racine County, 10 of which are major lakes that are over 50 acres in area, as shown on Map 11. All of the major lakes lie within the Fox River watershed. The major lakes include Bohner, Browns, Buena, Eagle, Echo, Kee Nong Go Mong, Long, Tichigan, Waubeesee, and Wind Lakes. Nine of the lakes are over 100 acres in areal extent, as set forth in Table 9. Lake characteristics in Table 9 include the following; surface area, volume and maximum depth, lake type, and trophic status. The named lakes cover approximately 3,900 acres, or about 2 percent of land area in the County, and range in area from the four-acre Delmonte Lake to the 1,132-acre Tichigan Lake. In addition to these major lakes, there are numerous smaller named and unnamed lakes and ponds in the County. As shown on Table 10, approximately 5,200 acres or just over 2.4 percent of the County was identified as surface water in the 2000 regional land use inventory. The WDNR has also developed state of the basin reports which can be found on their website at http://www.dnr.state.wi.us/org/gmu/gmu.html. These reports provide more information about the surface water resources and watersheds in Racine County.

The majority of the streams within Racine County are fully or partially meeting recommended water use objectives, the WDNR has however, identified nine waterbodies in Racine County as being impaired or threatened by impairment. The majority of lakes within Racine County are not likely to be fully meeting recommended water use objectives. A complete discussion of water use objectives and water quality standards are set forth in Chapter III of this report.

Wetlands

Wetlands are important resources for the ecological health and diversity of the County. Wetlands form the transition between surface and groundwater resources and land resources. Wetlands are areas that are inundated or saturated by surface water or groundwater at a frequency, and with duration sufficient to support, and that under normal circumstance do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally occur in depressions and near the bottom of slopes, particularly along lakeshores and stream banks, and on large land areas that are poorly drained. Wetlands may, however, under certain conditions, occur on slopes and even on hilltops. In effect, they provide essential breeding, nesting, sanctuary, and feeding grounds, as well as offer escape cover for many forms of fish and wildlife. In addition, wetlands perform an important set of natural functions which include: water quality protection; stabilization of lake levels and streamflows; reduction in stormwater runoff by providing areas for floodwater impoundment and storage; and protection of shorelines from erosion.

The location and extent of wetlands in the Racine County planning area are shown on Map 11. These wetlands are based upon the Wisconsin Wetlands Inventory completed in the Region in 1982, updated to the year 2000 as part of the regional land use inventory. The land area covered by wetlands within cities, villages, and towns in the County is presented in Table 10. In total, the County's wetlands encompassed about 15,900 acres (24.8 square miles), or 7.3 percent of the County area, in 2000. These wetlands are classified predominantly as potholes, fresh meadows, shallow marshes, deep marshes, shrub swamps, timber swamps, and bogs. The three largest wetland complexes, Tichigan Wildlife Area, Honey Creek Wildlife Area, and Karcher Marsh Wildlife Area, are designated as State of Wisconsin wildlife areas and managed by the WDNR.

It should be noted that wetlands are constantly changing in response to changes in drainage patterns and climatic conditions. While wetland inventory maps provide a sound basis for areawide planning, they should be viewed as providing a point of departure to be supplemented with detailed field investigations for regulatory purposes.

Shoreland and Floodplain

Shorelands are defined by the *Wisconsin Statutes* as lands within the following distances from the ordinary high water mark of navigable waters: 1,000 feet from a lake, pond, or flowage; 300 feet from a river or stream, or to the landward side of the floodplain, whichever distance is greater. In accordance with the requirements set forth in Chapters NR 115 (shoreland regulations) and NR 116 (floodplain regulations) of the *Wisconsin Administrative Code*, the Racine County shoreland and floodplain zoning ordinance restricts uses in wetlands located in the shorelands, and limits the uses allowed in the 100-year recurrence interval floodplain to prevent damage to structures and property and to protect floodwater conveyance areas and the storage capacity of floodplains.

Table 9

LAKE CHARACTERISTICS WITHIN RACINE COUNTY

Lakes[a]	Lake Surface Area (acres)	Lake Volume (acre-feet)	Maximum Depth (feet)	Mean Depth (feet)	Lake Type[b]	Trophic State Index[c]	Trophic Status
Bohner	135	1,243	30	9	Drainage	45	Mesotrophic
Brock	13	- -	12	4	Drainage	- -	- -
Browns	396	3,135	50	8	Drained	51	Meso-eutrophic
Delmonte	4	- -	5	5	Drainage	- -	- -
Denoon	162	2,940	55	18	Seepage	49	Meso-eutrophic
Eagle	515	3,640	12	6	Drainage	52	Eutrophic
Echo	71	129	11	2	Drainage	55	Eutrophic
Kee Nong Go Mong	88	770	27	9	Drainage	55	Eutrophic
Leda (Frieda)	12	- -	22	13	Drained	- -	- -
Long	102	259	5	3	Drainage	61	Eutrophic
Overson Pond	18	- -	6	- -	Seepage	- -	- -
Rockland	40	- -	28	10	Drained	49	Meso-eutrophic
Rodgers Pond	11	- -	7	19	Seepage	- -	- -
Tahoe	6	- -	5	- -	Seepage	- -	- -
Waterford Impoundment							
Buena	108	- -	8	- -	Drainage	56	Eutrophic
Tichigan	1,132	- -	65	6	Drainage	54	Eutrophic
Waubeesee	129	2,450	73	19	Drainage	46	Mesotrophic
Wind[d]	936	8,995	50	10	Drainage	69	Eutrophic

[a]Lakes in Racine County exist only in the Fox River watershed; there are no lakes within the Des Plaines River, Root River, or Pike River watersheds.

[b]Drainage lakes are lakes having both a defined inlet and a defined outlet. These waterbodies are commonly referred to as through-flow lakes. Drained lakes are lakes having a defined outlet without a defined inlet. Seepage lakes are lakes without either a defined inlet or defined outlet. These waterbodies are sometimes referred to as internally drained lakes.

[c]Trophic State Index (TSI) values are determined from water clarity data, total phosphorus concentration data, and chlorophyll-a concentration data using mathematical relationships published by Robert E. Carlson, "A Trophic State Index for Lakes", Limnology and Oceanography, *Volume 22, pages 361-368, 1977. The data used to determine TSI values were collected by the Wisconsin Department of Natural Resources, the U.S. Geological Survey, or citizen volunteers under the Wisconsin Department of Natural Resources Self-Help Monitoring Program.*

[d]Wisconsin Department of Natural Resources Wisconsin 303(d)-listed waterbody within Racine County (see Table IV-4).

Source: Wisconsin Department of Natural Resources and SEWRPC.

The ordinance also limits the removal of vegetation and other activities in shoreland areas and requires 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.

Floodplains identified by the Federal Emergency Management Agency (FEMA) under the Federal Flood Insurance Program are shown for the Racine County planning area on Map 11, in 2006. In total, floodplains shown on Map 11 encompass 41.8 square miles, or 12.3 percent of the County in 2006. The area of floodplains for cities, villages, and towns in the County is presented in Table 10. FEMA has scheduled a Map Modernization Program for Racine County, which will result in updated floodplain maps for both incorporated and unincorporated areas. Preliminary maps were expected to be available in mid-2007 and final maps in early 2008.

Groundwater Resources

Groundwater resources constitute another key element of the natural resource base. Groundwater not only sustains lake levels and wetlands and provides the base flows of streams, but also comprises a major source of water supply for domestic, municipal, and industrial water users.

Table 10

SURFACE WATERS, WETLANDS, AND FLOODPLAINS IN RACINE COUNTY BY CIVIL DIVISION

Civil Division	Surface Waters		Wetlands (2000)		Floodplains (2006)	
	Area (acres)	Percent of Civil Division Area	Area (acres)	Percent of Civil Division Area	Area (acres)	Percent of Civil Division Area
Cities						
Burlington	151	3.3	329	7.2	735	16.1
Racine	116	1.2	115	1.1	367	3.7
Villages						
Caledonia	280	1.0	1,745	6.0	1,565	5.4
Elmwood Park	1	1.0	0	0.0	0	0.0
Mt. Pleasant	142	0.7	461	2.1	1,587	7.3
North Bay	0	0.0	0	0.0	0	0.0
Rochester	26	7.6	24	7.0	49	14.3
Sturtevant	3	0.1	48	1.8	99	3.7
Union Grove	0	0.0	14	1.1	39	3.0
Waterford	71	4.4	86	5.3	124	7.7
Wind Point	22	2.7	19	2.3	50	6.1
Towns						
Burlington	879	3.9	3,214	14.4	5,131	23.0
Dover	572	2.5	1,333	5.8	2,089	9.0
Norway	1,254	5.5	2,283	10.0	7,672	33.6
Raymond	118	0.5	1,241	5.4	1,732	7.6
Rochester	129	1.2	1,488	13.6	688	6.3
Waterford	1,311	6.1	2,964	13.8	3,148	14.6
Yorkville	127	0.6	520	2.4	1,708	7.8
Total	5,201	2.4	15,885	7.3	26,783	12.3

Source: SEWRPC.

There are three major aquifers within Racine County, which contain the usable groundwater of the County. The surficial sand and gravel aquifer and the Niagara dolomite aquifer are often treated as a single aquifer commonly referred to as the "shallow" aquifer due to its proximity and intimate hydraulic interconnection to the land surface. The third, accordingly, is commonly identified as the "deep" aquifer since it underlies the shallow aquifer. The sand and gravel aquifer consists of unconsolidated sand and gravel deposits in glacial drift and alluvium. These deposits occur over the majority of the County, either at the land surface or buried beneath less permeable drift such as glacial till. This aquifer interacts extensively with the surface water system of the County. The Niagara dolomite aquifer in Racine County consists of Silurian Age dolomite, which overlies the Maquoketa shale stratum throughout the entire County. The Maquoketa shale separates the Niagara and sandstone aquifers. The shale layer has very low permeability, which restricts the vertical movement of water and largely confines water within the sandstone aquifer. The sandstone aquifer includes all sedimentary bedrock below the Maquoketa shale stratum. The bottom of the sandstone aquifer is the surface of the impermeable Precambrian rocks. This aquifer is continuous throughout the County and is a part of the larger regional aquifer that is used as a source of water supply for major concentrations of urban development throughout southeastern Wisconsin and northeastern Illinois. This aquifer is relatively unimportant in terms of its influence on the surface water resources of the County since it does not intersect surface water features.

Recharge of the aquifers underlying Racine County is derived largely by precipitation. The groundwater in the shallow aquifer typically originates from precipitation that has fallen within a radius of about 20 miles or less from where it is found. The deep aquifer is recharged by downward leakage through the Maquoketa shale and other semi-confining units or by infiltration of precipitation beyond the western limits of the semi-confining units.

Like surface water, groundwater is susceptible to depletion in quantity and to deterioration in quality as a result of contamination and over-usage. The depth to the shallow water table in the Racine County is illustrated on Map 12. Since the eastern half of the County is largely covered by glacial till soils with high clay content, contamination is not as much of a concern compared to the western part of the county. The vulnerability of groundwater to contamination is a combination of several factors, including soil type, subsurface material characteristics, and depth to groundwater levels. As shown on Map 12, the western half of the County contains a large area with a depth of less than 25 feet to groundwater. It is apparent that the shallowness to groundwater, in combination with the stratified sand and gravel characteristics of glacial outwash soils, makes the Fox River basin the most sensitive to contamination. Thus, land use planning must appropriately consider the potential impacts of urban and rural development on this important resource. Land use planning must also take into account, as appropriate, natural conditions which may limit the use of groundwater as a source of water supply, including the relatively high levels of naturally occurring radium in groundwater in the deep sandstone aquifer, found in certain areas of the Region.

It should be noted that the Regional Planning Commission, working with the U.S. Geological Survey, Wisconsin Geological and Natural History Survey, the University of Wisconsin-Milwaukee, and the WDNR, recently completed two major groundwater studies for the Region that are important resources for regional and local planning. These studies include a regional groundwater inventory and analysis and the development of a regional groundwater aquifer simulation model. The Commission is currently preparing a regional water supply system plan, including the identification of important groundwater recharge areas, utilizing the results of the inventory and analysis work and the aquifer model. In addition, the WDNR, in conjunction with local water utilities, has undertaken an effort to identify areas of contribution to municipal wells that can be used for well protection planning. More-detailed information on groundwater conditions in the Southeastern Wisconsin Region, including Racine County is set forth in SEWRPC Technical Report No. 37, *Groundwater Resources of Southeastern Wisconsin,* June 2002; SEWRPC Technical Report No. 41, *A Regional Aquifer Simulation Model for Southeastern Wisconsin,* June 2005; and SEWRPC Planning Report No. 52, *A Regional Water Supply Plan for Southeastern Wisconsin*, in progress.

Forest Resources

Woodlands

Woodlands in Racine County have both economic and ecological values, and with proper management can serve a variety of uses that provide multiple benefits. In this respect, they contribute to clean air and water, help control surface water runoff, and help maintain a diversity of plant and animal life. In addition, woodlands contribute immeasurably to the natural beauty of the County.

Woodlands are identified by the Regional Planning Commission as upland areas having 17 or more deciduous trees per acre, each tree measuring at least four inches in diameter at breast height (4.5 feet above the ground), and having a canopy of 50 percent or greater. Coniferous tree plantations and reforestation projects are also classified as woodlands. Lowland wooded areas, such as tamarack swamps, are classified as wetlands. Existing woodlands in the Racine County planning area, as identified in the Commission's year 2000 land use inventory, are shown on Map 13. As shown on Map 13, woodlands are found in scattered locations throughout the County and encompass about 12,700 acres (19.8 square miles), or nearly 6 percent of the County, in 2000. The woodland acreage for cities, villages, and towns in the County is presented in Table 11.

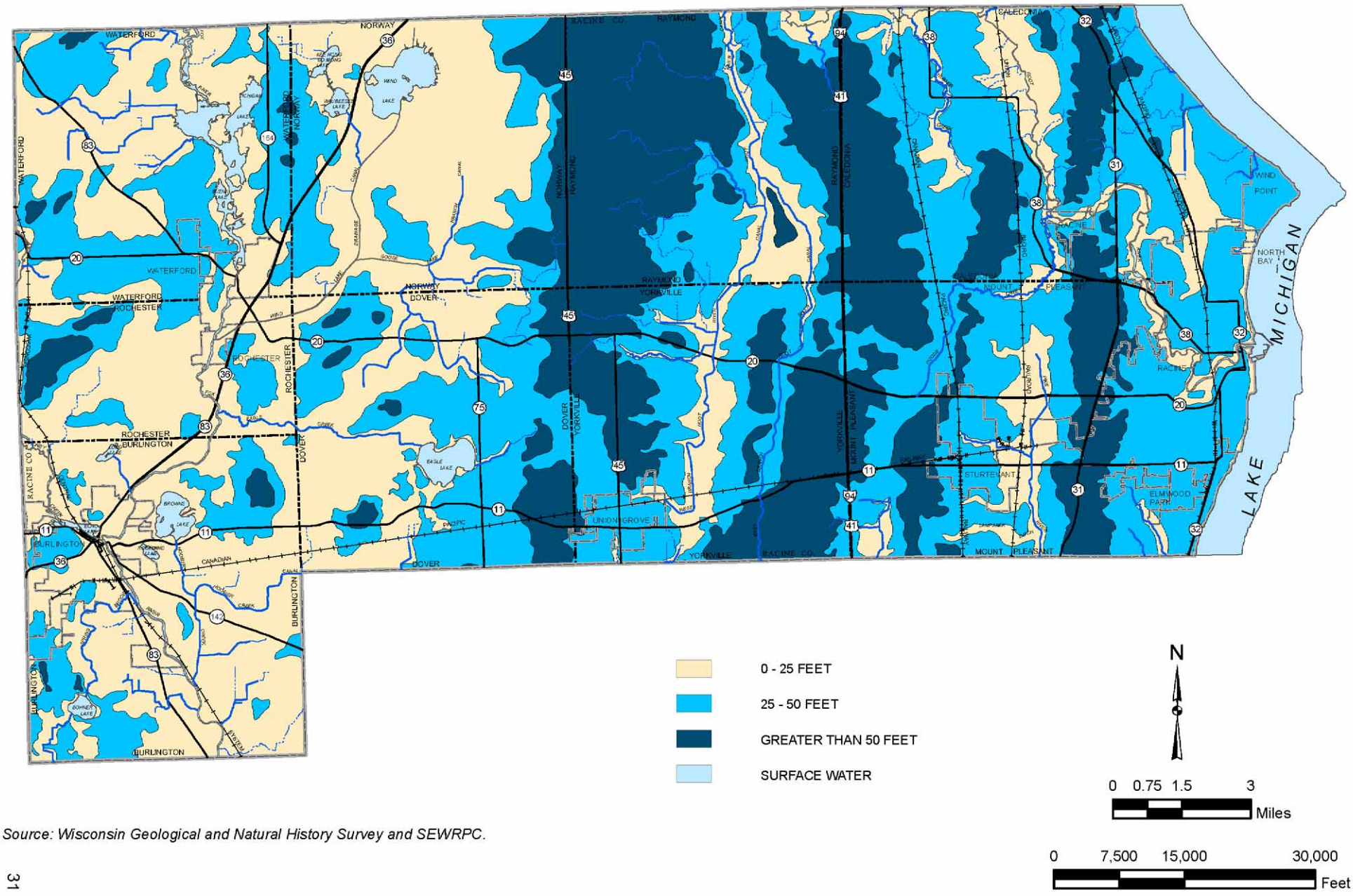
The Racine County LCD strives to preserve, protect, enhance and restore all significant woodlands by working with State and local foresters to develop woodland management plans and promote sound woodland stewardship.

Natural Areas and Critical Species Habitat Sites

A comprehensive inventory of "natural areas" and "critical species habitat sites" in the Southeastern Wisconsin Region was completed by the Regional Planning Commission in 1994. The inventory identified the most significant remaining natural areas—essentially, remnants of the pre-European settlement landscape—as well as other areas vital to the maintenance of endangered, threatened, and rare plant and animal species in the Region.

Map 12

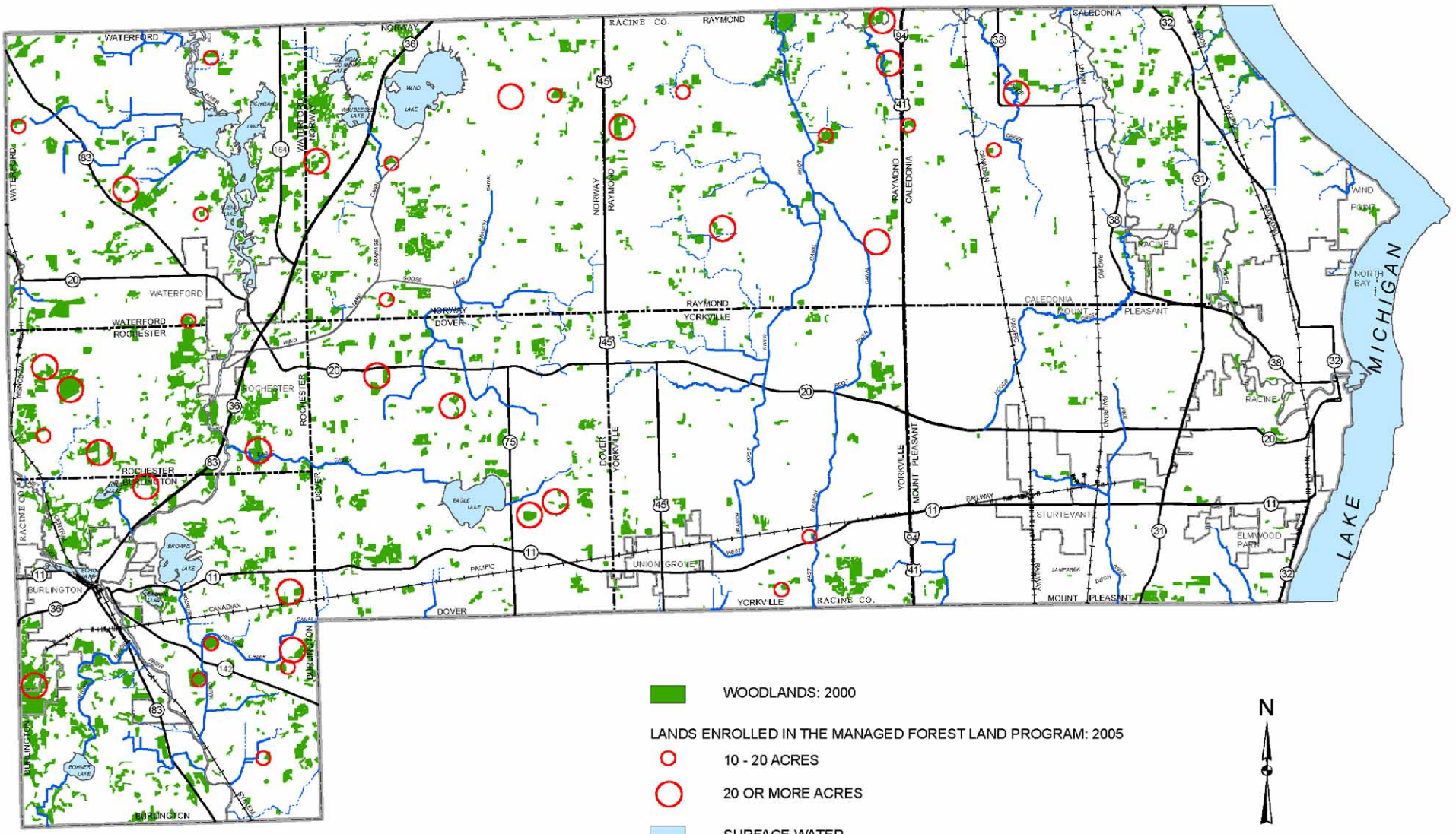
DEPTH TO SEASONAL HIGH GROUNDWATER TABLE IN RACINE COUNTY



Source: Wisconsin Geological and Natural History Survey and SEWRPC.

Map 13

WOODLANDS AND MANAGED FOREST LANDS IN RACINE COUNTY



Source: Wisconsin Department of Natural Resources and SEWRPC.

Table 11

WOODLANDS AND MANAGED FOREST LAW LANDS IN RACINE COUNTY BY CIVIL DIVISION

Civil Division	Woodlands: 2000		Acres Enrolled in the Managed Forest Law Program: 2005
	Woodlands (acres)	Percent of Civil Division Area	
Cities			
Burlington	452	9.9	- -
Racine	140	1.4	- -
Villages			
Caledonia	1,218	4.2	85
Elmwood Park	0	0.0	- -
Mt. Pleasant	372	1.7	- -
North Bay	0	0.0	- -
Rochester	9	2.6	- -
Sturtevant	15	0.6	- -
Union Grove	31	2.4	- -
Waterford	46	2.8	- -
Wind Point	32	3.9	- -
Towns			
Burlington	2,633	11.8	217
Dover	1,288	5.6	114
Norway	1,301	5.7	118
Raymond	1,024	4.5	260
Rochester	1,518	13.8	383
Waterford	1,815	8.4	80
Yorkville	785	3.6	22
Total	12,679	5.8	1,279[a]

[a]*Of the 1,279 acres enrolled in the Managed Forest Law Program, 98 percent are not open to public access, and only 23 acres (located in the Town of Raymond), or 2 percent, are open to public access.*

Source: Wisconsin Department of Natural Resources and SEWRPC.

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 upon consideration of the diversity of plant and animal species and community types present; the structure and integrity of the native plant or animal community; the extent of disturbance from human activity; the commonness of the plant or animal community; the uniqueness of the natural features; the size of the site; and the educational value.

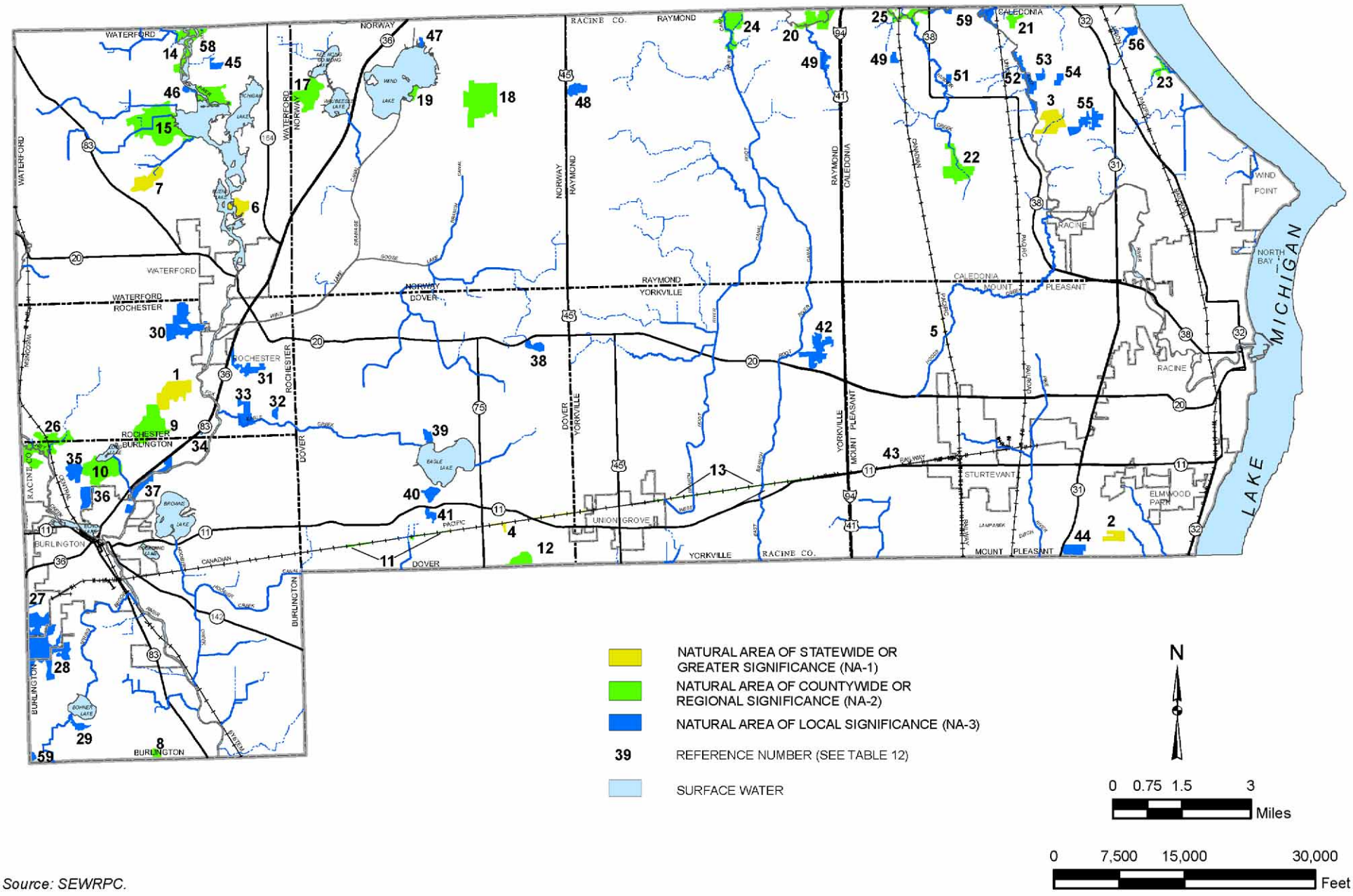
As illustrated on Map 14, and indicated in Table 12, a total of 59 known natural areas were identified in Racine County as part of the 1994 inventory. In combination, these sites encompassed about 5,600 acres (8.8 square miles) or 2.6 percent of the total area of the County.

Critical Species Habitat Sites and Aquatic Sites

Critical species habitat sites consist of areas, exclusive of identified natural areas, which are important for their ability to support State-designated endangered, threatened, or rare plant or animal species. Such areas constitute "critical" habitat considered to be important to the survival of a species or group of species of special concern. As

Map 14

NATURAL AREAS IN RACINE COUNTY: 1994



Source: SEWRPC.

Table 12

KNOWN NATURAL AREAS IN THE RACINE COUNTY PLANNING AREA: 1994

Number on Map 14	Area Name	Classification Code[a]	Location	Ownership	Size (acres)	Description and Comments
1	Cherry Lake Sedge Meadow State Natural Area	NA-1 (SNA, RSH)	T3N, R19E Sections 10, 15 Town of Rochester	Department of Natural Resources and private	190	High-quality lowland complex of fen, wet prairie, sedge meadow, shrub-carr, shallow lake, and tamarack relict within a matrix of disturbed upland oak woods. A good combination of alkaline- and acid-loving plants is present. The irregular openings of water provide good nesting and escape cover for waterfowl, especially mallards, wood ducks, and blue-winged teals. The western border is a one-mile-long esker
2	Sanders Park Hardwoods State Natural Area	NA-1 (SNA, RSH)	T3N, R22E Section 36 Town of Mt. Pleasant	Racine County	56	Good-quality southern dry-mesic forest on two low ridges separated by a lowland swale. Good size-class distribution of tree species, including a number of large walnuts. The ground flora is rich and diverse, including several large patches of golden seal (*Hydrastis canadensis*), a State-designated special concern species
3	Renak-Polak Maple-Beech Woods State Natural Area	NA-1 (SNA, RSH)	T4N, R22E Section 14 Town of Caledonia	University of Wisconsin-Parkside and private	138	Outstanding, mostly old-growth, low-lying southern mesic forest on east side of Root River. Wet-mesic hardwoods, shrub-carr, and shallow marsh lie along an intermittent stream which crosses the tract. Noted for spectacular displays of spring wildflowers. Probably the best such woods remaining in the Region
4	Kansasville Railroad Prairie	NA-1 (RSH)	T3N, R20E Sections 25, 26, 35, 36 Town of Dover T3N, R21E Section 30 Town of Yorkville	Private	14	Discontinuous remnants of mesic prairie located along railway right-of-way between Union Grove and Kansasville. Small sections are of very high quality, representing the best remaining examples of the once-extensive mesic prairie of central Racine and Kenosha Counties. Also included is a large old field which has been plowed but in which native prairie species have either persisted or are reinvading from the adjacent railway right-of-way. This latter area could be important for prairie reestablishment
5	Franksville Railroad Prairie	NA-1 (RSH)	T3N, R22E Sections 4, 9 Town of Mt. Pleasant	Private	4	A very rich and diverse remnant of mesic and wet-mesic prairie, located on west side of railway right-of-way. Contains some of the best such remnants in the Region. Regionally uncommon species include wild quinine (*Parthenium integrifolium*), prairie Indian plantain (*Cacalia tuberosa*), and marsh blazing-star (*Liatris spicata*)
6	Elm Island Bog-Island Oak Woods	NA-1 (RSH)	T4N, R19E Sections 23, 24, 25, 26 Town of Waterford	Racine County and private	68	Two distinct plant communities of good quality are present, an upland wooded island dominated by red and white oaks without signs of past grazing or logging is bordered on the east by a sphagnum-tamarack bog with a number of characteristic bog species present
7	Tichigan Fen	NA-1 (RSH)	T4N, R19E Sections 21, 22 Town of Waterford	Department of Natural Resources and private	118	A fine example of springs and calcareous fen, with a number of uncommon species present. The site includes the lesser-quality upland woods to the south that protects the water sources of the springs
	Subtotal	NA-1	7 sites	- -	588	- -

Table 12 (continued)

Number on Map 14	Area Name	Classification Code[a]	Location	Ownership	Size (acres)	Description and Comments
8	Karcher Springs State Natural Area	NA-2 (SNA, RSH)	T2N, R19E Section 21 Town of Burlington	Department of Natural Resources	23	Spring heads originating on east side of a wooded esker supply water for a clear, fast, cold, marl-bottomed stream. Along banks is found calcareous fen, habitat for a number of uncommon species
9	Brock Lake Fen	NA-2 (RSH)	T3N, R19E Sections 15, 16, 21 Town of Rochester	Department of Natural Resources and private	231	High-quality wetland complex of fen, shallow marsh, sedge meadow, and small, undeveloped lake. The rich native species complement includes a number of uncommon ones, such as beaked spike-rush (*Eleocharis rostellata*), Ohio goldenrod (*Solidago ohioensis*), common bog arrow-grass (*Triglochin maritimum*), and marsh blazing-star (*Liatris spicata*). An integral part of a long northeast-southwest lowland corridor
10	Leda Lake Fen-Meadow	NA-2 (RSH)	T3N, R19E Sections 20, 21, 29 Town of Burlington	Department of Natural Resources and private	221	Good-quality wetland complex of small, shallow, undeveloped lake, floating sedge mat, fen, sedge meadow, shrub-carr, and shallow cattail-bulrush marsh. Part of Cherry Lake-Brock Lake-Leda Lake environmental corridor
11	Rosewood Railroad Prairie	NA-2 (RSH)	T3N, R20E Sections 31-34 Town of Dover	Private	18	Discontinuous remnants of mesic prairie extending for three miles along deactivated railway right-of-way between Kansasville and Rosewood. Moderate quality overall, with small portions in better condition. Good diversity of native species, including a number of uncommon ones
12	Schroeder Road Marsh	NA-2	T3N, R20E Sections 35, 36 Town of Dover T2N, R20E Sections 1, 2 Town of Brighton	Private	77 (plus 111 in Kenosha County)	Large wetland area of shallow cattail marsh and sedge meadow that extends into Kenosha County. Perimeter has been disturbed but interior is intact
13	Union Grove Railroad Prairie	NA-2 (RSH)	T3N, R21E Sections 25, 26, 27, 28, 29 Town of Yorkville	Private	32	Discontinuous remnants of mesic prairie along railway right-of-way, extending east from Union Grove to IH 94. Some small patches are of very good quality, containing such uncommon species as wild quinine (*Parthenium integrifolium*) and prairie Indian plantain (*Cacalia tuberosa*), both designated as threatened in Wisconsin
14	Norris Marsh and Slough	NA-2	T4N, R19E Sections 2, 3, 10 Town of Waterford T5N, R19E Sections 34, 35 Town of Vernon	Private	180 (plus 32 in Waukesha County)	Good-quality deep and shallow marsh along the Fox River
15	Tichigan Marsh	NA-2	T4N, R19E Sections 9, 10, 15, 16 Town of Waterford	Department of Natural Resources and private	447	Large, good-quality deep and shallow marsh with small patches of sedge meadow, bordering Tichigan Lake. Department of Natural Resources has excavated a series of ponds for wildlife
16	Tichigan Wetlands and Low Woods	NA-2	T4N, R19E Sections 10, 11 Town of Waterford	Department of Natural Resources and private	170	Wetland-upland complex consisting of good-quality deep and shallow marsh and sedge meadow bordered on north by older dry, dry-mesic, and wet-mesic woods, and regenerating woods and old field
17	Waubeesee Oak Woods and Tamarack Relict	NA-2 (RSH)	T4N, R20E Section 7 Town of Norway	Racine County and private	169	Relatively large and mostly intact oak woods on rough glacial topography, with intervening wetlands in depressions, some of which contain relict tamaracks. This is one of the few woods of such size remaining in this rapidly developing part of the Region. Contains cerulean warbler (*Dendroica cerulea*) and the acadian flycatcher (*Empidonax virescens*), both designated as State-threatened bird species

Table 12 (continued)

Number on Map 14	Area Name	Classification Code[a]	Location	Ownership	Size (acres)	Description and Comments
18	Wind Lake Tamarack Swamp	NA-2	T4N, R20E Sections 10, 11, 14, 15 Town of Norway	Department of Natural Resources and private	334	Large block of former tamarack swamp that is converting to lowland hardwoods due to hydrologic changes resulting from artificial drainage of surrounding agricultural land. This woods remains a refugium for many species with more northerly affinities, such as starflower, goldthread, winterberry, dwarf raspberry, yellow birch, bunchberry, and blueberry
19	Wind Lake Shrub-Fen	NA-2 (RSH)	T4N, R20E Section 9 Town of Norway	Private	21	Good-quality wetland complex of fen and shrub-carr on south end of Wind Lake. Contains a good population of Ohio goldenrod (*Solidago ohioensis*)
20	County Line Riverine Woods	NA-2 (RSH)	T4N, R21E Section 1 Town of Raymond	Racine County and private	141	Good-quality riverine lowland hardwood forest along the Root River. Smaller upland to northwest contains mesic hardwoods with a rich ground flora. An integral part of the Root River environmental corridor
21	Hunts Woods	NA-2 (RSH)	T4N, R22E Section 3 Town of Caledonia	Racine County and private	34	A small but undisturbed remnant of southern mesic hardwoods, dominated by mature beeches and sugar maples. The woods to the south and east are younger, while to the north are lowland hardwoods. The relatively rich ground flora includes the State designated endangered blue-stemmed goldenrod (*Solidago caesia*)
22	Caledonia Wildlife Area	NA-2	T4N, R22E Section 21 Town of Caledonia	Town of Caledonia and private	166	An open wetland with seasonal ponds that attract a large number of migrating birds such as whistling swans, snow geese, golden plovers, and willets. The pond is one of the few secure stopover areas in the Region, and is a very good observation area
23	Cliffside Park Woods and Clay Banks	NA-2 (RSH)	T4N, R23E Sections 7, 8 Town of Caledonia	Racine County	55	Second-growth mesic woods, ravine, and steep clay banks along Lake Michigan harbor a rich and diverse flora, including such uncommon species as buffaloberry, yellowish gentian, stiff gentian, balsam poplar, and blue-stemmed goldenrod
24	Root River Canal Woods	NA-2 (RSH)	T4N, R21E Section 3 Town of Raymond T5N, R21E Section 34 City of Franklin	Private and Milwaukee County	158 (plus 121 in Milwaukee County)	A mixture of good-quality dry-mesic and lowland hardwood forest along the Root River Canal. One of the largest intact forested tracts in this part of the Region. Extends north into Milwaukee County
25	Root River Wet-Mesic Woods-East	NA-2 (RSH)	T4N, R22E Section 5 Town of Caledonia T5N, R22E Section 32 City of Oak Creek	Racine County and Milwaukee County	2 (plus 50 in Milwaukee County)	Wet-mesic and mesic woods bordering a gravel-bottom stream that is a tributary to the Root River. Contains a rich, diverse flora, including several rare species
26	Honey Lake Marsh and Sedge Meadows	NA-2	T3N, R19E Sections 17-20 Town of Burlington T3N, R18E Sections, 13, 24 Town of Spring Prairie	Department of Natural Resources, The Nature Conservancy, and other private	250 (plus 141 in Walworth County)	Large, relatively undisturbed wetland complex, primarily consisting of good-quality sedge meadow and deep and shallow marsh, but also with smaller areas containing springs and calcareous fens. Nesting site for sandhill cranes
	Subtotal	NA-2	19 sites	- -	2,729	- -

Table 12 (continued)

Number on Map 14	Area Name	Classification Code[a]	Location	Ownership	Size (acres)	Description and Comments
27	Burlington Railroad Prairie	NA-3 (RSH)	T2N, R19E Section 6 Town of Burlington T2N, R18E Section 1 Town of Lyons	Private	4 (plus 1 in Walworth County)	One-quarter-mile stretch of mesic, dry-mesic, and dry prairie remnants bordering railway right-of-way
28	Burlington Hills Woods	NA-3 (RSH)	T2N, R19E Sections 5, 6, 7, 18 Town of Burlington T2N, R18E Sections 1, 12, 13 Town of Lyons	Private	557 (plus 80 in Walworth County)	Rough morainal ridges occupied by mature and second-growth oak woods, with small, scattered patches of dry hill prairie and disturbed openings. Largest remaining upland woods in Racine County; important for forest-interior-breeding birds. Currently threatened by sand and gravel mine expansion
29	Bohner Lake Lowlands	NA-3	T2N, R19E Sections 19, 20 Town of Burlington	Private	33	Moderate-quality combination of shallow marsh, sedge meadow, and shrub-carr
30	Wadewitz Woods	NA-3 (RSH)	T3N, R19E Sections 2, 3 Town of Rochester	Racine County and private	204	Large upland complex of disturbed oak woods and former oak openings, cedar glades, dry-mesic woods, small dry hill prairies, and older woods
31	Rowntree Road Woods	NA-3	T3N, R19E Sections 11, 12 Town of Rochester	Private	74	A typical xeric oak woods, with several wet areas containing lowland hardwoods. An active blue heron rookery is present
32	English Settlement Prairie	NA-3	T3N, R19E Section 13 Town of Rochester	Private	16	Moderate-quality wet-mesic prairie with a history of disturbance, including plowing and grazing
33	Eagle Creek Woods	NA-3	T3N, R19E Sections 13, 14 Town of Rochester	Private	84	Typical xeric oak woods, relatively large but with a history of grazing and selective cutting
34	Fox River Prairie	NA-3	T3N, R19E Sections 14, 15 Town of Rochester	Private	2	Prairie remnants along former railway right-of-way, now county bicycle trail. Area consists of two separate patches, a hill to the south contains a small, depauperate dry prairie, while to the north a low area contains a larger and better-quality mesic and wet-mesic prairie
35	Honey Lake Leatherleaf Bog	NA-3	T3N, R19E Sections 19, 20 Town of Burlington	Private	69	A large monotypic leatherleaf bog relict, rare in the southern part of the Region
36	Wehmhoff Park Upland Woods and Wetlands	NA-3	T3N, R19E Section 29 Town of Burlington	Town of Burlington and private	73	Moderate-quality sedge meadow-shallow marsh wetlands, located within an upland matrix of disturbed oak woods and dry hill prairie on hilly glacial terrain
37	Fox River Riverine Forest	NA-3	T3N, R19E Section 21, 22, 28 Town of Burlington	Racine County and private	131	Lowland and upland woods bordering the Fox River
38	Dover Wildlife Area Wetlands	NA-3 (RSH)	T3N, R20E Section 12 Town of Dover	Department of Natural Resources and private	39	Wetland complex maintained by Department of Natural Resources as wildlife refuge, consisting of shallow open water, shallow marsh, shrub-carr, and small wet-mesic prairie
39	Church Road Lowlands	NA-3	T3N, R20E Sections 16, 21 Town of Dover	Department of Natural Resources and private	25	Sedge meadow and shallow marsh on north shore of Eagle Lake
40	Eagle Lake Wetlands	NA-3	T3N, R20E Sections 27, 28 Town of Dover	Department of Natural Resources and private	46	Shallow marsh and shrub-carr on south shore of Eagle Lake. Disturbed by past ditching attempts
41	Vandenboom Road Marsh	NA-3	T3N, R20E Section 28 Town of Dover	Private	27	Shallow, cattail-dominated marsh

Table 12 (continued)

Number on Map 14	Area Name	Classification Code[a]	Location	Ownership	Size (acres)	Description and Comments
42	Ives Grove Woods	NA-3	T3N, R21E Section 12 Town of Yorkville	Racine County and private	164	Relatively large upland wooded island, consisting of dry-mesic woods to south and xeric woods to north. Much of south woods is part of Racine County park. The ground flora is rich and diverse. A small stream bisects the two woods
43	Sylvania Railroad Prairie	NA-3 (RSH)	T3N, R22E Sections 20, 30 Town of Mt. Pleasant	Private	7	Mesic prairie remnant extending one mile east of IH 94 along railway right-of-way. Moderate quality, with a good population of wild quinine (*Parthenium integrifolium*), a State-designated threatened species
44	Campbell Woods	NA-3 (RSH)	T3N, R22E Sections 35, 36 Town of Mt. Pleasant	Private	72	Dry to dry-mesic hardwood forest of moderate quality on flat to somewhat rolling topography, with several small temporary ponds and intermittent streams, and a wetland complex to the east. The latter area includes hop-like sedge (*Carex lupuliformis*), a State-designated endangered species. This is one of the larger, relatively intact woods in this part of Racine County
45	Van Valin Woods	NA-3	T4N, R19E Section 2 Town of Waterford	Private	30	Moderate-quality dry-mesic woods dominated by white oak, shagbark hickory, white ash, and sugar maple. Threatened by encroaching residential development
46	Tichigan Wet Prairie	NA-3 (RSH)	T4N, R19E Section 10 Town of Waterford	Department of Natural Resources	15	Moderate- to good-quality combination of wet prairie, sedge meadow, and shallow marsh, with some calciphiles, such as Ohio goldenrod (*Solidago ohioensis*), present. Site is burned periodically to control shrubs
47	Wind Lake Wet Meadow	NA-3 (RSH)	T4N, R20E Section 4 Town of Norway	Private	12	A moderate-quality wetland complex of wet meadow, fen, shallow marsh, and sedge meadow on north shore of Wind Lake. Contains marsh blazing-star (*Liatris spicata*), a State-designated special concern species
48	Six Mile Road Swamp	NA-3	T4N, R21E Section 7 Town of Raymond	Private	55	Lowland hardwood forest of moderate quality, with a few northern relicts, such as tamarack (mostly dead), winterberry, paper birch, dwarf raspberry, and sphagnum. Dry-mesic upland woods border on the south
49	Kimmel Woods	NA-3 (RSH)	T4N, R21E Section 12 Town of Raymond	Private	40	Moderate-quality southern dry-mesic woods and lowland hardwoods bordering a small stream. Good, representative ground flora
50	Seven Mile Road Woods	NA-3 (RSH)	T4N, R22E Section 8 Town of Caledonia	Private	20	Second-growth maple-ash-oak woods of about 60 years of age that has been subjected to past selective cutting. Contains a rich and diverse ground flora. Low areas contain ephemeral ponds
51	Zirbes Woods	NA-3 (RSH)	T4N, R22E Section 9 Town of Caledonia	Private	13	A small but relatively undisturbed mesic woods dominated by basswood, white ash, red oak, and sugar maple, with a rich ground flora. Future high-grading is indicated by a number of the larger oaks which were marked
52	Caledonia Low Woods	NA-3 (RSH)	T4N, R22E Sections 10, 11, 14 Town of Caledonia	Racine County and private	107	Moderate-quality lowland hardwoods bordering the Root River. Adjoining upland woods contains three State-designated special concern species: American gromwell (*Lithospermum latifolium*), red trillium (*Trillium recurvatum*), and black haw (*Viburnum prunifolium*)
53	Foley Road Woods-West	NA-3 (RSH)	T4N, R22E Section 11 Town of Caledonia	Private	19	Medium-age mesic and wet-mesic woods with a large population of black haw (*Viburnum prunifolium*)

Table 12 (continued)

Number on Map 14	Area Name	Classification Code[a]	Location	Ownership	Size (acres)	Description and Comments
54	Foley Road Woods-East	NA-3 (RSH)	T4N, R22E Section 11 Town of Caledonia	Private	24	Moderate-quality mesic woods with a rich ground flora; reportedly contains the State-designated endangered blue-stemmed goldenrod (*Solidago caesia*)
55	Tabor Woods	NA-3 (RSH)	T4N, R22E Sections 13, 14 Town of Caledonia	Private	107	Relatively large but irregularly shaped mesic, dry-mesic, and wet-mesic woods that have suffered various degrees of disturbance. Portions of the woods are dominated by beech. Threatened by increasing residential development in the area
56	Power Plant Riverine Woods	NA-3 (RSH)	T4N, R23E Section 6 Town of Caledonia	Private	32	Mesic woods bordering a steep ravine that leads to Lake Michigan. Although the woods has suffered from disturbance, it contains a rich flora, including a large population of the State-designated endangered blue-stemmed goldenrod (*Solidago caesia*). The exposed ravine slopes and Lake Michigan clay banks contain a number of unusual species
57	Root River Riverine Forest	NA-3 (RSH)	T4N, R22E Sections 3-6 Town of Caledonia T5N, R22E Section 32 City of Oak Creek	Racine County, Milwaukee County, Wisconsin Department of Transportation and private	184 (plus 40 in Milwaukee County)	A significant portion of the Root River corridor. Extends into Milwaukee County
58	Norris Oak Woods and Wetland	NA-3	T4N, R19E Section 1 Town of Waterford T5N, R19E Section 26, 35 Town of Vernon	Private	6 (plus 358 in Waukesha County)	Two separate disturbed oak woods and adjacent open lowlands bordering the Fox River
59	Tri-County Tamarack Swamp	NA-3	T2N, R19E Section 19 Town of Burlington T2N, R18E Sections 24, 25 Town of Lyons	Private	15 (plus 25 in Walworth County)	Medium-aged tamarack swamp surrounded by dense shrub carr. Extends into Walworth County
	Subtotal	NA-3	33 sites	- -	2,306	- -
- -	Total	All Natural Areas	59 sites	- -	5,623	- -

[a]*NA-1 identifies Natural Area sites of statewide or greater significance.*

NA-2 identifies Natural Area sites of countywide or regional significance.

NA-3 identifies Natural Area sites of local significance.

SNA, or State Natural Area, identifies those sites officially designated as State Natural Areas by the State of Wisconsin Natural Areas Preservation Council.

RSH, or Rare Species Habitat, identifies those sites which support rare, threatened, or endangered animal or plant species officially designated by the Wisconsin Department of Natural Resources.

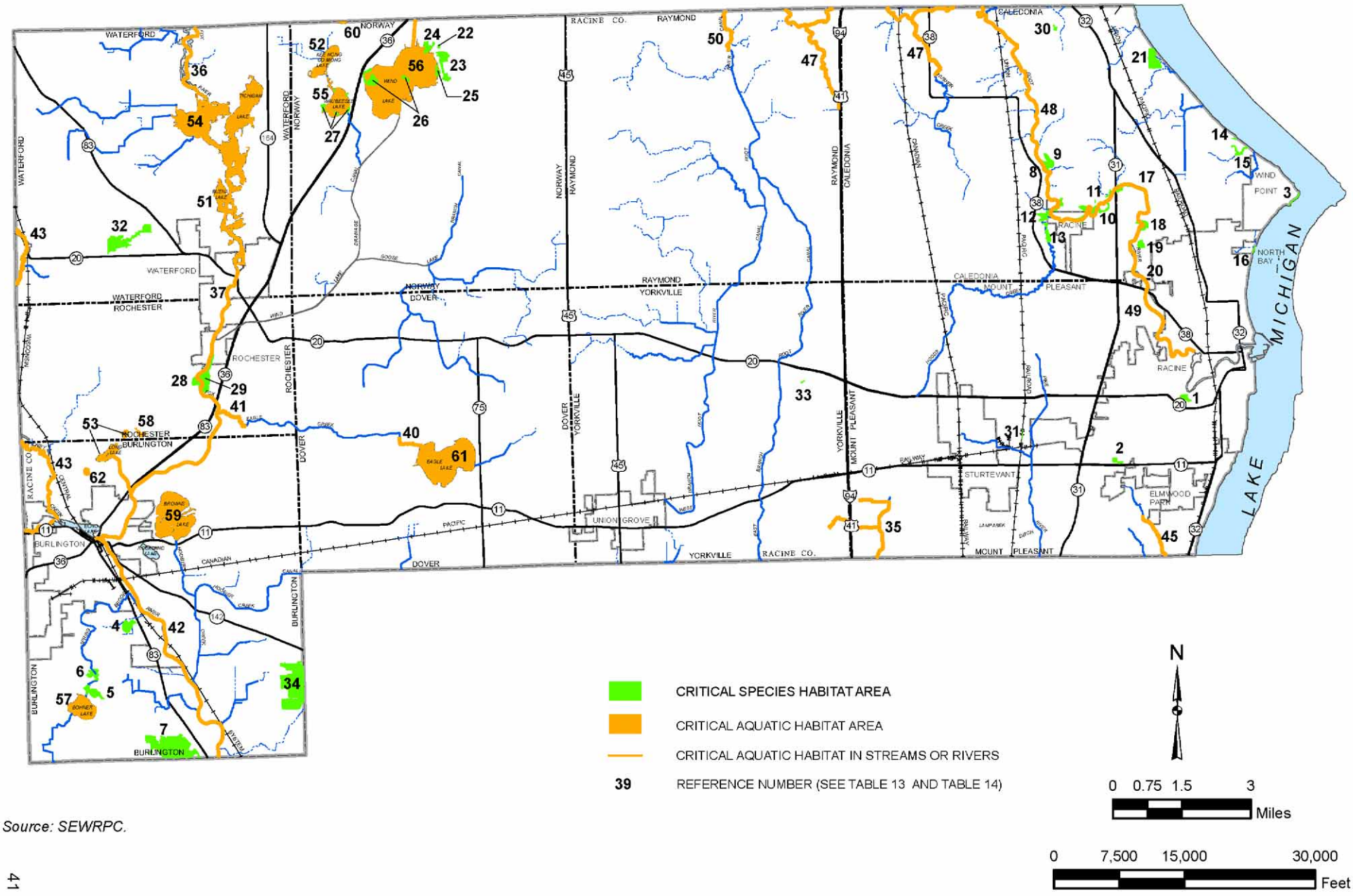
Source: Wisconsin Department of Natural Resources and SEWRPC.

shown on Map 15, and described in Table 13, a total of 34 critical species habitat sites were identified in Racine County as part of the 1994 inventory. Together, these critical species habitat sites encompassed about 1,212 acres (1.9 square miles), or 0.6 percent of the County.

The regional natural areas plan also identified 28 aquatic sites supporting rare fish, herptile, or mussel species in the County, including 50.2 linear miles of rivers and streams and about 3,500 acres (5.4 square miles) of lake waters. These aquatic habitat sites are also shown on Map 15. A description of each is presented in Table 14.

Map 15

CRITICAL SPECIES HABITAT AND CRITICAL AQUATIC HABITAT AREAS IN RACINE COUNTY: 1994



Source: SEWRPC.

Table 13

CRITICAL SPECIES HABITAT SITES LOCATED OUTSIDE NATURAL AREAS IN THE RACINE COUNTY PLANNING AREA

Number on Map 15	Site Name and Classification Code[a]	Location	Site Area (acres)	Ownership	Species of Concern[b]
1	Washington Park Woods (P)	T3N, R23E, Section 17	12	City of Racine	*Solidago caesia* (E)
2	Pritchard Park Woods (P)	T3N, R22E, Section 24	9	Racine County	*Trillium recurvatum* (R)
3	Wind Point (P)	T4N, R23E, Section 27	4	City of Racine	*Cakile edentula* (R)
4	Burlington Crevasse Filling (P)	T2N, R19E, Section 4	23	Private	*Besseya bullii* (T)
5	Margis Wildlife Area (P, B)	T2N, R19E, Section 17	34	Racine County	Gentiana procera (R) Great egret (T) Hooded merganser (U) Great blue heron (U) Blanding's Turtle (T)
6	Ranger Mac Fen (P)	T2N, R19E, Section 17	28	University of Wisconsin-Parkside	*Solidago ohioensis* (R) *Gentiana procera* (R)
7	Karcher Sedge-Carr (P)	T2N, R19E, Sections 21, 22	235	Wisconsin Department of Natural Resources	*Cacalia tuberosa* (T)
8	River Meadow Woods (P)	T4N, R22E, Section 23	13	Private	*Trillium recurvatum* (R)
9	Forked Aster Site (P)	T4N, R22E, Section 23	18	Private	*Aster furcatus* (T)
10	Caledonia Sanitary Sewer Right-of-Way (P)	T4N, R22E, Section 25	75	Private	*Solidago caesia* (E) *Ptelea trifoliata* (R) *Scutellaria ovata* (R)
11	Caledonia Site South (P)	T4N, R22E, Section 25	- -[c]	Private	*Ptelea trifoliata* (R)
12	Root River Bluff (P)	T4N, R22E, Section 26	42	Private	*Ptelea trifoliata* (R)
13	Hoods Creek Swamp (P)	T4N, R22E, Section 26	20	Private	*Trillium recurvatum* (R)
14	Breakers Woods (P)	T4N, R23E, Section 16	5	Private	*Solidago caesia* (E)
15	Dominican Ravine (P)	T4N, R23E, Section 21	16	Private	*Solidago caesia* (E)
16	North Bay Ravine and Beach (P)	T4N, R23E, Section 33	4	Private	*Cakile edentula* (R)
17	Four Mile Road Woods (P)	T4N, R23E, Sections 19, 30	30	Private	*Trillium recurvatum* (R)
18	Caledonia Low Woods (P)	T4N, R23E, Section 30	29	Private	*Ptelea trifoliata* (R) *Trillium recurvatum* (R)
19	River Bend Upland Woods (P)	T4N, R23E, Section 31	13	Racine County	*Solidago caesia* (E)
20	Root River Strip Woods (P)	T4N, R23E, Section 31	10	Private	*Ptelea trifoliata* (R)
21	Cliffside Park Old Field (B)	T4N, R23E, Sections 7, 8	5	Racine County	*Bobolink* (R) *Upland sandpiper* (R) *Grasshopper sparrow*(R)
22	Erwin Wetlands (P)	T4N, R20E, Section 3	2	Private	*Solidago ohioensis* (R)
23	Patzke Fen (P)	T4N, R20E, Section 3	50	Private	*Solidago ohioensis* (R) *Cooper's hawk (U)* *Wood thrush (U)*
24	Krieser Fen (P)	T4N, R20E, Section 10	2	Private	*Solidago ohioensis* (R)
25	Landon Wetland (P)	T4N, R20E, Section 10	11	Private	*Solidago ohioensis* (R)
26	Wind Lake (B)	T4N, R20E	55	Private	*Black tern* (R) *(colony)*
27	Waubeesee Lake (P)	T4N, R20E	14	Private	*Black tern* (R) *(colony)*
28	Case Eagle Park Dry Prairie[d] (P)	T3N, R19E, Section 10	16	Racine County	*Besseya bullii* (T)

Table 13 (continued)

Number on Map 15	Site Name and Classification Code[a]	Location	Site Area (acres)	Ownership	Species of Concern[b]
29	Case Eagle Park Woods[d] (B)	T3N, R19E, Section 11	58	Racine County	Acadian flycatcher (T) Cooper's hawk (U) Ovenbird (U) American woodcock (U) Blue-gray gnatcher (U) Wood thrush (U) Chestnut-sided warbler (U)
30	Sherwood Property (P)	T4N, R22E, Section 2	3	Private	*Carex lupuliformis* (E)
31	Waxdale Railroad Prairie (P)	T3N, R22E, Sections 15, 22	2	Private	*Parthenium integrifolium* (T) *Thalictrum revolutum* (R)
32	Maple Road Gravel Pit (P)	T4N, R19E, Section 28	106	Private	*Besseya bullii* (T) *Penstemon hirsutus* (R)
33	Ives Grove Prairie Remnant (P)	T3N, R21E, Section 13	1	Private	*Parthenium integrifolium* (T)
34	Bong State Recreation Area	T2N, R19E, Sections 12, 13	267	Wisconsin Department of Natural Resources	Forster's tern (E) Piping plover (E) Yellow-throated warbler (E) Loggerhead shrike (E) Great egret (T) Black tern (R) (colony) Henslow's sparrow (R) Northern harrier (R) Grasshopper sparrow (R)Bobolink (R) Upland sandpiper (R) Northern goshawk (R) American black duck (R)Short-eared owl (R) American bittern (R)Swainson's thrush (R)Lark sparrow (R) Sedge wren (R) Blackburnian warbler (R)Yellow-bellied flycatcher (R)Merlin (R)Common moorhen (R) Least bittern (R) Common merganser (R) Black-crowned night heron (R) Wilson's phalarope (R) Prothonotary warbler (R) Louisiana waterthrush (R) Dickissel (R)

[a] *"P" identifies a critical plant species habitat site; "B" identifies a critical bird species habitat site.*

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

[c] *The Caledonia Site South Critical Species Habitat site is located entirely within the Caledonia Sanitary Sewer Right-of-Way Critical Species Habitat site.*

[d] *Case Eagle Park Dry Prairie and Case Eagle Park Woods are listed as Ela Park Dry Prairie and Ela Park Woods respectively in SEWRPC Planning Report No. 42,* A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin*, September 1997.*

Source: SEWRPC.

Wisconsin Legacy Places

In 2006, the WDNR completed an inventory intended to identify the places believed to be most critical to meet the State's conservation and recreation needs over the next fifty years. The resulting report provides background information for use by landowners, nonprofit conservation groups, local governments, State and Federal agencies, and other interests in decision-making about land protection and management in the vicinity of the identified

Table 14

CRITICAL AQUATIC HABITAT AREAS IN THE RACINE COUNTY PLANNING AREA: 1994

Streams				
Number on Map 15	Stream	Size (stream miles)	Rank[a]	Description[b] and Comments
35	Kilbourn Road Ditch	2.0 miles	AQ-3 (RSH)	Sedimentation and other water quality problems exist, but this reach is an important reservoir for the pirate perch, a "special concern" fish species
36	Fox River downstream from IH 43 to Waterford Impoundment	1.8 miles[c]	AQ- (RSH)	Good water quality; important reservoir for critical fish, herptile, and mussel species
37	Fox River downstream from Waterford Impoundment to Echo Lake inflow	10.6 miles	AQ-2 (RSH)	Critical fish, herptile, and mussel species habitat
38	Fox River downstream from Echo Lake inflow to Spring Brook inflow	1.3 miles	AQ-2 (RSH)	Good population of the river redhorse, a threatened fish species
39	White River	1.0 miles	AQ-2 (RSH)	Critical fish species and a good assemblage of mussel species
40	Eagle Creek downstream from Eagle Lake	0.6 miles	AQ-3 (RSH)	Bisects suitable habitat for Blanding's turtle, a threatened herptile species
41	Eagle Creek upstream from Fox River	1.1 miles	AQ-3	Bisects an identified Natural Area, Eagle Creek Woods
42	Fox River downstream from Spring Brook inflow to CTH JB	4.7 miles	AQ-3	Link between upstream and downstream critical Aquatic Areas
43	Honey Creek-lower reaches	2.7 miles[c]	AQ-3 (RSH)	Critical fish species present
44	Muskego Canal	1.2 miles	AQ-3 (RSH)	Critical fish species present
45	Pike River downstream from Pike Creek (includes Sorenson Creek)	1.1 miles	AQ-3 (RSH)	Bisects identified Natural Area; critical fish species present
46	Husher Creek	1.9 miles	AQ-3	Bisects an identified Natural Area, Root River Riverine Forest
47	Root River downstream from County Line Road to Nicholson Road	3.5 miles[c]	AQ-3 (RSH)	Bisects identified Natural Areas
48	Root River downstream from Nicholson Road to STH 38	12.5 miles	AQ-3 (RSH)	Critical herptile species habitat
49	Root River downstream from STH 38 to Spring Street	3.0 miles	AQ-3 (RSH)	Critical herptile species habitat
50	Root River Canal	1.2 miles[c]	AQ-3	Bisects an identified Natural Area, Root River Canal Woods
- -	Total (16 stream reaches)	50.2 miles	- -	- -
Lakes				
Number on Map 15	Lake	Size (acreage)	Rank[a]	Description[b] and Comments
51	Buena Lake	241 acres	AQ-2	Part of the Fox River Impoundment in Waterford; good fish population and diversity
52	Kee Nong Go Mong Lake (Long Lake) (Town of Norway, Racine County)	88 acres	AQ-2 (RSH)	A drainage lake with critical fish species present; shoreline and adjoining wetlands important for waterfowl and other wildlife
53	Long Lake (Towns of Burlington and Rochester, Racine County)	102 acres	AQ-2 (RSH)	A shallow drainage lake which is a component of the valuable environmental corridor in western Racine County; prime waterfowl habitat
54	Tichigan Lake	892 acres	AQ-2 (RSH)	Part of the Fox River Impoundment in Waterford; critical fish and herptile species present; adjacent identified Natural Areas; high-value waterfowl habitat

Table 14 (continued)

Lakes (continued)				
Number on Map 15	Lake	Size (acreage)	Rank[a]	Description[b] and Comments
55	Waubeesee Lake	129 acres	AQ-2 (RSH)	A deep drainage lake with critical fish species present; adjacent wetlands good for wildlife
56	Wind Lake	936 acres	AQ-2 (RSH)	A drainage lake with critical fish and herptile species present
57	Bohner Lake	135 acres	AQ-3	A drainage lake with good water quality
58	Brock Lake	11 acres	AQ-3 (RSH)	A drainage lake with an undeveloped shoreline; is a component of a high-quality environmental corridor in western Racine County
59	Browns Lake	396 acres	AQ-3	A drained lake; headwaters of a tributary to the Fox River
60	Lake Denoon	8 acres[c]	AQ-3 (RSH)	A deep seepage lake with critical fish species present; marsh west of lake is of value to wildlife
61	Eagle Lake	520 acres	AQ-3 (RSH)	A shallow drainage lake with adjacent marshlands important for waterfowl and herptile species habitat and fish spawning habitat
62	Leda Lake	13 acres	AQ-3 (RSH)	A drained lake with an undeveloped shoreline; component of high-quality environmental corridor in western Racine County
- -	Total (12 Lakes)	3,471 acres	- -	- -

[a]AQ-1 identifies Aquatic Area sites of statewide or greater significance.

AQ-2 identifies Aquatic Area sites of countywide or regional significance.

AQ-3 identifies Aquatic Area sites of local significance.

RSH, or Rare Species Habitat, identifies those aquatic areas which support rare, endangered, threatened, or "special concern" species officially designated by the Wisconsin Department of Natural Resources.

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

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

Source: Wisconsin Department of Natural Resources and SEWRPC.

legacy places. A total of 229 such legacy places were identified statewide. The study is documented in a report entitled *Wisconsin Land Legacy Report*, dated 2006.

The inventory identified three legacy places in Racine County. As identified in the report, the following three legacy sites are part of the Southeast Glacial Plains and Southern Lake Michigan Coastal Landscape areas located wholly or partially within Racine County: Big Muskego Lake, Fox River, and Root River. In addition to the statewide legacy sites, the study also identified "other areas of interest" including Burlington Hills Woods, Caledonia Wetlands, Honey Creek, Southeast Prairie Pothole Area, Tabor Woods, Wind Lake Swamp, and Eagle Lake Wetlands.

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) 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.

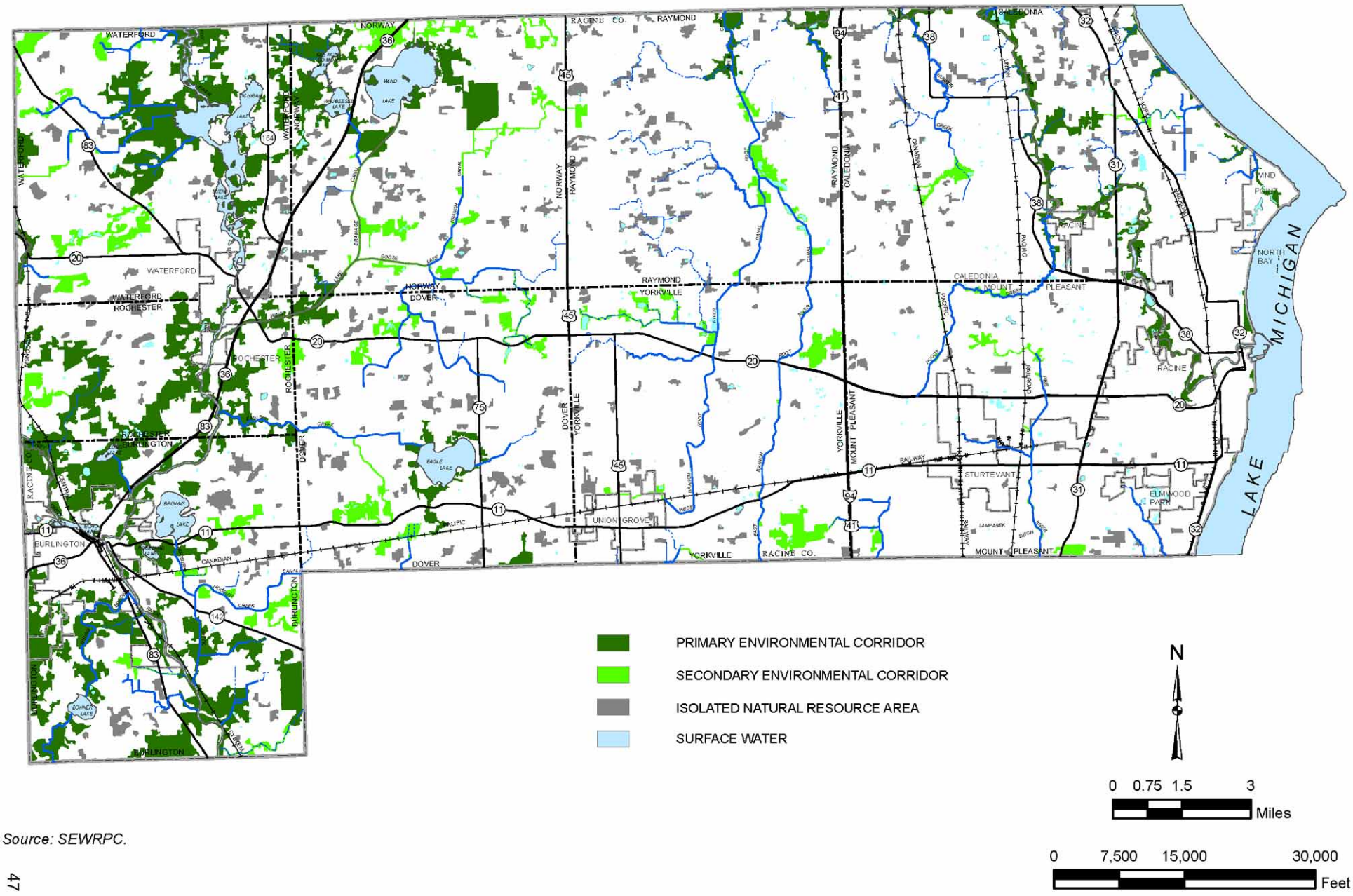
These natural resource elements and resource-related features, when mapped on the landscape, concentrate in an essentially linear pattern of relatively narrow, elongated areas that have been termed "environmental corridors" by SEWRPC. Primary environmental corridors include a wide variety of the most important natural resources and are at least 400 acres in size, two miles long, and 200 feet wide. Secondary environmental corridors serve to link primary environmental corridors, or encompass areas containing concentrations of natural resources between 100 and 400 acres in size. Where secondary environmental corridors serve to link primary corridors, no minimum area or length criteria apply. Secondary environmental corridors that do not connect primary corridors must be at least 100 acres in size and one mile long. An isolated concentration of natural resource features, encompassing at least five acres but not large enough to meet the size or length criteria for primary or secondary environmental corridors, is referred to as an isolated natural resource area. Environmental corridors and isolated natural resource areas in Racine County in 2000 are shown on Map 16.

The primary environmental corridors in the Racine County planning area are primarily located along major stream valleys, around major lakes, and along the Lake Michigan shoreline. These primary environmental corridors contain almost all of the best remaining woodlands, wetlands, and wildlife habitat areas in the County planning area, and represent a composite of the best remaining elements of the natural resource base. Primary environmental corridors encompassed about 22,700 acres (35.5 square miles), or about 10.4 percent of the County planning area, in 2000. Secondary environmental corridors are generally located along the small perennial and intermittent streams within the County planning area. Secondary environmental corridors also contain a variety of resource elements, often remnant resources from primary environmental corridors which have been developed for intensive urban or agricultural purposes. Secondary environmental corridors facilitate surface-water drainage, maintain pockets of natural resource features, and provide corridors for the movement of wildlife, as well as for the movement and dispersal of seeds for a variety of plant species. In 2000, secondary environmental corridors encompassed about 6,940 acres (12.0 square miles), or about 3.2 percent of the County planning area. In addition to the primary and secondary environmental corridors, other smaller pockets of wetlands, woodlands, surface water, or wildlife habitat exist within the Region. These pockets are isolated from the environmental corridors by urban development or agricultural use, and although separated from the environmental corridor network, these isolated natural resource areas have significant value. They may provide the only available wildlife habitat in an area, usually provide good locations for local parks, and lend unique aesthetic character and natural diversity to an area. Widely scattered throughout the County (see Map 16), isolated natural resource areas encompassed about 7,660 acres (12.9 square miles), or about 3.5 percent of the County planning area, in 2000.

The preservation of environmental corridors and isolated natural resource areas in essentially natural, open uses can help reduce flood flows, reduce noise pollution, and maintain air and water quality. Corridor preservation is important to the movement of wildlife and for the movement and dispersal of seeds for a variety of plant species. In addition, because of the many interacting relationships between living organisms and their environment, the destruction and deterioration of any one element of the natural resource base may lead to a chain reaction of deterioration and destruction. For example, the destruction of woodland cover may result in soil erosion and stream siltation, more rapid stormwater runoff and attendant increased flood flows and stages, as well as destruction of wildlife habitat. Although the effects of any single environmental change may not be overwhelming, the combined effects will eventually create serious environmental and developmental problems. These problems include flooding, water pollution, deterioration and destruction of wildlife habitat, reduction in groundwater recharge, as well as a decline in the scenic beauty of the County. The importance of maintaining the integrity of the remaining environmental corridors and isolated natural resource areas thus becomes apparent.

Map 16

ENVIRONMENTAL CORRIDORS AND ISOLATED NATURAL RESOURCE AREAS IN RACINE COUNTY: 2000



Source: SEWRPC.

Park and Open Space Sites

A comprehensive inventory of park and open space sites was conducted for the Racine County and the rest of the Southeastern Wisconsin Region as part of the initial regional park and open space planning effort in 1973. The inventory of park and open space sites in Racine County was subsequently updated as part of the first-edition Racine County park and open space plan completed in 1988 and the second-edition Racine County park and open space plan completed in 2001. As part of the multi-jurisdictional comprehensive planning process, this inventory was updated to 2006. The inventory includes all park and open space sites owned by the State, Racine County, and local units of government, as well as privately owned recreation and open space sites.

Park and Open Space Sites Owned by Racine County

As indicated on Table 15 and Map 17, Racine County owned 32 park and open space sites in 2006. These include eight major parks[10] encompassing 1,325 acres; 22 other park and outdoor recreation sites encompassing 674 acres; and two parkways, encompassing 721 acres. Combined, these sites covered 2,720 acres in 2006.

Park and Open Space Sites Owned by the State of Wisconsin

As indicated on Table 16 and Map 17, in 2006 there were 19 State-owned park and open space sites in Racine County, encompassing 3,406 acres. Of these 19 sites, 13 sites encompassing 3,240 acres were owned by the WDNR, four sites encompassing 25 acres were owned by the Wisconsin Department of Transportation (WisDOT), and two sites encompassing 141 acres were owned by the University of Wisconsin. In addition to WDNR owned lands, Map 17 displays project boundaries approved by the Wisconsin Natural Resources Board for State forests, parks, and wildlife habitat areas. Lands within the approved project boundaries have been identified by the Board as appropriate additions to adjacent WDNR forests, natural areas, or wildlife areas and are intended to be acquired by the Department on a "willing seller-willing buyer" basis, for recreational or open space purposes as funding permits. WDNR project areas include the Honey Creek Wildlife Area, Tichigan Wildlife Area, and Karcher Marsh Wildlife Area.

Park and Open Space Sites Owned by Local Units of Government and Public School Districts

There was a total of 222 park and open space sites owned by cities, villages, towns, and school districts in Racine County in 2006 (see Table 17 and Map 18). Those sites encompassed a total of about 2,880 acres. Cities, villages, and towns owned 169 park and open space sites encompassing about 2,130 acres, while public school districts owned 53 sites encompassing about 750 acres. The area attributed to school district sites includes only the portion of the site used for recreational or open space purposes.

Private, Commercial, and Organizational Park and Open Space Sites

In addition to the publicly owned sites described above, there were a total of 105 privately owned outdoor recreation and open space sites, encompassing a total of about 2,560 acres, in Racine County. This includes privately owned golf courses, hunting clubs, boat access sites, campgrounds, resorts, and sites held for open space preservation purposes by private nonprofit conservation organizations such as the Caledonia Conservancy and Kenosha/Racine Land Trust. SEWRPC Community Assistance Planning Report No. 300, *Racine County Comprehensive Plan,* (in preparation) further describes park and open space sites located throughout Racine County.

CULTURAL RESOURCES

Cultural resources provide the County and each of its communities with a sense of heritage, identity, and civic pride. Cultural resources are evidence of past human activities and are unique and nonrenewable. Cultural resources encompass historic buildings, structures and sites, and archeological sites. Cultural resources in Racine

[10]*Major parks are defined as large, publicly owned outdoor recreation sites containing significant natural resource amenities which provide opportunities for such resource-oriented activities as camping, golfing, picnicking, and swimming. Major parks include both Type I, or regional parks, which are those having an area of 250 acres or more, and Type II, which are those having an area of generally 100 to 250 acres.*

Table 15

EXISTING COUNTY-OWNED PARK AND OPEN SPACE SITES IN RACINE COUNTY: 2006

Number on Map 17	Site Name	Area (acres)
1	American Eagle Manor Outlot	17
2	Beaumont Park	1
3	Belle Harbor Marina	4
4	Browns Lake Golf Course	140
5	Bushnell Park	95
6	Case Eagle Park	245
7	Cliffside Park	223
8	Eagle Lake Park	25
9	Evans Park	64
10	Fischer Memorial Park	65
11	Fowler's Bay North	6
12	Fowler's Bay Outlot 1	35
13	Fox River Parkway	17
14	Haban Park	37
15	Heg Park	18
16	Ives Grove Golf Links	289
17	John Margis Jr. Wildlife Area	45
18	Koerber Property	11
19	Kuecker Property	85
20	Old Settler's Park	12
21	Pritchard Park	73
22	Quarry Lake Park	39
22	Racine Harbor Park	17
24	Reef Point Marina	45
25	Root River Parkway	704
26	Saller Woods	90
27	Sanders Park	84
28	Skewes Memorial Park	4
29	Stenhouse Memorial Park	10
30	Tabor Sokol Memorial Park	1
31	W.R. Wadewitz Nature Camp	176
32	Whispering Hills Outlot	43
- -	Total: 32 Sites	2,720

Source: SEWRPC.

County have important recreational and educational value and 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 through tourism.

NRCS is specifically required by the National Historical Preservation Act, the National Environmental Policy Act, and various other State and Federal laws to consider the impacts its conservation programs may have on cultural resources. To insure protection, NRCS may require a cultural resource inventory as part of the conservation planning process. A qualified professional cultural resource consultant will prepare an inventory and report, which is submitted to the Wisconsin State Historic Preservation Office (SHPO). SHPO determines the eligibility of historical or archaeological site(s). The U.S. Army Corps of Engineers is also required by Federal law to protect cultural resources and cannot permit a wetland disturbance without a cultural resource assessment. The Racine County Economic Development and Land Use Planning Department enforces regulations intended to preserve historical and archaeological sites. Therefore, the County requires preparation of both a detailed description of all structures or areas of archeological or historic interest on a proposed development site and a detailed explanation of how the development will affect such structures or areas. To protect and preserve cultural resources, recommendations are made during the preliminary planning process to move roads, redesign structures, or change practices to avoid adverse effects to cultural resources.

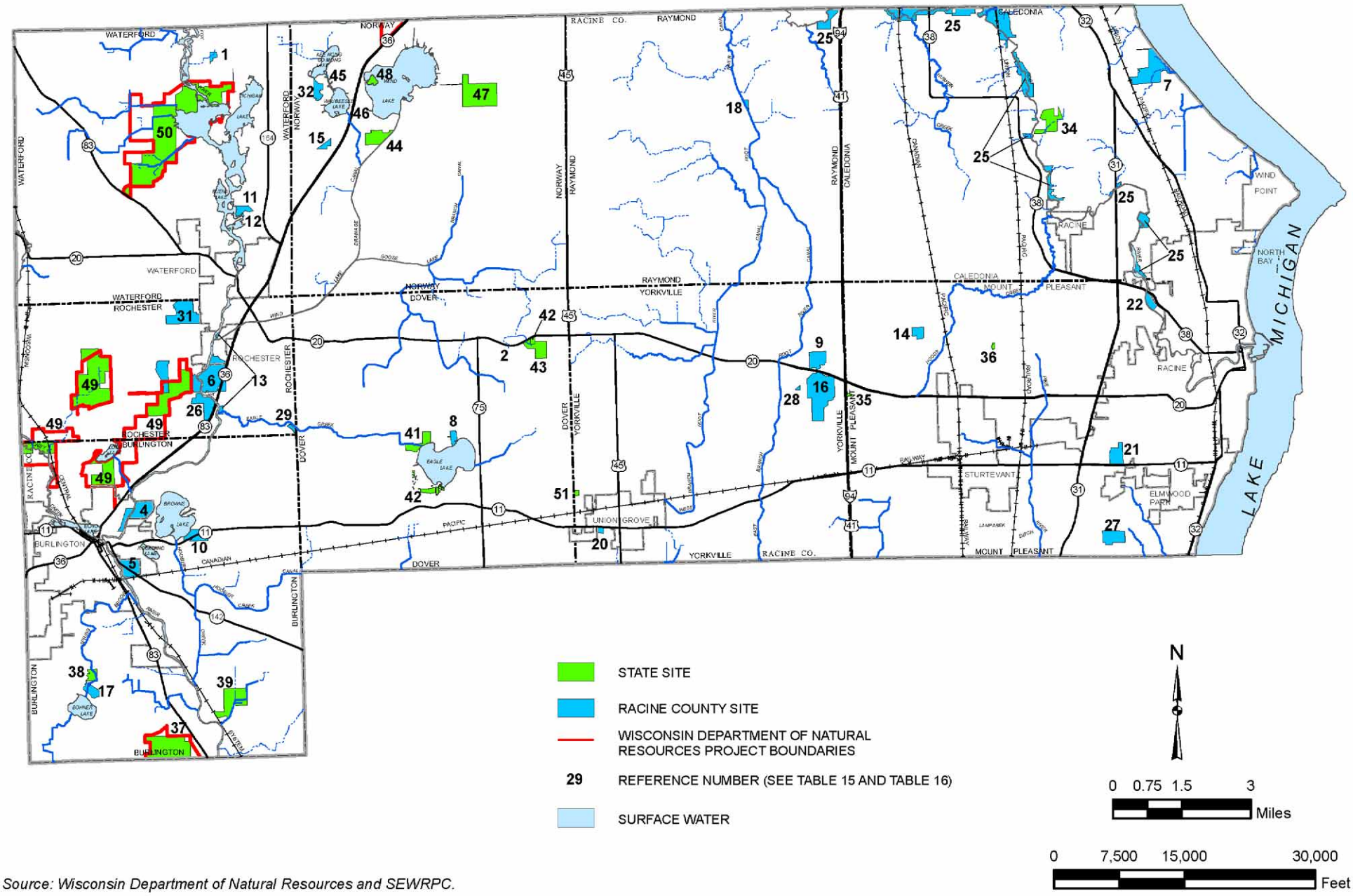
Historical Resources

The National Register of Historic Places is the Nation's official list of significant historic resources and is maintained by the National Park Service. In most cases, historic places or districts listed on the National Register are also listed on the State Register. Since the State Register was created in 1991, all properties 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 to this detailed process are Federally owned properties, which may be nominated for the National Register directly by the National Park Service. The National Register of Historic Places includes 47 listings in Racine County and includes over 41 historic buildings or structures and six historic districts. Of the National Register Places in Racine County, all but one district, Racine Rubber Company Homes Historic District, is listed on the State Register of Historic Places.

The Wisconsin Architecture and History Inventory, which is also maintained by the Wisconsin Historical Society, is a more extensive inventory of buildings, structures, and objects that are historically significant to the State of Wisconsin. While the inventory does include sites listed in the State and National Registers, it is not limited to sites that have a special status or designation. A total of 2,889 properties in Racine County are currently included in the Architecture and History Inventory database. The inventory is accessible through the Wisconsin Historical Society's website at *http://www.wisconsinhistory.org/ahi/*.

Map 17

EXISTING COUNTY AND STATE PARK AND OPEN SPACE SITES IN RACINE COUNTY: 2006



Source: Wisconsin Department of Natural Resources and SEWRPC.

Table 16

EXISTING STATE-OWNED PARK AND OPEN SPACE SITES IN RACINE COUNTY BY CIVIL DIVISION: 2006

Number on Map 17	Civil Division	Site Name	Area (acres)
33	Village of Caledonia	32nd Division Memorial Marker & Wayside	3
34		Ranger Mac Fen	33
35		Renak-Polak Maple Beech Woods	108
		Subtotal: 3 Sites	144
36	Village of Mt. Pleasant	DOT Site	4
37		Scattered Wetland	5
		Subtotal: 2 Sites	9
38	Town of Burlington	Karcher Marsh Wildlife Area	279
39		Scattered Wetland	157
		Subtotal: 2 Sites	436
40	Town of Dover	DOT Site	10
41		Eagle Lake Fishery Area (North)	60
42		Eagle Lake Fishery Area (South)	37
43		Scattered Wetland	81
		Subtotal: 4 Sites	188
44	Town of Norway	Scattered Wetland	85
45		Statewide Public Access	1
46		Statewide Public Access	1
47		State Wetland	260
48		Wind Lake Fishery Area	20
		Subtotal: 5 Sites	367
49	Town of Rochester	Honey Creek Wildlife Area	1,050
		Subtotal: 1 Site	1,050
50	Town of Waterford	Tichigan Wildlife Area	1,204
		Subtotal: 1 Site	1,204
51	Town of Yorkville	DOT Site	8
		Subtotal: 1 Site	8
- -	- -	Total: 19 Sites	3,406

Source: SEWRPC.

Archaeological Sites

Preservation of archaeological resources is also important in sustaining the sense of cultural heritage and identity in Racine County. Like historical places and districts, significant prehistoric and historic archaeological sites increase the understanding and awareness of the past and provide for economic opportunities through tourism if properly identified and preserved. The Office of the State Archaeologist, Historic Preservation Division, of the Wisconsin Historical Society maintains the State Archaeological Site Inventory, which is a database on the location and nature of known archaeological sites in Wisconsin. This inventory has been compiled from a variety of sources. The information available for the listed sites varies considerably, and the Historical Society has not been able to verify all of the information. It is important to note that the listed sites include only those sites that have been reported to the Wisconsin Historical Society. As of 2006, there were 335 known prehistoric and historic archaeological sites located in Racine County listed in the State Archaeological Site Inventory.

Table 17

PARK AND OPEN SPACE SITES OWNED BY LOCAL UNITS OF GOVERNMENT IN RACINE COUNTY

Number on Map 18	Civil Division	Site Name	Ownership	Area (acres)
1	City of Burlington	Bear Meadows Park I	City	4
2		Bear Meadows Park II	City	2
3		Beaumont Ball Field	City	7
4		Beverly Jo Park	City	1
5		Burlington High School (new site)	School District	39
6		Burlington High School (old site)	School District	12
7		Burlington Junior High	School District	7
8		Cooper School	School District	1
9		Devor Park	City	6
10		Echo Lake Veterans Memorial Park	City	9
11		Festival Park	City	5
12		Glen Hintz Sports Complex	City	35
13		Grove St. Park	City	1
14		Highridge Park	City	1
15		Maryland Park	City	15
16		McCanna Park	City	32
17		McCanna Park II	City	1
18		McCanna Wetland Preserve	City	7
19		Meinhardt Park	City	1
20		Nestle Park	City	1
21		Riverside Park	City	13
22		St Mary's Park	City	19
23		Steinhoff Park	City	2
24		Sunset Park	City	2
25		Unnamed Park	City	8
26		Wagner Park	City	1
27		Waller School	School District	5
28		Watertower Park	City	1
29		Wehmhoff Square	City	1
30		Wehmhoff-Jucker Benson Park	City	3
31		West Edge Park	City	2
		Subtotal: 31 Sites	- -	244
32	City of Racine	Bi-Centennial Gardens	City	1
33		Brose Park	City	5
34		Builders Park	City	1
35		Carlson Park	City	5
36		Carre Hoagle Park	City	2
37		Case-Harmon Park	City	5
38		Cedar Bend Park	City	2
39		Cheska Park	City	8
40		City Hall	City	1
41		City Land	City	1
42		Clayton Park	City	6
43		Colbert Park	City	1
44		Colonial Park	City	74
45		Crosswalk Park	City	1
46		De Koven Woods	City	7
47		Dodge Park	City	5
48		Douglas Park	City	5
49		Dr. Hamilton Park	City	1
50		Dr. Martin Luther King, Jr. Park	City	2
51		Dr. Martin Luther King, Jr. Plaza	City	1
52		Dr. Pierce Park	City	1
53		Erskine Park	City	8
54		Festival Park	City	3
55		Fine Arts School	School District	1
56		Franklin Park	City	4
57		Fratt School	School District	1
58		Fuller Park	City	1
59		Gaslight Pointe	City	1
60		Giese School	School District	7
61		Gilmore School	School District	9
62		Goodland School	School District	5

Table 17 (continued)

Number on Map 18	Civil Division	Site Name	Ownership	Area (acres)
63	City of Racine (continued)	Grand Park	City	1
64		Greencrest Park	City	5
65		Hagerer Park	City	1
66		Hantschel Park	City	8
67		Harris Plaza	City	1
68		Harvey Park	City	2
69		Highland Park	City	1
70		Horlick Athletic Field	City	9
71		Horlick High School And Wadewitz School	School District	21
72		Humble Park	City	17
73		Island Park	City	22
74		Janes School	School District	1
75		Jay-Eye-See Park	City	1
76		Jefferson School	School District	1
77		Jerstad Agerholm School	School District	9
78		Johnson Park and Golf Course	City	335
79		Johnson Park Dog Run	City	27
80		Johnson School	School District	10
81		John Thompson Park	City	1
82		Jonas Park	City	1
83		Jones Park	City	1
84		Jones School	School District	2
85		Knapp School	School District	4
86		Lakeview Park	City	5
87		Lee Park	City	3
88		Lincoln Park	City	24
89		Lockwood Park	City	38
90		Maple Grove Park	City	6
91		Marino Park	City	3
92		Marquette Park	City	1
93		Mary Ellen Helgren Johnson Preserve	City	4
94		Mat Matson Park	City	2
95		McKinley School	School District	2
96		Mitchell School	School District	3
97		Monument Square	City	1
98		North Beach	City	38
99		Oak Park	City	6
100		Olsen Prairie	City	18
101		Park Place	City	1
102		Parker Park	City	1
103		Pedar Back Park	City	1
104		Pershing Park	City	30
105		Pierce Woods Park	City	7
106		Pugh Recreation Area	City	1
107		Racine Zoological Gardens	City	25
108		Randolph Park	City	1
109		Red Apple School	School District	1
110		Reservoir Park	City	22
111		Riverside Park	City	17
112		Robert G. Heck Airport Park	City	2
113		Rooney Recreation Area	City	1
114		Roosevelt Park	City	13
115		Sam Azarian Outlook	City	1
116		Samuel Myers Park	City	7
117		Simonson Park	City	4
118		Solbraa Park	City	3
119		Springvale East Park	City	1
120		Springvale West Park	City	1
121		Starbuck Middle School	School District	13
122		State Hamilton Park	City	1
123		Theodore Roosevelt School	School District	2
124		Walden III Alternative School	School District	2
125		Wallis Park	City	1
126		Washington Park Bowl	School District	11
127		Washington Park Community Center	City	3
128		Washington Park Golf Course	City	75
129		Washington Park High School	School District	7

Table 17 (continued)

Number on Map 18	Civil Division	Site Name	Ownership	Area (acres)
130	City of Racine (continued)	Wellington Park	City	1
131		West Park	City	3
132		Winslow School	School District	1
133		Wustum Museum	City	10
		Subtotal: 102 Sites	- -	1,080
134	Village of Caledonia	5 1/2 Mile Park - Marsh	Town	21
135		Caddy Vista School	School District	7
136		Caledonia Town Land	Town	21
137		Caledonia/Mt. Pleasant Memorial Park	Town	53
138		Chapla Park	Town	9
139		County Line Park	Town	17
140		Crawford Park	Town	20
141		Eastside Community Center	Town	1
142		Gorney Park	Town	40
143		Linwood Park	Town	18
144		Nicholson Wildlife Refuge	Town	127
145		North Park School	School District	4
146		Olympia Brown Elementary School	School District	8
147		Open Space Site	School District	29
148		Town Owned Land	Town	22
149		Town Owned Land	Town	7
150		W. Allen Gifford School	School District	12
151		Woodland Park	Town	4
		Subtotal: 18 Sites	- -	420
152	Village of Elmwood Park	Village Hall Playground	Village	3
		Subtotal: 1 Site	- -	3
153	Village of Mt. Pleasant	Bud Orth Memorial Park	Town	4
154		Cozy Acres Park	Town	26
155		Dirske Park	Town	1
156		Drozd Park	Town	6
157		J.I. Case High School	School District	43
158		Lake Park	Town	3
159		Lathrop Manor Subdivision Unnamed Park	Town	3
160		Regency Hills Park	Town	6
161		Sheridan Woods Park	Town	2
162		Smolenski Park	Town	72
163		Stewart McBride Park	Town	40
164		Timmer Lane Park	Town	8
165		Town-Owned Land	Town	75
166		Wayside Park	Town	5
167		Westridge Elementary School	School District	11
		Subtotal: 15 Sites	- -	305
168	Village of North Bay	North Bay Village Park	Village	2
		Subtotal: 1 Site	- -	2
169	Village of Rochester	Pioneer Memorial Park	Village	1
170		Rochester Commons Park	Village	5
		Subtotal: 2 Sites	- -	6
171	Village of Sturtevant	95th Street Park	Village	4
172		Firemen's Park	Village	15
173		Frederick Schulte School	School District	10
174		Sturtevant Park	Village	2
175		Sturtevant School	School District	1
		Subtotal: 5 Sites	- -	32
176	Village of Union Grove	18th Avenue Park	Village	1
177		American Legion Memorial Park	Village	11
178		Bufton Park	Village	1
179		Groves Subdivision Park	Village	4
180		Indian Trail Park	Village	1
181		Joseph Leider Memorial Park	Village	10

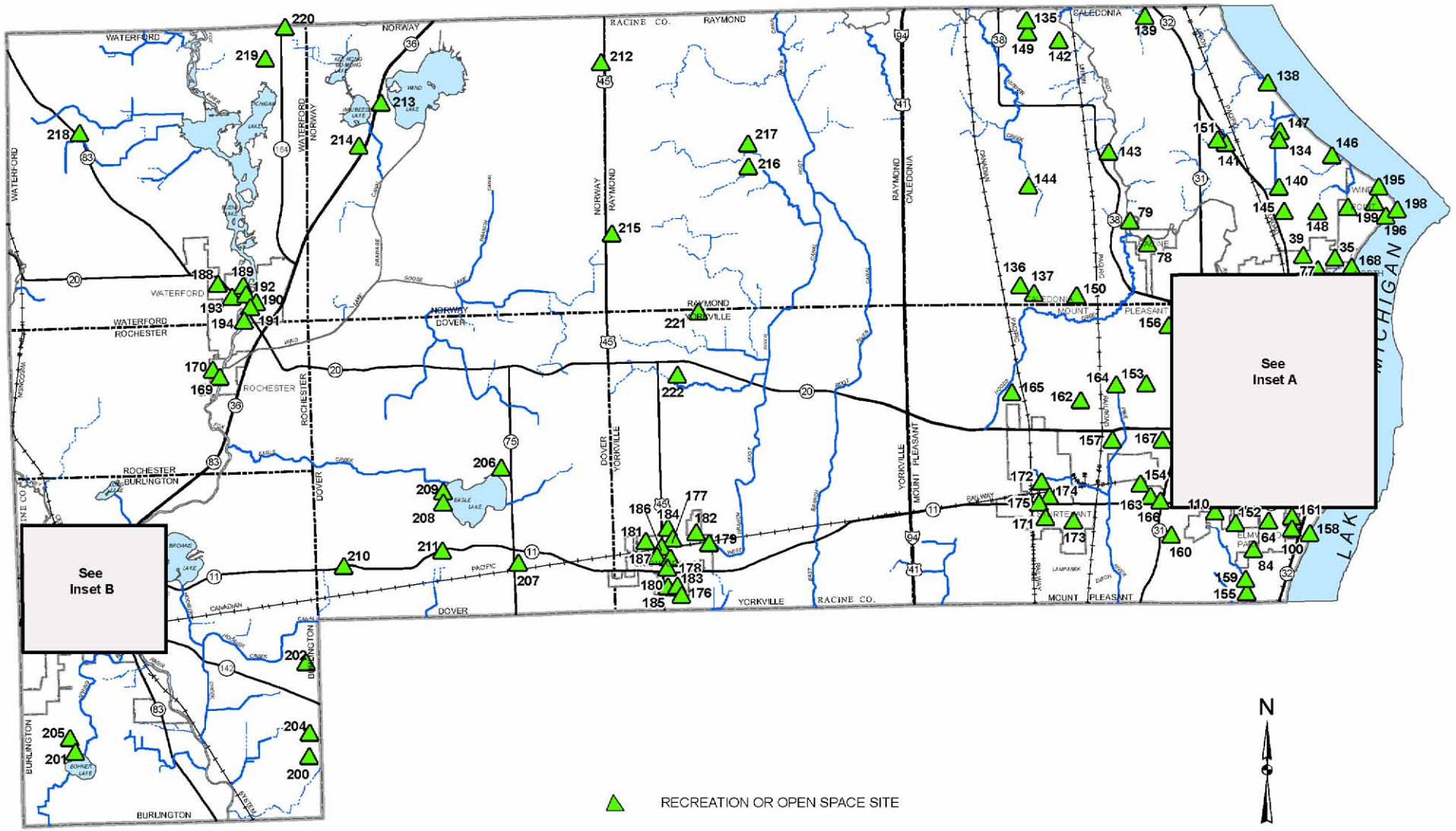
Table 17 (continued)

Number on Map 18	Civil Division	Site Name	Ownership	Area (acres)
182	Village of Union Grove (continued)	Lauer Wildlife Preserve	Village	14
183		Union Grove Grade School	School District	4
184		Union Grove High School	School District	17
185		Union Grove Middle School	School District	29
186		Village Square	Village	1
187		Well #3 Park	Village	1
		Subtotal: 12 Sites	- -	94
188	Village of Waterford	Evergreen Elementary School/Fox River Middle School	School District	12
189		Huening Park	Village	1
190		Safety Building Park	Village	1
191		Ten Club Park	Village	1
192		Village Hall Park	Village	2
193		Waterford Union High School	School District	11
194		Whitford Park	Village	13
		Subtotal: 7 Sites	- -	41
195	Village of Wind Point	Sandyhurst Point Lots	Village	1
196		Shoop Park Golf Course	City	54
197		The Village Green	Village	6
198		Wind Point Lighthouse	Village	5
199		Wind Point School	School District	7
		Subtotal: 5 Sites	- -	73
200	Town of Burlington	Burlington School Forest	School District	160
201		Lagoon Park	Town	2
202		Town Land	Town	40
203		Wehmhoff Woodland Preserve	Town	80
204		Wilmot High School Forest	School District	160
205		Winkler School	School District	2
		Subtotal: 6 Sites	- -	444
206	Town of Dover	Dover Center	School District	1
207		Kansasville School	School District	2
208		Mohican Park	Town	1
209		Tomahawk Park	Town	2
210		Town Land	Town	3
211		Veterans Memorial Wayside Park	Town	1
		Subtotal: 6 Sites	- -	10
212	Town of Norway	Drought School	School District	3
213		Lakeview School	School District	5
214		Meyer Park	Town	31
		Subtotal: 3 Sites	- -	39
215	Town of Raymond	North Cape School	School District	12
216		Raymond Center School	School District	11
217		Raymond Town Park	Town	10
		Subtotal: 3 Sites	- -	33
218	Town of Waterford	Caldwell Fire Station No. 2	Town	13
219		Undeveloped Park Site	Town	30
220		Washington School	School District	1
		Subtotal: 3 Sites	- -	44
221	Town of Yorkville	Raymond District School	School District	1
222		Yorkville School	School District	5
		Subtotal: 2 Sites	- -	6
- -	- -	Total: 222 Sites	- -	2,876

Source: SEWRPC.

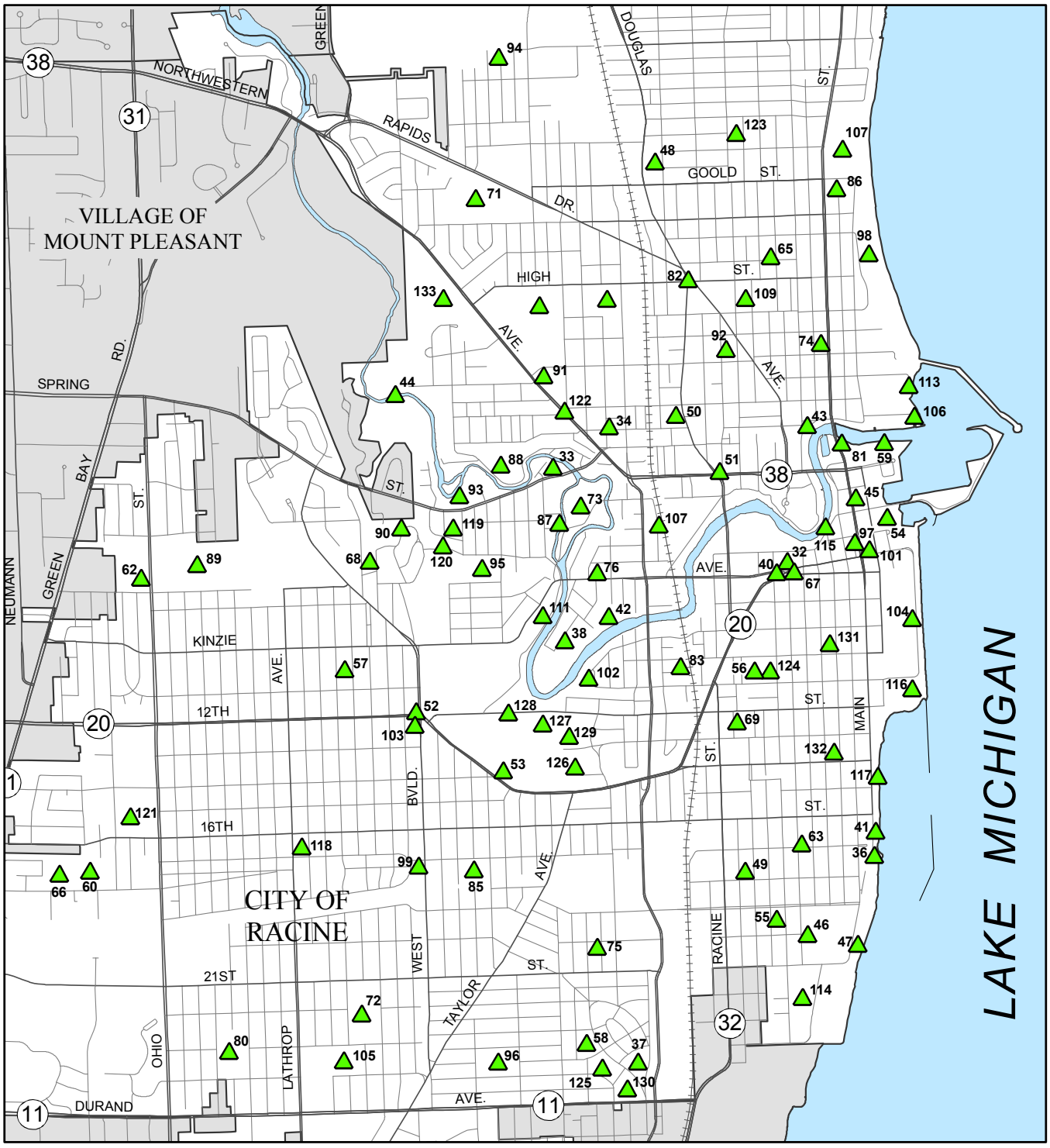
Map 18

PARK AND OPEN SPACE SITES OWNED BY LOCAL UNITS OF GOVERNMENT IN RACINE COUNTY



Source: Wisconsin Department of Natural Resources and SEWRPC.

Inset A to Map 18



RECREATION OR OPEN SPACE SITE

29 REFERENCE NUMBER (SEE TABLE 17)

SURFACE WATER

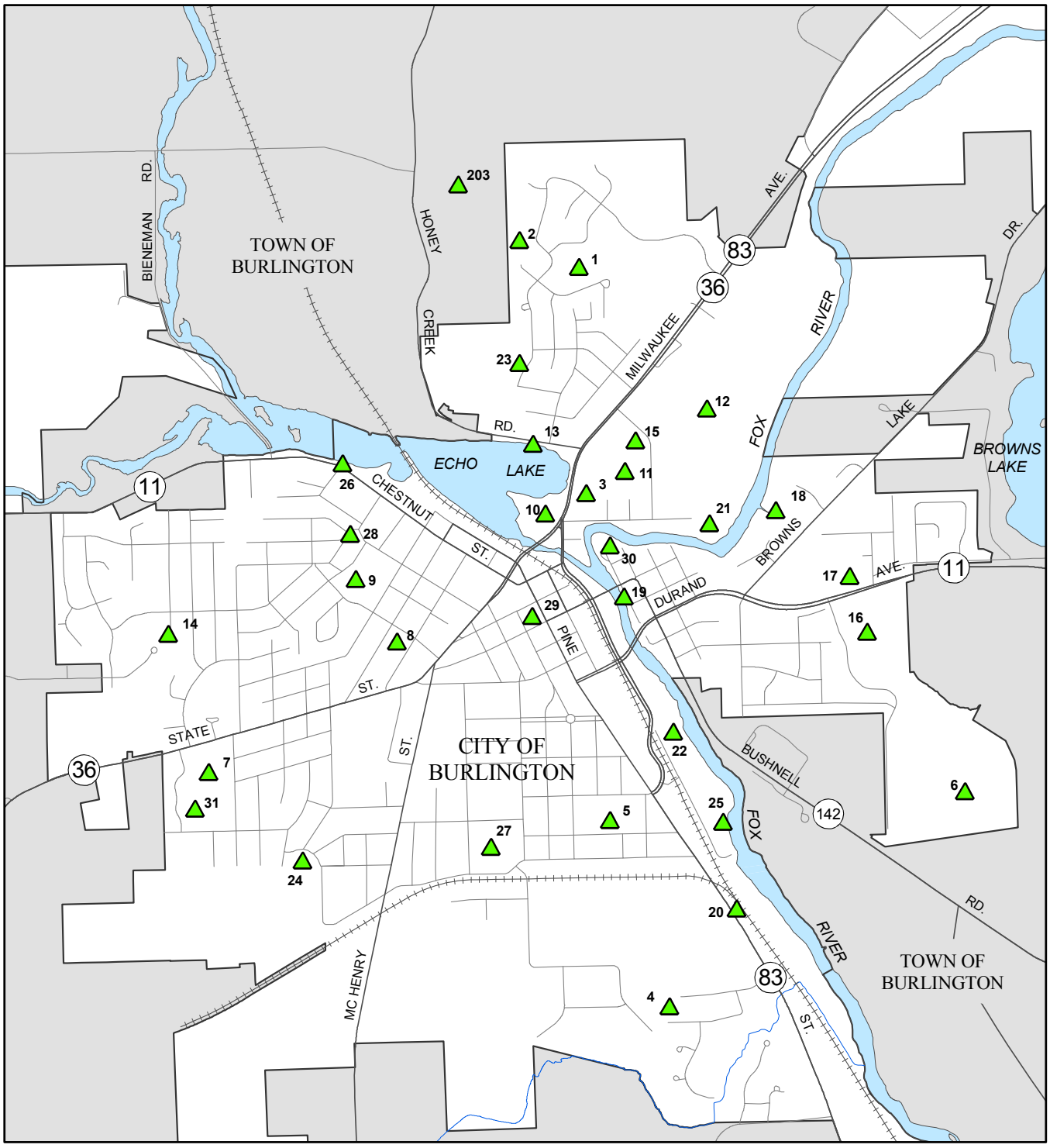
N

0 0.25 0.5 1 Miles

0 1,500 3,000 6,000 Feet

Source: SEWRPC.

Inset B to Map 18



Source: SEWRPC.

DEMOGRAPHICS AND LAND USE

Demographics

The Regional Planning Commission's historic urban growth inventory provides insight into the spatial pattern of urban development in the County over time. This inventory delineates the outer limits of concentrations of urban development at selected points in time beginning in 1850. Areas identified as urban include locations where residential structures and other buildings have been constructed in relatively compact groups, representing concentrations of residential, commercial, industrial, and other urban land uses. In addition, the identified urban areas encompass certain open space lands such as parks and other small permanent open space areas within the urbanized areas.

The historical growth and development of Racine County is depicted on Map 19. As shown on that map, urban development in the County was largely confined to the City of Racine area along Lake Michigan before 1850. Over the next 50 years, from 1850 to 1900, as the modern amenities of public water and sewer systems, electricity, telephone, and gas used for cooking and heating became available, growth continued in the City of Racine area. Additional growth also occurred away from the historic downtown center of Racine with an emergence of small urban, or merchandise, centers in the City of Burlington and the Villages of Rochester, Union Grove, and Waterford. Between 1900 and 1950, urban development continued to expand outward from the Cities of Racine and Burlington as well as around several inland lakes. The period between 1950 and 1963 experienced significant growth adjacent to existing urban areas and in scattered enclaves throughout the County. In the decade after 1963, scattered urban development continued to occur throughout the County, particularly in the central portions of the County. That change toward scattered urban development outside of established urban centers has continued in many areas of the County.

Land Use

Soil erosion problems, water pollution problems, land use conflicts, including recreational use and the risk of damage to the environment, as well as the ultimate means for abatement of these problems, are primarily a function of human activities within the County, and of the ability of the underlying natural resource base to sustain those activities. This becomes especially significant in areas that are in close proximity to lakes, wetlands, and streams. Accordingly, the land uses and attendant population levels in the County are important considerations in the development of Racine County's land and water resource management plan. The Regional Planning Commission's land use inventory delineates and quantifies the area devoted to various urban and nonurban land uses throughout the Southeastern Wisconsin Region. The initial regional land use inventory was completed in 1963, while the most recent inventory was completed in 2000. Existing land uses in the County in 2000 are shown on Map 20 and are quantitatively summarized in Table 18.

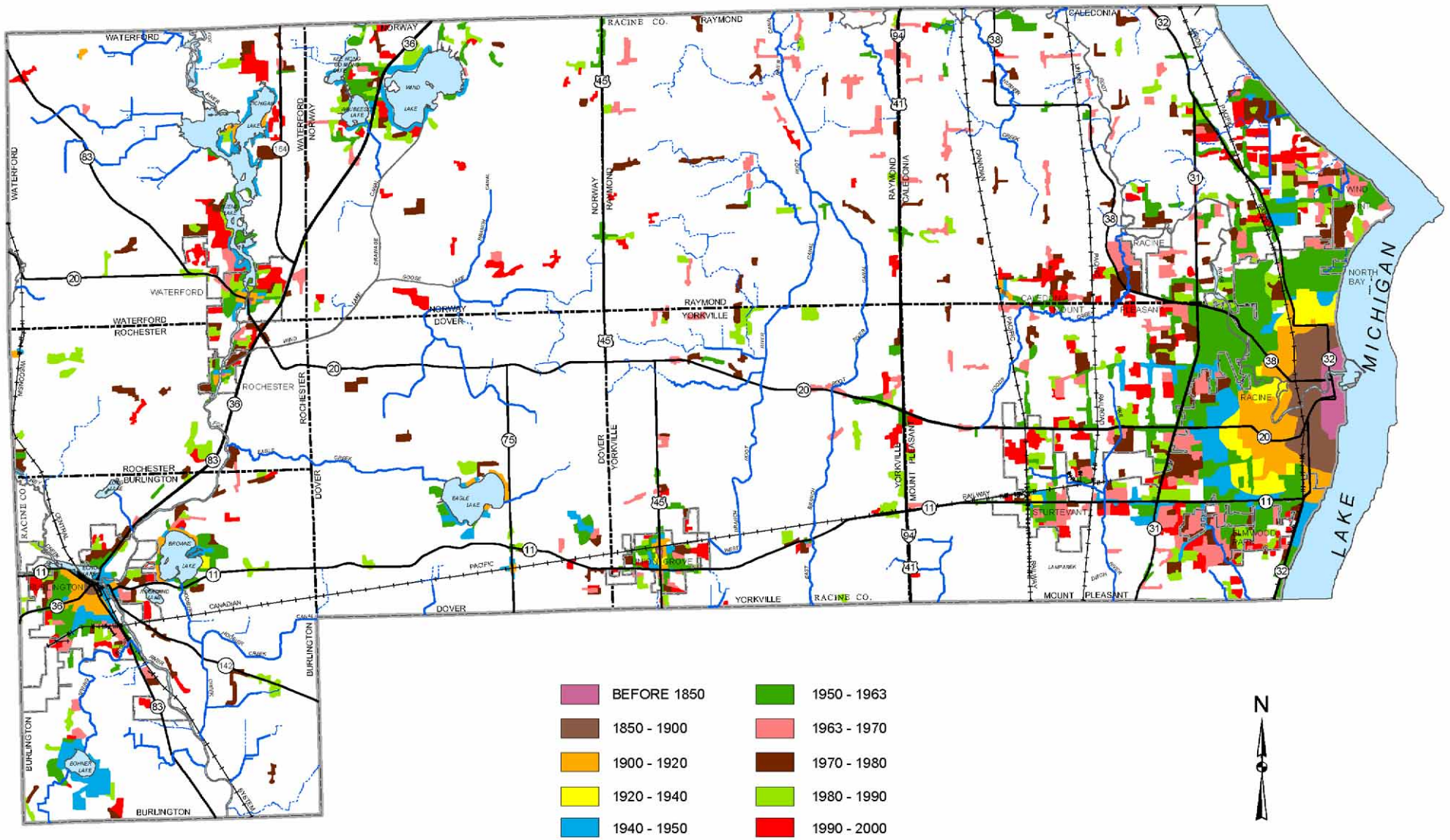
Urban Land Uses

Urban land uses consist of residential, commercial, industrial, transportation, communication, and utility uses, governmental and institutional, recreational and unused urban land. As indicated in Table 18 and on Map 20, urban land uses encompassed 50,345 acres (78.7 square miles), or about 23 percent of the County, in 2000. This compares to urban land uses comprising 28 percent of the Southeastern Wisconsin Region in 2000.

As indicated in Table 18, residential land comprised the largest urban land use category in 2000, encompassing about 23,450 acres (36.6 square miles), or 46 percent of all urban land in the County. Commercial land encompassed about 1,930 acres (3.0 square miles), or 4 percent of all urban land. Industrial land encompassed about 2,430 acres (3.8 square miles), or 5 percent of all urban land. Land used for governmental and institutional purposes encompassed 2,280 acres (3.6 square miles), or 4 percent of all urban land. Land devoted for intensive recreational uses encompassed about 3,000 acres (4.7 square miles), or 6 percent of all urban land. Lands devoted to transportation, communication, and utilities uses encompassed about 13,350 acres (20.9 square miles), or 27 percent of all urban lands; streets and highways rights-of-way accounted for 11,400 acres, or 85 percent of the transportation, communication, and utilities category. Unused urban land accounted for about 3,900 acres (6.1 square miles), or 8 percent of all urban land.

Map 19

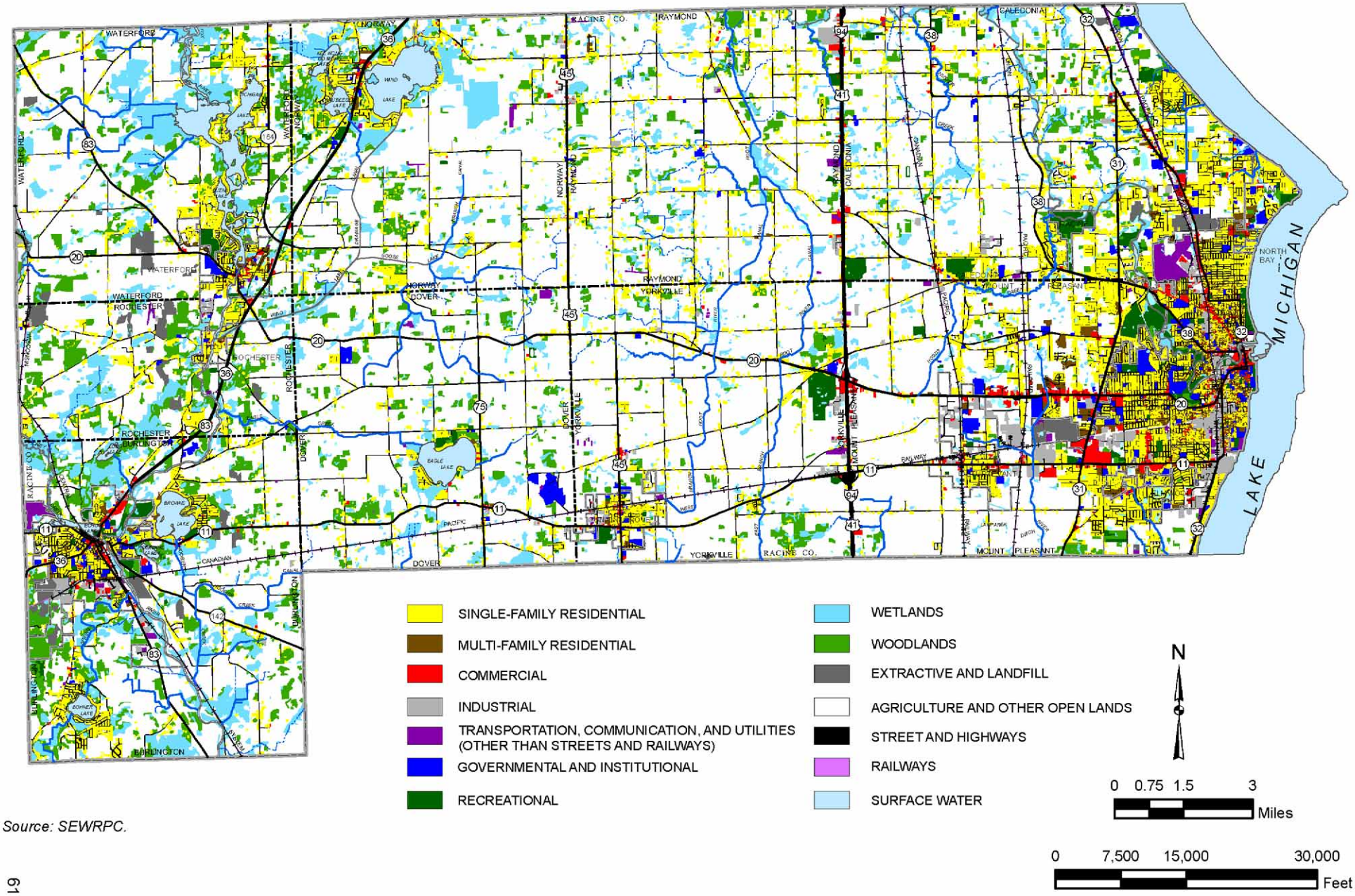
HISTORICAL URBAN GROWTH IN RACINE COUNTY: 1850-2000



Source: SEWRPC.

Map 20

EXISTING LAND USE IN RACINE COUNTY: 2000



Source: SEWRPC.

Table 18

EXISTING LAND USE IN RACINE COUNTY: 1963, 1980, AND 2000

Land Use Category[a]	1963			1980			2000			Change					
										1963-1980		1980-2000		1963-2000	
	Area (acres)	Percent of Urban/ Nonurban	Percent of Total	Area (acres)	Percent of Urban/ Nonurban	Percent of Total	Area (acres)	Percent of Urban/ Nonurban	Percent of Total	Area (acres)	Percent	Area (acres)	Percent	Area (acres)	Percent
Urban															
Residential															
Single-Family	11,796	39.9	5.4	17,128	43.3	7.9	21,900	43.5	10.0	5,332	45.2	4,772	27.9	10,104	85.7
Multi-Family	577	2.0	0.3	1,055	2.7	0.5	1,547	3.1	0.7	478	82.8	492	46.6	970	168.1
Subtotal	12,373	41.9	5.7	18,183	46.0	8.3	23,447	46.6	10.7	5,810	47.0	5,264	29.0	11,074	89.5
Commercial	722	2.4	0.3	1,220	3.1	0.6	1,929	3.8	0.9	498	69.0	709	58.1	1,207	167.2
Industrial	797	2.7	0.4	1,642	4.1	0.8	2,429	4.8	1.1	845	106.0	787	47.9	1,632	204.8
Transportation, Communication, and Utilities															
Streets and Highways	8,399	28.4	3.9	9,726	24.6	4.5	11,399	22.7	5.2	1,327	15.8	1,673	17.2	3,000	35.7
Railroads	1,272	4.3	0.6	1,024	2.6	0.5	866	1.7	0.4	-248	-19.5	-158	-15.4	-406	-31.9
Other	651	2.2	0.3	899	2.3	0.4	1,088	2.2	0.5	248	38.1	189	21.0	437	67.1
Subtotal	10,322	34.9	4.8	11,649	29.5	5.4	13,353	26.6	6.1	1,327	12.9	1,704	14.6	3,031	29.4
Governmental and Institutional	1,340	4.5	0.6	2,025	5.1	0.9	2,278	4.5	1.0	685	51.1	253	12.5	938	70.0
Recreational	1,659	5.6	0.8	2,429	6.1	1.1	3,008	6.0	1.4	770	46.4	579	23.8	1,349	81.3
Unused Urban	2,365	8.0	1.1	2,434	6.0	1.1	3,901	7.7	1.8	69	2.9	1,467	60.3	1,536	64.9
Urban Subtotal	29,578	100.0	13.7	39,582	99.9	18.2	50,345	100.0	23.0	10,004	33.8	10,763	27.2	20,767	70.2
Nonurban															
Natural Areas															
Surface Water	4,772	2.5	2.2	5,173	2.9	2.4	5,201	3.1	2.4	401	8.4	28	0.5	429	9.0
Wetlands	15,443	8.2	7.1	15,085	8.5	6.9	15,885	9.5	7.3	-358	-2.3	800	5.3	442	2.9
Woodlands	13,699	7.3	6.3	12,953	7.3	5.9	12,679	7.6	5.8	-746	-5.4	-274	-2.1	-1,020	-7.4
Subtotal	33,914	18.0	15.6	33,211	18.7	15.2	33,765	20.2	15.5	-703	-2.1	554	1.7	-149	-0.4
Extractive and Landfill	1,195	0.6	0.5	1,093	0.6	0.5	1,619	1.0	0.7	-102	-8.5	526	48.1	424	35.5
Agricultural	148,800	79.0	68.1	138,321	77.5	63.4	125,185	74.5	57.5	-10,479	-7.0	-13,136	-9.5	-23,615	-15.9
Unused Rural	4,550	2.4	2.1	5,786	3.2	2.7	7,136	4.3	3.3	1,236	27.2	1,350	23.3	2,586	56.8
Nonurban Subtotal	188,459	100.0	86.3	178,411	100.0	81.8	167,705	100.0	77.0	-10,048	-5.3	-10,706	-6.0	-20,754	-11.0
Total	218,037	- -	100.0	217,993	- -	100.0	218,050	- -	100.0	-44	0.0	57	0.0	13	0.0

[a] *Off-street parking area is included with the associated land use.*

Source: SEWRPC.

As indicated in Table 18, between 1963 and 2000, urban land uses in the County increased by about 20,800 acres (32.8 square miles), or 70 percent. This includes increases of 10,000 acres between 1963 and 1980, and 10,800 acres between 1980 and 2000. Between 1963 and 2000, residential lands increased by 90 percent; commercial lands increased by 167 percent; industrial lands increased by 205 percent; transportation, communication, and utility land increased by 29 percent; governmental and institutional land increased by 70 percent; and recreational land increased by 81 percent.

Nonurban Land Uses

Areas considered as nonurban land uses under the land use inventory include agricultural lands, wetlands, woodlands, surface water, extractive and landfill sites, and unused rural lands. As indicated in Table 18 and on Map 20, nonurban lands encompassed about 167,700 acres (262.0 square miles), or 77 percent of the County in 2000. Agricultural land constituted the largest nonurban land use category, encompassing about 125,200 acres (195.6 square miles) or 75 percent of all nonurban land, and 58 percent of the County. Natural resource areas, consisting of surface water, wetlands, and woodlands, combined to encompass about 33,800 acres (52.8 square miles), or 20 percent of all nonurban lands in 2000. All other nonurban lands, including extractive, landfill, and unused rural lands, comprised about 8,700 acres (13.7 square miles), or 5 percent of all nonurban lands.

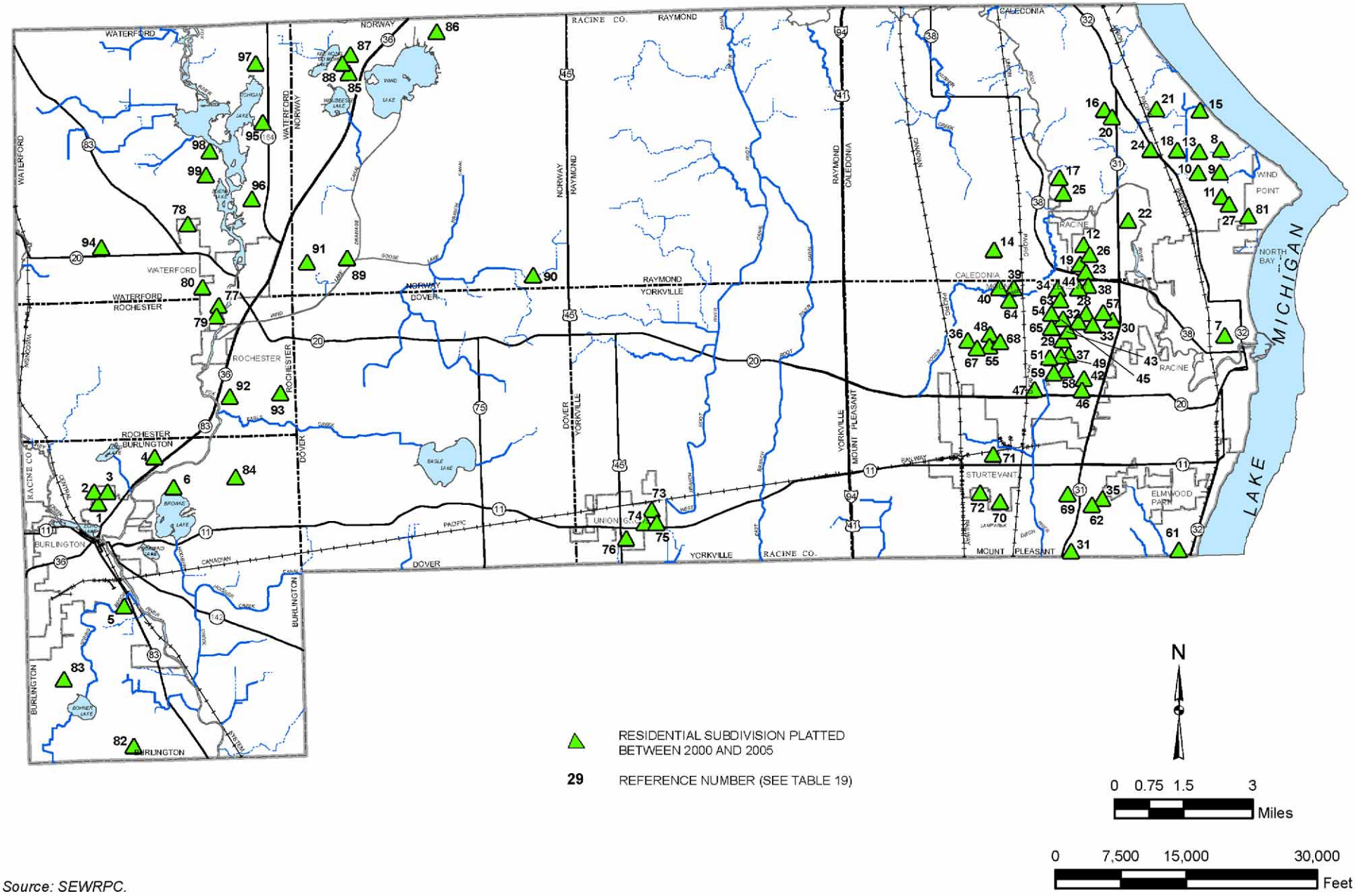
Nonurban lands in the County decreased by about 20,800 acres (32.4 miles), or 11 percent, between 1963 and 2000. Much of this decrease may be attributed to the conversion of agricultural land to urban uses such as residential development. As indicated in Table 17, the wetland area in the County decreased by about 360 acres between 1963 and 1980, followed by a fairly significant increase of 800 acres, between 1980 and 2000. The woodland area decreased moderately, by about 1,000 acres, between 1963 and 2000. It should be noted that the change in wetland and woodland areas indicated in Table 18 represents the net change within the County. As a result, the change in the wetland area reported between two inventory periods is the net result of decreases in certain areas, due, for example, to drainage or filling activities, while increases may be due to the abandonment of drainage systems or planned wetland restoration efforts. Similarly, the change in woodland area between two inventory periods reflects the net effect of clearing of woodlands in certain areas and/or reforestation efforts in other areas.

Residential Development (2000 to 2005)

To ensure that this assessment includes land use development that has occurred to date, the 2000 land use inventory was supplemented by identifying major development projects that occurred between 2000 and 2005, based on the 2005 digital orthophotography produced by SEWRPC in cooperation with Racine County, field checks, and consultation with local and County officials and staff. Subdivision and condo plats and certified survey maps recorded with the County between 2000 and 2005 were also used to update existing land use information. Map 21 and Table 19 show the locations of residential development activity in the County between 2000 and 2005. The map shows areas that have been developed or subdivided for residential development, including subdivision plats that were recorded with the Racine County Register of Deeds from 2000 through 2005.

Map 21

RESIDENTIAL SUBDIVISIONS PLATTED IN RACINE COUNTY: 2000-2005



Source: SEWRPC.

Table 19

RESIDENTIAL SUBDIVISIONS PLATTED IN RACINE COUNTY: 2000-2005

Number on Map 21	Location	Name of Subdivision	Number of Lots	Size (gross acres)	Year Platted
1	City of Burlington	Falcon Ridge Subdivision Phase 2	10	9.3	2000
2		The Replat of Falcon Ridge Subdivision Phase 3	33	30.8	2002
3		The Replat of Falcon Ridge Subdivision Phase 3	33	30.8	2003
4		Spring Brook Landing, A Subdivision	51	29.0	2004
5		The Glen at Stonegate	31	16.3	2004
6		Fox River Landing At The Murphy Farm	23	13.5	2005
7	City of Racine	Charlestown	6	0.9	2003
8	Village of Caledonia[a]	Arlington Heights No. 5	35	14.5	2000
9		Arlington Meadows III	44	15.4	2000
10		Park Meadow Estates	45	19.8	2000
11		St. Andrew Meadow Addition No. 2	17	5.5	2000
12		Eagle Point	51	28.8	2001
13		Newberry Glen Addition No. 3	1	2.5	2001
14		Harbach Estates	5	4.4	2002
15		Lakeside Estates	38	20.7	2002
16		Majestic Manor West	15	8.4	2002
17		River Meadows Addition No. 2	21	19.7	2002
18		Tornoe Estates	37	16.2	2002
19		Auburn Hills	113	85.5	2003
20		Wooded Valley Estates	32	33.8	2003
21		Bay Wood Estates Addition No. 1	43	19.5	2004
22		Quarry Springs	22	75.9	2004
23		Rolling Fields Addition. No. 2	12	8.4	2004
24		Woodview Subdivision	5	5.0	2004
25		Blue River Preserve	63	73.5	2005
26		Eagle Point Addition No. 1	20	16.5	2005
27		Maple Park	72	25.0	2005
28	Village of Mt. Pleasant[a]	Hampton Heights East	8	3.7	2000
29		Summit View Estates	46	28.8	2000
30		Coach Hills	14	5.6	2001
31		Deer Run At Campell Woods	26	25.8	2001
32		Hampton Heights East Addition No. One	7	3.0	2001
33		Hampton Heights East Addition No. Two	6	2.0	2001
34		Jamestown IV	48	22.7	2001
35		Regency Hills Addition No. 4	9	6.4	2001
36		Wooded Ridge	31	20.2	2001
37		Pheasant Creek Addition No. Seven	19	9.7	2002
38		Rolling Fields	40	22.1	2002
39		Deer Creek Estates	124	93.1	2003
40		Deer Creek Estates West	8	109.1	2003
41		Deer Run At Campbell Woods Addition Number 1	20	16.6	2003
42		Fox Run	23	12.9	2003
43		Pheasant Creek Addition No. Eight	8	3.2	2003
44		Rolling Fields Addition No. 1	51	28.3	2003
45		Spring Meadows	44	18.4	2003
46		Christina Estates, A Subdivision	23	21.5	2004
47		Jackson Place	15	7.2	2004
48		Oak Hill	38	30.1	2004
49		Pheasant Creek Addition No. Nine	16	7.8	2004
50		Pheasant Creek West Merganser Addition	18	7.6	2004
51		Pheasant Creek West Subdivision	18	8.1	2004
52		Potomac Point	8	3.0	2004
53		Spring Meadows Addition No. One	22	9.8	2004
54		Spring Meadows-Cedarhedge Addition	6	1.6	2004
55		The Preserve	55	57.2	2004
56		Wooded Ridge Addition. No. 1	32	14.9	2004
57		Coach Hills Addition. No. One	34	17.3	2005
58		Pheasant Creek West Dove Addition	14	5.6	2005
59		Pheasant Creek West Kingsview Addition	22	8.6	2005
60		Potomac Point	8	3.0	2005

Table 19 (continued)

Number on Map 21	Location	Name of Subdivision	Number of Lots	Size (gross acres)	Year Platted
61	Village of Mt. Pleasant[a] (continued)	Providence Port, A Subdivision	56	46.4	2005
62		Regency Hills Addition No. 5	11	4.1	2005
63		Rosemary Meadow	18	7.7	2005
64		Settlement At Hoods Creek	70	61.6	2005
65		Spring Meadows-Bluegrass Addition	35	23.1	2005
66		Spring Meadows-Raintree Addition	18	9.3	2005
67		Tall Oak Woods	10	9.9	2005
68		The Meadows	28	22.9	2005
69		The Regent	90	39.3	2005
70	Village of Sturtevant	Majestic Hills III	251	119.1	2003
71		Pine Meadows	8	2.4	2004
72		Chicory Creek	103	46.6	2005
73	Village of Union Grove	"The Groves" Addition. No. 3	19	12.2	2000
74		Maple Grove	22	25.1	2002
75		Maple Grove Addition	7	3.3	2003
76		High Grove Estates	39	17.5	2005
77	Village of Waterford	Waterford Landing on The Fox	39	44.3	2000
78		Fairview Estates North	127	69.2	2001
79		Waterford Landing on The Fox Addition No. 1	62	77.1	2003
80		Fox Glen	97	40.3	2005
81	Village of Wind Point	Prairie Meadow Homes of Wind Meadows Planned Community Development Subdivision	16	3.4	2004
82	Town of Burlington	Schaal Ridge Estates	6	28.9	2002
83		Pine Ridge	16	13.4	2004
84		Stoney Hills Subdivision	6	40.9	2005
85	Town of Norway	Lilac Meadows	12	7.6	2000
86		Twilight Heights	15	13.7	2001
87		Long Lake Estates	49	67.8	2002
88		Long Lake Estates First Addition	40	50.3	2003
89		Eagle View Ridge	24	78.3	2004
90		Britton Ridge Estates	19	118.2	2005
91		Norway Highlands	20	70.1	2005
92	Town of Rochester	Fox River Prairie Subdivision	71	55.0	2002
93		Rock Ridge Subdivision	13	82.2	2005
94	Town of Waterford	Deer Run	19	38.5	2000
95		Stonegate Estates	26	21.7	2001
96		Fowlers Bay North	14	52.2	2003
97		Golden Meadows At Lake Tichigan Addition No. 3	12	14.3	2004
98		Rivers Turn	29	66.6	2005
99		Rivers Turn Addition No. 1	8	94.8	2005
- -	- -	Total	3,264	2,863.8	- -

[a]*Caledonia and Mt. Pleasant were incorporated as Villages in 2005 and 2003, respectively.*

Source: SEWRPC.

Chapter III

RELATED PLANS, REGULATIONS, AND PROGRAMS

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

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

REGIONAL PLANS

Regional Land Use Plan

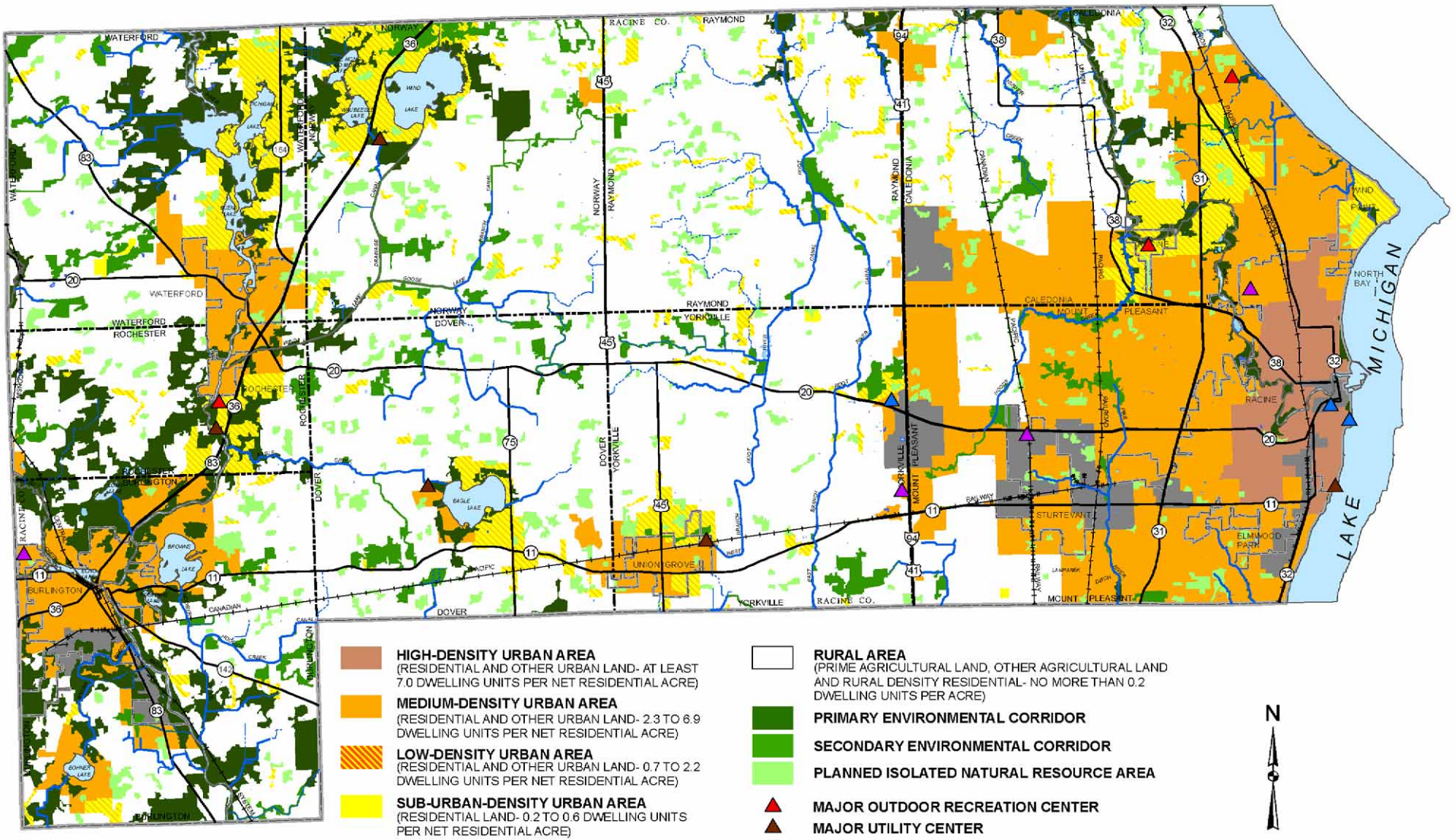
The regional land use plan sets forth the fundamental concepts that are recommended to guide the development of the seven-county Southeastern Wisconsin Region. The recommended regional land use plan[1] map, as it pertains to Racine County, is shown on Map 22. The key recommendations of the plan include:

---

[1]*Documented in SEWRPC Planning Report No. 48,* A Regional Land Use Plan for Southeastern Wisconsin: 2035, *June 2006.*

Map 22

2035 REGIONAL LAND USE PLAN AS IT PERTAINS TO RACINE COUNTY



Source: SEWRPC.

- ***Environmental Corridors***
  The regional land use plan recommends that development within primary environmental corridors be limited to transportation and utility facilities, compatible outdoor recreational facilities, and, on a limited basis, rural density housing located at the fringes of upland environmental corridor using conservation design principles at a maximum density of one dwelling unit per five acres. The plan further recommends the preservation, to the extent practicable, of the remaining secondary environmental corridors and isolated natural resource areas, as determined through county and local planning efforts. Primary environmental corridors are shown on Map 16 in Chapter II of this report. The regional land use plan recommends preservation of the remaining primary environmental corridors in essentially natural and open land uses.

- ***Urban Development***
  The regional land use plan recommends a centralized regional settlement pattern within defined urban service areas. New urban development is encouraged to occur largely as infill in existing urban centers and in urban growth areas emanating outward from existing urban centers. The regional plan also recommends that existing developed areas be conserved and enhanced; that new urban development occur at densities which can efficiently and effectively support public sanitary sewerage, water supply, and other services; and that urban development occur only in those areas that are covered by soils suitable for such development and which are not subject to special hazards such as flooding or erosion.

- ***Prime Agricultural Land***
  The regional land use plan recommends that prime agricultural land be preserved for long-term agricultural use and not be converted to either urban development or to other forms of rural development. An exception is prime agricultural land located adjacent to existing urban centers and within planned urban growth/sewer service areas, which is proposed to be converted to urban use to provide for orderly growth of those urban centers. The regional plan defers to county plans to identify prime agricultural land. Prime agricultural land is identified by the Racine County farmland preservation plan, which was adopted in 1981.[2] The Racine County park and open space plan,[3] updated the farmland preservation areas to reflect farmland converted to urban uses since 1981.

- ***Other Agricultural and Rural-Density Residential Lands***
  In addition to preserving prime agricultural lands and environmental corridors, the regional land use plan seeks to maintain the rural character of other lands located outside planned urban service areas. The plan encourages continued agricultural and other open space uses in such areas. The plan seeks to limit development in such areas primarily to rural-density residential development, with an overall density of no more than one dwelling unit per five acres. Where rural residential development is accommodated, the regional plan encourages the use of conservation design, with homes grouped together on relatively small lots surrounded by permanently preserved agricultural, recreational, or natural resource areas such as woodlands, wetlands, or prairies sufficient to maintain the maximum recommended density of no more than one home per five acres.

---

[2]*Documented in SEWRPC Community Assistance Planning Report No. 45* A Farmland Preservation Plan for Racine County, Wisconsin*, June 1981.*

[3]*Documented in SEWRPC Community Assistance Planning Report No. 134,* A Park and Open Space Plan for Racine County, Wisconsin, *2nd Edition July 2001.*

Regional Transportation System Plan
The regional transportation system plan[4] is intended to provide a vision for, and guide to, transportation system development in the Region for 20 or more years into the future. It is a multimodal plan of recommended transportation actions designed to address existing and anticipated future transportation problems and needs. The plan consists of four principal elements: public transit, systems management, bicycle and pedestrian facilities, and arterial streets and highways. Future needs for transit, street and highway, and other transportation improvements considered in the regional transportation planning process are derived from the future growth proposed in the regional land use plan. The 2035 regional transportation system plan elements include arterial street and highway, public transit, transportation systems management, and bicycle and pedestrian facilities.

Regional Natural Areas Plan
The regional natural areas plan as it pertains to Racine County is depicted on Map 14 in Chapter II of this report. The natural areas plan[5] identifies the most significant remaining natural areas, critical species habitats, geological sites, and archaeological sites in the Region, and recommends means for their protection and management. The plan identifies potential sites to be placed in public or private protective ownership, and other sites to be protected, insofar as it is possible, through zoning or other regulatory means without protective ownership. It also recommends that a detailed management plan be prepared and implemented for each site placed under protective ownership. An inventory of natural areas, critical species habitat sites, and geological areas in the County is included in Chapter II.

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

The regional water quality management plan update,[6] which is currently in progress, will result in the reevaluation and, as necessary, revision of the three major elements comprising the original plan including; the land use element, the point source pollution abatement element, and the nonpoint source pollution abatement element. The original plan and its subsequent update and status reports include specific recommendations for reduction of point and nonpoint source pollution delivered to the streams and lakes of the study area. Detailed water quality modeling was used to evaluate the recommended water pollution abatement measures needed to achieve improvements in water quality under year 2020 land use conditions. A major plan objective was to achieve the adopted water use objectives for the streams and lakes of the study area, to the degree practicable. While improvements in water quality would result from implementation of the plan, the adopted water use objectives would not be achieved in all instances.

---

[4]*Documented in SEWRPC Planning Report No. 49,* A Regional Transportation System Plan for Southeastern Wisconsin: 2035, *June 2006.*

[5]*Documented in SEWRPC Planning Report No. 42*, A Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin*, September 1997. The plan is currently being updated.*

[6]*SEWRPC Planning Report No. 50,* A Regional Water Quality Management Plan Update for the Greater Milwaukee Watersheds*, in progress.*

Regional Water Supply Plan
The Commission is conducting a regional water supply study for the Southeastern Wisconsin Region.[7] The regional water supply plan together with past SEWRPC groundwater inventories and a ground water simulation model[8,9] will form the SEWRPC regional water supply management program. The preparation of these three elements includes interagency partnerships with the U.S. Geological Survey, the Wisconsin Geological and Natural History Survey, the University of Wisconsin-Milwaukee, the Wisconsin Department of Natural Resources, and many of the area's water supply utilities.

The regional water supply plan will include the following major components:

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

The recommendations and guidance for groundwater sustainability set forth in SEWRPC Planning Report No. 52 should be considered by municipalities in Racine County when evaluating the sustainability of proposed developments and in conducting local land use planning. The plan is expected to be completed in 2008.

COUNTY AND MULTI-JURISDICTIONAL PLANS

Racine County Multi-Jurisdictional Comprehensive Plan
In February of 2006, the Wisconsin Department of Administration awarded Racine County a planning grant to be used to prepare a comprehensive plan for Racine County and participating local governments.[10] The local government bodies participating with Racine County in the planning process are:

- City of Burlington
- City of Racine
- Town of Burlington
- Town of Dover
- Town of Norway
- Town of Raymond
- Town of Rochester
- Town of Waterford
- Town of Yorkville
- Village of Caledonia
- Village of Elmwood Park
- Village of Mt. Pleasant
- Village of North Bay
- Village of Rochester
- Village of Sturtevant
- Village of Union Grove
- Village of Waterford
- Village of Wind Point

---

[7] *SEWRPC Planning Report No. 52*, A Regional Water Supply Plan for Southeastern Wisconsin*, in progress.*

[8] *SEWRPC Technical Report No. 37,* Groundwater Resources of Southeastern Wisconsin, *June 2002*.

[9] *SEWRPC Technical Report No. 41,* A Regional Aquifer Simulation Model for Southeastern Wisconsin, *June 2005.*

[10] *SEWRPC Community Assistance Planning Report No. 301,* A Multi–Jurisdictional Comprehensive Plan For Racine County: 2035 *, in progress.*

Racine County staff and officials are working with local governments, SEWRPC, and the UW-Extension to produce the comprehensive plan. The SEWRPC staff is drafting the plan chapters for review by County and UW-Extension staff and by the advisory committee composed of local government representatives, local and County officials, and County residents and landowners. The County will provide the local match required by the grant. Participating local governments were not asked for any direct financial contribution for preparation of the multi-jurisdictional comprehensive plan. The importance of the comprehensive plan as a basis for decision-making on land use and related issues is reinforced by consistency requirements in the State planning law, which specify that, beginning on January 1, 2010, zoning, land division, and official mapping regulations must be consistent with the plan.

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

Racine County Park and Open Space Plan

A County park and open space plan[11] was most recently amended in 2001. That plan consists of both an open space preservation element and an outdoor recreation element, intended to, respectively, protect areas containing important natural resources and to provide major parks, areawide trails, and resource-oriented recreational facilities. Major parks are defined as publicly owned parks at least 100 acres in size providing opportunities for such resource-oriented activities as camping, golfing, picnicking, and swimming. Responsibility for providing community parks, neighborhood parks, and local trails is assigned to cities, villages, and towns. Map 17 in Chapter II of this report shows County and State-owned park and open space sites in Racine County in 2006.

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

Racine County Farmland Preservation Plan

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

Prime agricultural lands in Racine County were identified by the Racine County farmland preservation plan,[12] which was adopted by the Racine County Board in June 1981. In this plan, prime agricultural land must meet the following criteria: the farm unit must be at least 35 acres in size; at least 50 percent of the farm unit must be covered by soils which meet Soil Conservation Service (now the USDA Natural Resources Conservation Service) criteria for "Prime Farmland" or "Farmland of Statewide Importance" (generally Class I, II, or III soils); and the

[11] *Documented in SEWRPC Community Assistance Planning Report No. 134,* A Park and Open Space Plan for Racine County, Wisconsin, *2nd Edition July 2001.*

[12] *Documented in SEWRPC Community Assistance Planning Report No. 45* A Farmland Preservation Plan for Racine County, Wisconsin*, June 1981.*

farm should be located in a contiguous farming area at least 100 acres in size. Farmland preservation is recommended by a number of local land use and comprehensive plans.

Racine County Land and Water Resources Management Plan

A land and water resources management plan[13] was adopted by the County Board in September 2000. The plan identifies a set of priority issues related to County land and water resources, including: stormwater management, sedimentation, animal waste runoff, yard waste management, illicit dumping of waste, excessive fertilizer and pesticide application, wetland resource protection, groundwater degradation, loss of farmland and open space, and lack of riparian buffers. These concerns and issues were used as a basis for developing the goals, objectives, and recommended actions for the plan. Recommendations specific to each of the County's five watersheds were divided into the following categories: agricultural land use, nonagricultural and urban land use, water quality and wildlife habitat, educational programming, and groundwater. To address these issues the plan identifies the following goals: reduce agricultural and nonagricultural nonpoint source pollution; reduce sedimentation in agricultural drainageways; encourage urban density land use only within identified urban service areas; improve the overall water quality and wildlife habitat; continue to implement and enhance the County's shoreland management program; reduce the threat to groundwater contamination; and increase educational efforts related to groundwater resources, natural resources, and the environment. The plan defines a work plan, which sets forth the objectives and actions that will be carried out in order to achieve the goals associated with each issue and identifies the agency or organization responsible for carrying out the listed action steps.

Comprehensive Watershed and Basin Plans

The Regional Planning Commission has developed comprehensive plans for the Fox River watershed,[14] Pike River watershed,[15] and the Des Plaines River watershed.[16] The Fox River Watershed encompasses 164 square miles, or about 48 percent of the total land area of Racine County. The Pike River Watershed encompasses 21 square miles, or about 6 percent of the total land area of Racine County. The Des Plaines River Watershed encompasses 11 square miles, or about 3 percent of the total land area of Racine County. Together these comprehensive watershed plans cover approximately 57 percent of the land area of Racine County. These plans include delineations of new floodplain boundaries and updates to existing boundaries along many streams in each watershed. Plan recommendations were developed for future land use, park and open space needs, stormwater and floodland management, water quality management, and fisheries management. These watershed plans also recommend the continued maintenance and preservation in open uses of primary and secondary environmental corridors and isolated natural resource areas, and the reservation and restoration of potential wetland and prairie areas. The WDNR also prepares State of the Basin Reports for each basin in the County to provide an overview of land and water resource quality, identify challenges facing these resources, and outlining future actions for the WDNR. The State of the Basin reports for Racine County includes the Southeastern Fox basin[17] and the Root-Pike

---

[13] *Documented in SEWRPC Community Assistance Planning Report No. 259,* A Land and Water Resources Management Plan for Racine County, Wisconsin*, September 2000.*

[14] *Documented in SEWRPC Planning Report No. 12*, A Comprehensive Plan for the Fox River Watershed, *April 1969, and amended September 1973.*

[15] *SEWRPC Planning Report No. 35,* A Comprehensive Plan for the Pike River Watershed*, June 1983.*

[16] *Documented in SEWRPC Planning Report No. 44*, A Comprehensive Plan for the Des Plaines River Watershed, *June 2003.*

[17] *Wisconsin Department of Natural Resources,* The State of the Southeast Fox River Basin*, February 2002 PUBL WT-701-2002.*

basin.[18] Both of these reports have identified the high priority issues and actions that will need to be monitored and managed to restore and protect the basin's resources for the present and future.

Flood Mitigation Plan for Racine County
Flooding and associated stormwater drainage problems have been identified as a significant risk in Racine County.[19] Flood hazard areas have been identified within all of the 18 general-purpose local units of government in the County, except for the Villages of Elmwood Park, North Bay, and Wind Point. In addition, there are related stormwater drainage problems in selected areas of many communities. However, based upon the number of structures potentially impacted, the extent of the agricultural flood damage potential, and the extent of roadway flooding, seven of the 18 communities will require special consideration with regard to the selection of mitigation measures for flooding and related stormwater problems.

CITY, TOWN, AND VILLAGE PLANS

Local Land Use, Master, and Comprehensive Plans
Section 62.23 of the *Wisconsin Statutes* grants cities and villages the authority to prepare and adopt local master plans or plan elements, such as a community land use plan. Section 60.10(2)(c) of the *Statutes* gives towns the authority to prepare and adopt a local master plan under Section 62.23 provided a town adopts village powers and creates a town plan commission. All of the towns in Racine County have adopted village powers and created a plan commission.

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

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

COUNTY AND LOCAL ORDINANCES

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

General Zoning
Zoning is a tool used to regulate the use of land in Racine County in a manner that serves to promote the general welfare of its citizens, the quality of the environment, and the conservation of its resources. Zoning is also used to

---

[18]*Wisconsin Department of Natural Resources,* The State of the Root-Pike River Basin, *May 2002 PUBL WT-700-2002.*

[19]*Documented in SEWRPC Community Assistance Planning Report No. 266*, Racine County Hazard Mitigation Plan, *August 2004.*

implement a land use plan. Zoning in and of itself is the delineation of areas or zones into specific districts which provides uniform regulations and requirements that govern the use, placement, spacing, and size of land and structures. Cities in Wisconsin are granted general, or comprehensive, zoning powers under Section 62.23 of the *Wisconsin Statutes*. The same powers are granted to villages under Section 61.35 of the *Wisconsin Statutes*. Counties are granted general zoning powers within their unincorporated areas under Section 59.69 of the *Wisconsin Statutes*. However, a county zoning ordinance becomes effective only in those towns that ratify the county ordinance. Towns that have not adopted a county zoning ordinance may adopt village powers and subsequently utilize the city and village zoning authority conferred in Section 62.23 of the *Wisconsin Statutes*. Town zoning, however, is subject to county board approval where a general county zoning ordinance exists. Alternatively, towns may adopt a zoning ordinance under Section 60.61 of the *Wisconsin Statutes* where a general county zoning ordinance has not been adopted, but only after the county board fails to adopt a county ordinance at the petition of the governing body of the town concerned. General zoning is in effect in all communities in Racine County. Planning and Development Department staff also conducts general zoning functions for the Village of Caledonia, the townships of Burlington, Dover, Norway, Raymond, Rochester, Waterford and Yorkville. In addition, the office is responsible for shoreland, floodplain and shoreland-wetland zoning for all unincorporated areas in the County. Each city and village in Racine County and the Village of Mt. Pleasant has adopted and enforces its own general zoning ordinance. The Racine County Code Administration Division administers the state mandated Private Sewage System Program for all unsewered areas of Racine County.

Floodland Zoning

Section 87.30 of the *Wisconsin Statutes* requires that cities, villages, and counties, with respect to their unincorporated areas, adopt floodland zoning to preserve the floodwater conveyance and storage capacity of the floodplain areas and to prevent the location of new flood damage-prone development in flood hazard areas. The minimum standards that such ordinances must meet are set forth in Chapter NR 116 of the *Wisconsin Administrative Code.* The required regulations govern filling and development within a regulatory floodplain, which is defined as the area subject to inundation by the 100-year recurrence interval flood event, the event which has a 1 percent chance of occurring in any given year. Under Chapter NR 116, local floodland zoning regulations must prohibit nearly all forms of development within the floodway, which is that portion of the floodplain required to convey the 100-year recurrence peak flood flow. Local regulations must also restrict filling and development within the flood fringe, which is that portion of the floodplain located outside of the floodway that would be covered by floodwater during the 100-year recurrence flood. Permitting the filling and development of the flood fringe area, however, reduces the floodwater storage capacity of the natural floodplain, and may thereby increase downstream flood flows and stages. The County Shoreland and Floodplain Zoning Ordinance applies in all of the unincorporated areas of Racine County. All incorporated cities and villages where floodplains have been identified have adopted floodland zoning ordinances. The two municipalities without floodland ordinances, the Villages of Elmwood Park and North Bay, have no identified flood hazard areas within their boundaries.

Shoreland and Shoreland-Wetland Zoning

Under Section 59.692 of the *Wisconsin Statutes*, counties in Wisconsin are required to adopt zoning regulations within statutorily defined shoreland areas, or, those lands that are within 1,000 feet of a navigable lake, pond, or flowage, or 300 feet of a navigable stream, or, to the landward side of the floodplain, whichever distance is greater, within their unincorporated areas. Minimum standards for county shoreland zoning ordinances are set forth in Chapter NR 115 of the *Wisconsin Administrative Code.* Chapter NR 115 sets forth minimum requirements regarding lot sizes and building setbacks; restrictions on cutting of trees and shrubbery; and restrictions on filling, grading, lagooning, dredging, ditching, and excavating that must be incorporated into county shoreland zoning regulations. Most projects requiring a shoreland permit from Racine County will require a corresponding WDNR permit and possibly a U.S. Army Corps of Engineers permit. Racine County shoreland permits are not valid without the necessary Town, State, or Federal permits. In addition, Chapter NR 115 requires that counties place all wetlands five acres or larger and within the statutory shoreland zoning jurisdiction area into a shoreland – wetland overlay district to ensure their preservation after completion of appropriate wetland inventories by the Wisconsin Department of Natural Resources. Aside from wetlands within the shoreland zone, selected wetlands generally five acres and larger are also placed into conservancy zoning outside the shoreland zone in the unincorporated areas of the County.

In 1982, the State Legislature extended shoreland-wetland zoning requirements to cities and villages in Wisconsin. Under Sections 62.231 and 61.351, respectively, of the *Wisconsin Statutes* cities and villages in Wisconsin are required to place wetlands five acres or larger and located in statutory shorelands into a shoreland-wetland conservancy zoning district to ensure their preservation. Minimum standards for city and village shoreland-wetland zoning ordinances are set forth in Chapter NR 117 of the *Wisconsin Administrative Code*.

It should be noted that the basis for identification of wetlands to be protected under Chapters NR 115 and NR 117 of the *Wisconsin Administrative Code* is the Wisconsin Wetlands Inventory. Mandated by the State Legislature in 1978, the Wisconsin Wetlands Inventory resulted in the preparation of wetland maps covering each U.S. Public Land Survey Township in the State. The inventory was completed for counties in southeastern Wisconsin in 1982, the wetlands being delineated by the Regional Planning Commission on 1980, one inch equals 2,000 feet scale, aerial photographs.

County shoreland-wetland zoning ordinances are in effect in all unincorporated areas of Racine County. The incorporated Cities of Burlington and Racine, Villages of Rochester, Sturtevant, Waterford, and Wind Point, have adopted their own shoreland-wetland zoning ordinances pursuant to Sections 62.231 and 61.351, respectively, of the *Wisconsin Statutes*. The remaining three Villages of Elmwood Park, North Bay, and Union Grove, did not contain shoreland wetlands and were thus not required to adopt such ordinances.

Subdivision Regulations

Chapter 236 of the *Wisconsin Statutes* requires the preparation of a subdivision plat whenever five or more lots of 1.5 acres or less in area are created either at one time or by successive divisions within a period of five years. The *Statutes* set forth requirements for surveying lots and streets, for plat review and approval by State and local agencies, and for recording approved plats. Section 236.45 of the *Statutes* allows any city, village, town, or county that has established a planning agency to adopt a land division ordinance, provided the local ordinance is at least as restrictive as the State platting requirements. Racine County adopted a Land Division Ordinance in 1956 and modified, and on June 11, 1985 adopted *Chapter 18 Racine County Subdivision*. Local land division ordinances may include the review of other land divisions not defined as "subdivisions" under Chapter 236, such as when fewer than five lots are created or when lots larger then 1.5 acres are created.

The subdivision regulatory powers of Towns and the County are confined to unincorporated areas. City and Village subdivision control ordinances may be applied to extraterritorial areas, as well as to the incorporated areas.[20] It is possible for both the County and a town to have concurrent jurisdiction over land divisions in unincorporated areas, or for a city or village to have concurrent jurisdiction with a town or the County in the city or village extraterritorial plat approval area. In the case of overlapping jurisdiction, the most restrictive requirements apply. Each of the incorporated communities in Racine County has adopted its own subdivision control ordinance. Racine County has objecting authority for land divisions carried out under the provision of these local ordinances.

Livestock Facility Siting Ordinance

In 2006 Racine County officially adopted procedures for siting and permitting livestock facilities under Sec. 20-1167 Procedures for Siting Livestock Facilities. The procedures apply to livestock facilities that require a conditional use permit under this chapter which are all new or expanded livestock facilities that will have 500 or more animal units or existing livestock facilities as required. The County standards for issuing a permit follow the state livestock facility siting standards adopted under Chapter ATCP 51 of the *Wisconsin Administrative Code.*

[20] *Under Section 236.02 of the* Wisconsin Statutes*, the extraterritorial plat approval jurisdiction is the area within three miles of the corporate limits of a first-, second-, or third-class city and within 1.5 miles of a fourth-class city or village.*

Nonmetallic Mining Reclamation Ordinance
This ordinance, *Chapter 12.5 Racine County Non-Metallic Reclamation,* became effective May 22, 2001, and was revised on May 7, 2007. The purpose of this chapter is to maintain a local program to ensure the effective reclamation of nonmetallic mining sites on which nonmetallic mining takes place in the County of Racine. The requirements of this chapter apply to all operators of nonmetallic mining sites within the County of Racine operating on or commencing to operate after August 1, 2001 except as exempted in sec. 12.5-7(b). Also exempt are nonmetallic mining sites located in a city, village or town within the County of Racine that have adopted an ordinance pursuant to W.S.A. § 295.14, and Section NR 135.32(2), *Wisconsin Administrative Code*. This chapter does not apply to nonmetallic mining sites where nonmetallic mining permanently ceased before August 1, 2001.

STATE NONPOINT SOURCE POLLUTION CONTROL STANDARDS AND PROHIBITIONS

Construction Site Erosion Control
Sections 62.234 and 61.354 of the *Wisconsin Statutes* grant authority to cities and villages, respectively, to adopt ordinances for the prevention of erosion from construction sites and the management of stormwater runoff from lands within their jurisdiction. Under Section 60.627 of the *Wisconsin Statutes* towns may adopt village powers and subsequently utilize the authority conferred on cities and villages to adopt their own erosion control and stormwater management ordinances, subject, however, to county board approval where a county ordinance exists.

A construction site erosion control and stormwater management ordinance is not in effect within Racine County. Racine County Land Conservation Division regulates erosion control measures for development within the shoreland zone.

State and County Standards and Regulations for Control of Nonpoint Source Pollution
Through 1997 Wisconsin Act 27, the State Legislature required the WDNR and DATCP to develop performance standards for controlling nonpoint source pollution from agricultural and nonagricultural land and from transportation facilities.[21] The performance standards are set forth in Chapter NR 151, "Runoff Management," of the *Wisconsin Administrative Code,* which became effective on October 1, 2002 and was revised in July 2004. Below is a summary of the standards and prohibitions that apply to the Racine County Land and Water Resource Management plan:

Agricultural Performance Standards and Prohibitions
Performance standards relate to four agricultural areas: cropland soil erosion control, soil loss from riparian lands, manure management, and nutrient management.

The agricultural performance standards are:

- Soil erosion rates on all cropland must be maintained at or below "T" (Tolerable Soil Loss).
- Starting in 2005 for high priority areas such as impaired or exceptional waters, and 2008 for all other areas, application of manure or other nutrients to croplands must be done in accordance with a

[21] *The State performance standards are set forth in the Chapter NR 151, "Runoff Management," of the* Wisconsin Administrative Code. *Additional code chapters that are related to the State nonpoint source pollution control program include: Chapter NR 152, "Model Ordinances for Construction Site Erosion Control and Storm Water Management," Chapter NR 153, "Runoff Management Grant Program," Chapter NR 154, "Best Management Practices, Technical Standards and Cost-Share Conditions," Chapter NR 155 "Urban Nonpoint Source Water Pollution Abatement and Storm Water Management Grant Program," and Chapter ATCP 50 "Soil and Water Resource Management." Those chapters of the* Wisconsin Administrative Code *became effective in October 2002. Chapter NR 120, "Priority Watershed and Priority Lake Program," and Chapter NR 243, "Animal Feeding Operations," were repealed and recreated in October 2002.*

nutrient management plan, designed to meet state standards for limiting the entry of nutrients into groundwater or surface water resources.

- Clean water runoff must be diverted away from contacting feedlots, manure storage facilities, and barnyards in water quality management areas (areas within 300 feet of a stream, 1000 feet from a lake, or areas susceptible to groundwater contamination).

- All new or substantially altered manure storage facilities must meet current engineering design standards to prevent surface or groundwater pollution.

The manure management prohibitions are:

- No direct runoff from animal feedlots to "waters of the state".

- No overflowing manure storage facilities.

- No unconfined manure piles in shoreland areas (areas within 300 of a stream, 1000 feet from lakes).

- No unlimited livestock access to "waters of the state" where the livestock prevent sustaining an adequate vegetative cover.

In general, for land that does not meet the NR 151 standards and that was cropped or enrolled in the U.S. Department of Agriculture Conservation Reserve or Conservation Reserve Enhancement Programs as of October 1, 2002, agricultural performance standards are only required to be met if cost sharing funds are available. Existing cropland that met the standards as of October 1, 2002, must continue to meet the standards. New cropland must meet the standards, regardless of whether cost share funds are available.

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

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

Nonagricultural (urban) Performance Standards

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

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

Chapter NR 151 requires county and local governments in urbanized areas, which are identified based on population density, to obtain a Wisconsin Pollutant Discharge Elimination System (WPDES) stormwater discharge permit as required under Chapter NR 216.[22] As a result of these requirements, the City of Racine and the Villages of Caledonia and Mt. Pleasant have obtained WPDES stormwater discharge permits, and Racine County and the Villages of Sturtevant and Wind Point will be required to obtain permits.

Chapter NR 151 requires permit holders to reduce the amount of total suspended solids in stormwater runoff from areas of existing development that is in place as of October 2004 to the maximum extent practicable, according to the following standards:

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

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

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

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

[22] *Chapter NR 216 of the* Wisconsin Administrative Code*, which is entitled* "Storm Water Discharge Permits," *sets forth requirements for construction site erosion control and for industrial, municipal, and transportation-related stormwater discharge permits.*

recurrence interval, 24-hour storm, is required to be infiltrated. In this case, no more than 2 percent of the project site is required to be used as effective infiltration area.

Buffer Standards

Riparian buffers help to slow the velocity of water, allowing the settling of suspended soil particles, infiltration of runoff and soluble pollutants, adsorption of pollutants on soil and plant surfaces, and uptake of soluble pollutants by plants. When the administrative rules concerning the redesign of the state nonpoint pollution control program were being developed in 2000 and 2001, there was disagreement about what role vegetative buffers should have in the performance standards. In order for the rest of the administrative rules to move forward, the WDNR agreed to remove the buffer language from the draft rules and revisit the issue at a later date. The Wisconsin Buffer Initiative, led by the University of Wisconsin, was assigned the duty to conduct additional research on the topic and make recommendations for implementation. The WDNR is currently in the process of establishing a minimum State performance standard for buffers to address sediment delivery from cropland at "T" values. When the WDNR adopts a buffer standard for NR 151, the Racine County LCD will evaluate the new provisions and consider how to incorporate them into its local program efforts. Until that time, Natural Resources Conservation Service technical standards will be applied through voluntary programs.

It is important to note that nonagricultural performance standards set forth in section NR 151.12 (post-construction performance standard for new development and redevelopment) also generally requires impervious area setbacks of 50 feet from streams, lakes, and wetlands. This setback distance is increased to 75 feet to protect Chapter NR 102-designated Outstanding or Exceptional Resource Waters or Chapter NR 103-designated wetlands of special natural resource interest. Reduced setbacks from less susceptible wetlands and drainage channels of not less than 10 feet may be allowed.

CONSERVATION PROGRAMS

Coordination with Federal, State, regional, and local agencies is paramount to the protection of the land and water resources of Racine County. The conservation programs mentioned below are vital to the successful implementation of this plan. The positive integration of programs and funding sources administered by the county and its cooperating agencies do the most toward accomplishing the workplan objectives set forth in Chapter IV.

Federal Programs

The United States Department of Agriculture (USDA) Farm Service Agency (FSA) and the Natural Resources Conservation Service (NRCS) has several programs directed at agricultural producers to alleviate cropland erosion, and to protect natural resources, as well as provide a financial incentive. There are four programs that help to reduce erosion, protect wildlife habitat, restore wetlands, and improve water quality. All programs involve cost-share assistance from the Federal government, provided the landowner follows the prescribed practices of each program.

Conservation Reserve and Conservation Reserve Enhancement Program

The U.S. Department of Agriculture (USDA) administers several programs that contribute to water quality, reduce erosion, and provide wildlife habitat in agricultural areas. The USDA Conservation Reserve Program (CRP) encourages farmers to voluntarily convert highly erodible cropland and other environmentally sensitive land to permanent vegetative cover. Farmers receive an annual rent payment for a period of 10 years or more; cost-share assistance is available to establish vegetative cover. The Farm Service Agency (FSA) administers the Conservation Reserve Program. The USDA Conservation Reserve Enhancement program (CREP) is an off-shoot of the CRP. The CREP is an opportunity for Racine County landowners to voluntarily enroll agricultural lands into conservation practices, such as riparian buffers, filter strips, wetland restorations, waterways and establishment of native grasslands. Enrollment can be made with a 15-year application or perpetual easement application. Eligibility determinations are made on a first-come, first served basis. Racine County has been allocated $400,000 for the implementation of this program. The USDA uses CRP funding to cover a portion of the program's cost; nonfederal sources provide the balance of funding. In Racine County, the nonfederal funding

is provided by the DATCP. A total of 2,570 acres and about 240 acres were enrolled in the Conservation Reserve and Conservation Reserve Enhancement programs in Racine County in 2006, respectively.

In addition, efforts are underway in 2007 to restore farmlands and floodplains to more natural conditions, as well as plans to create new floodplains and wetlands in Racine County. In the Town of Dover, approximately 45 acres of wetlands are being restored while 22 acres of adjacent land is being restored to native grasses. This restoration project is part of the CREP effort. In the Village of Mt. Pleasant, approximately 5.5 miles of the Pike River, from Spring Street (CTH C) south to the Kenosha-Racine County line (CTH KR) is being reconstructed to widen and, in some instances, lower the floodplain, replacing the current river channel with a more natural meandering channel. The project also includes the creation of new wetlands and floodplain storage areas or undeveloped lands adjacent to the Pike River corridor. Of the 5.5 existing river miles, approximately 2.1 miles have been reconstructed in the northern most areas of the Upper Pike River.

Environmental Quality Incentives Program

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

Wildlife Habitat Incentives Program

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

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

Wetlands Reserve Program

The Wetlands Reserve Program (WRP) is another voluntary program designed to restore and protect wetlands on private property. It is an opportunity for landowners to receive financial incentives to restore wetlands that have been drained for agricultural purposes. Landowners who choose to participate in WRP may sell a conservation easement or enter into a cost-share restoration agreement with USDA to restore and protect wetlands. The landowner voluntarily limits future use of the land, yet retains private ownership. The landowner and NRCS develop a plan for the restoration and maintenance of the wetland. This program offers landowners three options; permanent easements, 30-year easements, and restoration cost-share agreements of a minimum 10-year duration. A total of 27 acres were enrolled in the Wetland Reserve program in Racine County in 2006. In the Town of Norway, approximately 209 acres of land adjacent to Wind Lake is scheduled to be restored to wetlands in 2008 as part of the Wetland Reserve Program.

Resource Conservation and Development

The Resource Conservation and Development (RC&D) program was established by the Federal Agricultural Act of 1962. This act directs the U.S. Department of Agriculture (USDA) to help units of government conserve and properly utilize all resources in solving local issues. Wisconsin has seven RC&Ds, covering all Wisconsin counties. In 2004 Racine County became a member of the Town and Country RC&D area which was organized to cover thirteen counties in southern Wisconsin. The Town and Country RC&D helps to facilitate the development and coordination of existing and innovative projects, and will assist in finding funding to implement them. Town and Country RC&D has helped promote agricultural, energy, water quality, and educational projects and programs throughout the Region.

State and Local Programs

Wisconsin Farmland Preservation Program

The Wisconsin Farmland Preservation Program provides income tax credits to eligible farmland owners. The program is administered by County and local governments, but the Wisconsin Land and Water Conservation Board (LWCB) must first certify that the county farmland preservation plan meets the standards specified in Chapter 91 of the *Wisconsin Statutes*. Of the 72 counties in Wisconsin, 70 have certified farmland preservation plans. Racine County's farmland preservation plan was certified in 1981. To be eligible to enroll in the program, farmland must be pre-designated in the County Farmland Preservation Plan, must be a minimum of 35 contiguous 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. Farmland owners may participate in one of two ways: through exclusive agricultural zoning or through Farmland Preservation Agreements. Participation through exclusive agricultural zoning may occur only when the local jurisdiction having zoning authority (city, village, or county) has a zoning ordinance that is certified by the LWCB as having met the standards of Chapter 91 of the *Statutes*. The only uses permitted in exclusive agricultural zoning districts are agricultural uses and uses consistent with agricultural use, which are specified in the *Statutes*. Racine County and the Village of Mt. Pleasant have zoning ordinances that have been certified by the LWCB. Landowners in each of the Towns are eligible to participate in the Farmland Preservation Program because they are governed by the County zoning ordinance.

The Racine County farmland preservation plan and exclusive agricultural zoning were certified by the State in 1982, and adopted by the Towns of Burlington and Waterford enabling farmland owners in these towns to participate in the Farmland Preservation program. Thirty-nine landowners claimed a Farmland Preservation Program tax credit in 2005, with an average credit amount of $648.

In addition to the Farmland Preservation program, landowners can also claim an income tax credit under the Wisconsin Farmland Tax Relief Credit program. The acreage and production requirements of this separate program are the same as for the Wisconsin Farmland Preservation program, indicated above, however, this is solely a tax relief program in which the credit is not affected by the claimant's household income. In addition, there are no land use planning requirements or compliance with county soil and water conservation standards. A total of 398 owners of farmland residing in Racine County claimed an income tax credit under the Wisconsin Farmland Tax Relief Credit program in 2005, with an average credit amount of $269.

In 2005, the Department of Agriculture, Trade, and Consumer Protection (DATCP) launched the Working Lands Initiative and established a steering committee to develop a consensus vision on managing Wisconsin's valuable land assets. The Working Lands Initiative Steering Committee in August 2006 issued a report with a set of recommendations intended to update and expand upon policies and programs affecting Wisconsin's working lands. The report recommends an update to the Wisconsin Farmland Preservation Program, which includes: setting a flat per-acre tax credit for landowners instead of basing the credit on household income, requiring all land in the program to be zoned for exclusive agricultural use, and streamlining the process of applying for the program and claiming the tax credits. Proposed changes to the Farmland Preservation Program were included in DATCP's 2007-09 budget request. The Committee's report also recommends establishing the following: Working Lands Enterprise Areas program, purchase of development rights program, and beginning farmer and logger programs.

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

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

Racine County Tree and Shrub Program
Racine County Tree and Shrub Program has been offered for over 25 years and has sold over one million trees. The purpose of the program is to encourage area residents to plant native trees and shrubs for the purpose of conservation and wildlife enhancement. The program offers a variety of pines, hardwoods, and shrubs. This sale is open to the interested public in our area. The tree program also offers an opportunity to introduce the community to conservation staff and programs.

Managed Forest Law Program
A number of landowners in Racine County participate in the Managed Forest Law Program (MFL), a State incentive program intended to encourage sustained yield forestry on private woodlands. Under this program, lands enrolled in the "closed" category are not available to the public while the "open" lands are accessible for such recreation activities as hunting, fishing, and cross-country skiing. Enrollment is by contract between the WDNR and the landowner; the landowner can choose a 25- or 50-year contract; landowners make payments in lieu of property taxes amounting to less than what the property tax would be; and must consist of at least 10 acres of contiguous forest land located in the same municipality. Landowners must agree to follow a forest management plan. The MFL Program was created in 1985, replacing similar programs—the Wisconsin Forest Crop Law program and Wisconsin Woodland Tax Law program. Some contracts under the Forest Crop Law program remain in effect in Wisconsin; all Woodland Tax Law program contracts have expired. As presented in Map 13 in Chapter II of this report, a total of 1,256 "closed" acres and 23 "open" acres were enrolled in the MFL Program in Racine County in 2005.

Wildlife Damage and Abatement Program
The Wildlife Damage and Abatement Claims Program is a cooperative effort between the County, WDNR and USDA Wildlife Service to control damage to agricultural crops caused by deer, geese, turkeys, and bears. This program provides farmers, growers, and producers the necessary technical and/or operational assistance in identifying, abating, controlling, and assessing damages to agricultural interests from those animals. Agricultural producers must contact the USDA Wildlife Service within 14 days after the first notice of damages to their crops to be eligible for abatement and or compensation.

Lake Districts and Associations

In order to maintain, protect, and improve the quality of a lake and its watershed, Public Inland Lake Protection and Rehabilitation Districts have been formed under Chapter 33 of the *Wisconsin Statutes.*[23] Similar to sanitary districts, lake districts are established by orders or resolutions adopted by town, village, or county boards, or city councils upon petition of the landowners within the district. Lake management districts are governmental bodies, and, as such, they have strictly defined boundaries. Lake districts, however, are special purpose governmental bodies with elected leaders as well as an adopted annual budget, but limited powers outside of their lake management function. In addition to lake districts, lake associations are voluntary organizations that often participate in lake management projects. They possess no authority over their membership or others using the lake, and both membership and dues are voluntary. Some lake associations may be incorporated and many are registered charitable organizations able to engage in fund-raising activities, in addition to their informational programming and advocacy roles. All of these organizations depend on the cooperation of general purpose units of government to address many of the jurisdictional issues that affect the use of the lakes.

In Racine County, the eight public inland lake management districts and town sanitary districts having Lake District powers are:

- Bohners Lake Sanitary District No. 1;
- Browns Lake Sanitary District;
- Eagle Lake Management District;
- Honey Lake Protection and Rehabilitation District;
- Long Lake Protection District;
- Waterford Waterways' Management District;
- Waubeesee Lake Protection District;
- Wind Lake Management District.

A lake management plan for Wind Lake was completed in 1991[24] with the goal of enhancing the water quality conditions, biological communities, and recreational opportunities of the Lake. This plan is currently being refined and updated. In addition, a management plan is being prepared for the Waterford Impoundment.[25] In 1997, the Eagle Lake District developed a Watershed Planning Project which is scheduled to be updated in 2007. The Eagle Lake Management Plan was produced by the Lake District and WDNR in May, 2006. Lake Districts have offered to fund specific conservation practices and educational efforts. The Racine County LCD continues to encourage mutually beneficial relationships with Lake Districts and Associations.

---

[23]*University of Wisconsin-Extension Publication No. G3818,* People of the Lakes: A Guide for Wisconsin Lake Organizations: Lake Associations & Lake Districts, 11th Edition*, 2006.*

[24]*SEWRPC Community Assistance Planning Report No. 198, 2nd Edition (draft),* A Management Plan for Wind Lake, Racine County, Wisconsin*, July 2007.*

[25]*SEWRPC Community Assistance Planning Report No. 283,* A Lake Management Plan for the Waterford Impoundment, Racine County, Wisconsin*, Volume One,* Inventory Findings*, October 2007; Volume Two,* Alternatives and Recommended Plan, *October 2007.*

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

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

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

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

UNPS&SW planning grants can be used to pay for a variety of technical assistance activities. Eligible activities such as stormwater management planning, related information and education activities, ordinance and utility development and enforcement are cost shared at 70 percent. Eligible UNPS&SW construction grant costs may include such projects as stormwater detention ponds, filtration and infiltration practices, streambank stabilization, and shoreline stabilization. Those eligible costs are cost shared at 50 percent up to a maximum of $150,000. Addition cost-share reimbursements may be available for project design, land acquisition, and permanent easements costs with approval by the WDNR regional staff.

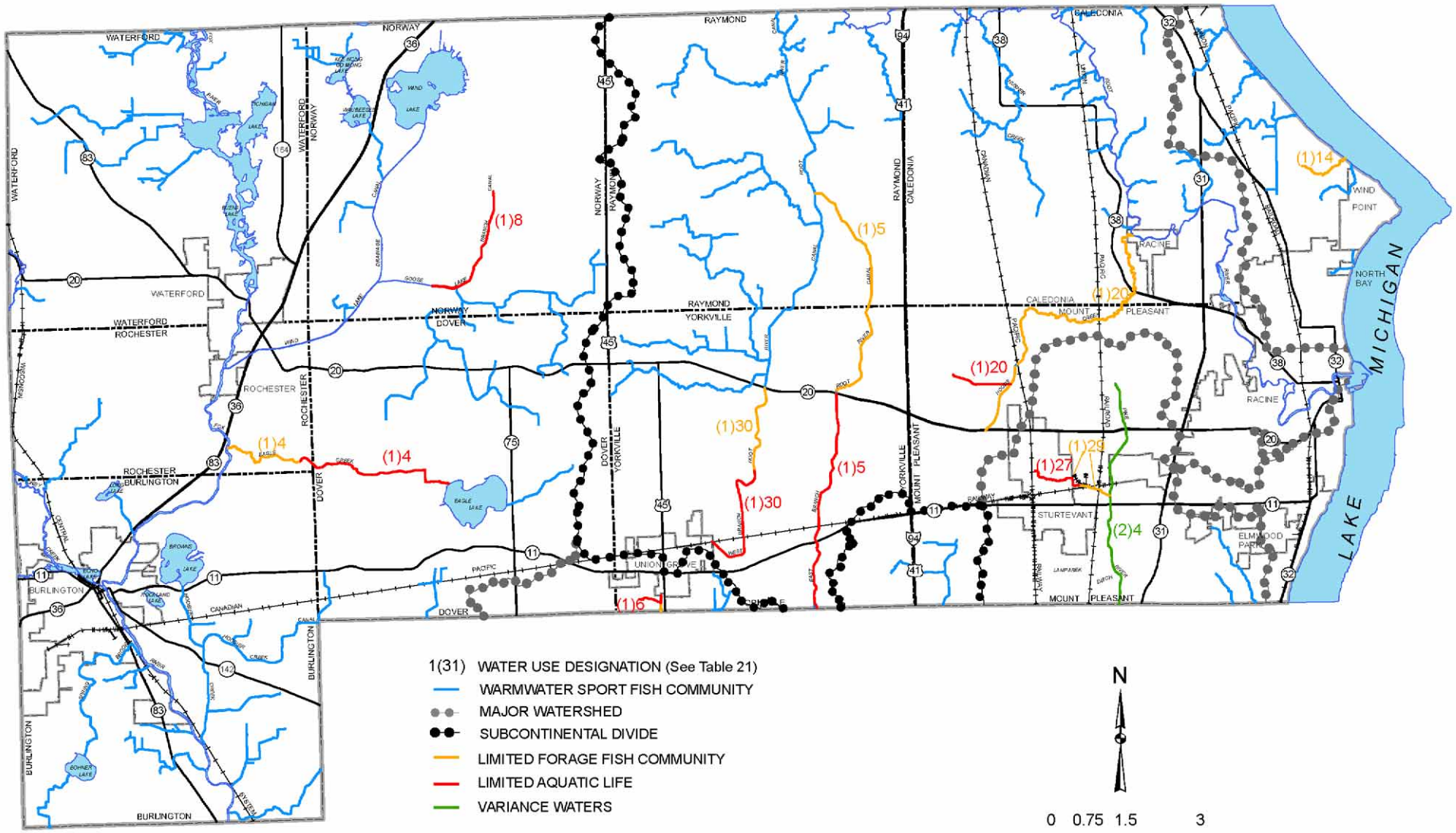
WATER USE OBJECTIVES AND WATER QUALITY STANDARDS

The water use objectives for the surface waters of Racine County are set forth in Chapters NR 102 and NR 104 of the *Wisconsin Administrative Code*. With the exception of those waters identified in Section NR 104.06 of the *Wisconsin Administrative Code*, the waters of the County are expected to meet the standards for warmwater sport fish, and be fully compliant with the fishable and swimmable goals set for the waters of the United States by the Federal Clean Water Act. The water use objectives established for the waters of Racine County are shown on Map 23, and the water quality standards and criteria associated with the water use objectives are set forth in Table 20.

Portions of each of the major drainage systems in the County have been indicated as waters not meeting the warmwater sportfish communities' standards. In particular, portions of the Root, Pike, and Fox River systems, downstream of sewage treatment facilities, are indicated to be Class II variance waters supporting limited aquatic life, pursuant to Section NR 104.06 of the *Wisconsin Administrative Code*. With the exception of the Goose Lake

Map 23

CURRENT WISCONSIN DEPARTMENT OF NATURAL RESOURCES WATER USE OBJECTIVES FOR STREAMS IN RACINE COUNTY: 2007



NOTE: THE FIRST NUMBER OF THE STREAM REACH DESIGNATION REFERS TO THE SUBSECTION OF SECTION NR 104.06 AND THE SECOND NUMBER IS THE NUMBER ASSIGNED TO THE STREAM REACH IN TABLE 4 of NR 104.06 or in NR 104.06 (2).

Source: SEWRPC. June 20, 2007

Table 20

APPLICABLE WATER USE OBJECTIVES AND WATER QUALITY STANDARDS (CRITERIA) AND GUIDELINES FOR LAKES AND STREAMS WITHIN RACINE COUNTY

Water Quality Parameter	Combinations of Water Use Objectives Adopted for Planning Purposes[a]					
	Warmwater Sportfish and Forage Fish Communities	Limited Forage Fish Community (variance category)	Limited Aquatic Life (variance category)	Special Variance Category A[b]	Special Variance Category B[c]	Source
Recreational Use	Full	Full	Full	Limited	Limited	- -
Maximum Temperature (ºF)[d]	89.0	89.0	- -	89.0[e]	89.0	NR 102.04 (4)[f]
Dissolved Oxygen (mg/l)[d]	5.0 minimum	3.0 minimum	1.0 minimum	2.0 minimum	2.0 minimum	NR 102.04 (4) NR 104.02 (3)
pH Range (S.U.)	6.0-9.0	6.0-9.0	6.0-9.0	6.0-9.0[e]	6.0-9.0[e]	NR 102.04 (4)[g] NR 104.02 (3)
Fecal Coliform (MFFCC)[h]						NR 102.04 (5) NR 104.06 (2)
Mean	200	200	200	1,000	1,000	
Maximum	400	400	400	2,000	- -	
Ammonia Nitrogen (mg/l)	- -[i]	- -[i]	- -[i]	- -[i]	- -[i]	NR 105 Tables 2c and 4b
Total Phosphorus (mg/l)						Regional water quality management plan[j]
Maximum for Streams	0.10	0.10	0.10	0.1[e]	0.1[e]	
Maximum for Lakes during Spring Turnover	0.02	0.02	0.02	- -	- -	
Chloride (mg/l)	1,000 maximum	1,000 maximum	1,000 maximum	1,000 maximum[e]	1,000 maximum[e]	Regional water quality management plan

[a] *NR 102.04(1) All waters shall meet the following minimum standards at all times and under all flow conditions: substances that will cause objectionable deposits on the shore or in the bed of a body of water, floating or submerged debris, oil, scum, or other material, and material producing color, odor, taste, or unsightliness shall not be present in amounts found to be of public health significance, nor shall substances be present in amounts which are acutely harmful to animal, plant, or aquatic life.*

[b] *As set forth in Chapter NR 104.06(2)(a) of the* Wisconsin Administrative Code.

[c] *As set forth in Chapter NR 104.06(2)(b) of the* Wisconsin Administrative Code.

[d] *Dissolved oxygen and temperature standards apply to continuous streams and the upper layers of stratified lakes and to unstratified lakes; the dissolved oxygen standard does not apply to the hypolimnion of stratified inland lakes. However, trends in the period of anaerobic conditions in the hypolimnion of deep inland lakes should be considered important to the maintenance of their natural water quality.*

[e] *Not specifically addressed within the* Wisconsin Administrative Code*. For planning purposes only, these values are considered to apply.*

[f] *NR 102.04(4) There shall be no temperature changes that may adversely affect aquatic life. Natural daily and seasonal temperature fluctuations shall be maintained. The maximum temperature rise at the edge of the mixing zone above the natural temperature shall not exceed 5ºF for streams. There shall be no significant artificial increases in temperature where natural trout reproduction is to be maintained.*

[g] *The pH shall be within the stated range with no change greater than 0.5 unit outside the estimated natural seasonal maximum and minimum.*

[h] *NR 102.04(5)(a) The membrane filter fecal coliform count may not exceed 200 per 100 ml as a geometric mean based on not less than five samples per month, nor exceed 400 per 100 ml in more than 10 percent of all samples during any month.*

[i] *J.E. McKee and M.W. Wolf,* Water Quality Criteria, 2nd edition, *California State Water Quality Control Board, Sacramento, California, 1963. The standards for ammonia nitrogen are set forth in Table IV-8.*

[j] *U.S. Environmental Protection Agency,* Quality Criteria for Water, *EPA-440/9-76-023, 1976.*

Source: Wisconsin Department of Natural Resources and SEWRPC.

Branch Canal, these Class II waters drain into Class I variance waters supporting limited forage fish, before discharging into waters indicated to be warmwater sportfish community waters. In addition, the Pike River within Racine County is identified in Section NR 104.06 (2) as a variance water that generally meets the requirements for the support of warmwater sport fishes except that dissolved oxygen concentrations should be greater than 2.0 milligrams per liter (mg/l) and fecal coliform concentrations should not exceed 1,000 per milliliter as a monthly geometric mean based upon not less than five samples.

The progressive implementation of the recommended management measures set forth in the adopted regional water quality management plan has resulted in improvements in the water quality of the stream systems within Racine County. As a consequence, the WDNR has proposed modifying the water use objectives established for specific stream reaches as set forth in Table 21. While these proposals indicate the intent of the WDNR, it should be noted that Chapter NR 104 of the *Wisconsin Administrative Code* has not been formally amended. In general, the elimination of point sources of water pollution has resulted in the upgrading of variance waters identified in Section NR 104.06 from limited aquatic life and limited forage fish communities, to warmwater forage or sport fish communities that are consistent with the fishable water objective of the Federal Clean Water Act.

It is estimated that the majority of the streams within Racine County are fully or partially meeting recommended water use objectives based upon water quality criteria set forth in the regional water quality management plan update.[26] In contrast, the majority of lakes within Racine County are not likely to be fully meeting recommended water use objectives. Those lakes include Wind, Tichigan, Eagle, Browns, Bohners, Waubeesee, and Kee Nong Go Mong Lakes. However, no major fish kills have been observed in any of these major lakes. Currently, Bohner, Eagle, Tichigan, and Waubeesee Lakes are enrolled in the Wisconsin Volunteer Lake Monitoring (previously Self-Help Monitoring) program. Wind Lake has been sampled by the USGS under the Trophic State Index (TSI) sampling protocol since 1985. Comprehensive lake management plans are in preparation for Wind Lake and the Waterford Impoundment, including Tichigan Lake.[27]

The USGS operates stream gauging stations on the Root and Pike Rivers in the City of Racine. The Commission is nearing completion of a regional water quality management plan update for the greater Milwaukee watersheds, including the Root River system.[28] Studies completed pursuant to this plan include compilation of water quality and fisheries data and water quality modeling. Significant findings indicate that the portion of the Root River upstream of the Horlick dam contains a reduced abundance and diversity of fishes compared to the downstream reaches that are connected to Lake Michigan.

In addition to the classifications of waters set forth in the *Wisconsin Administrative Code*, Section 303(d) of the Federal Clean Water Act requires states to identify and characterize those waters that are currently impaired or threatened with impairment, that is, those waters that do not meet the swimmable-fishable goals established by the Clean Water Act. In addition, Section 303(d) requires that the states develop management plans to address the causes of the impairment, once their list of threatened and impaired waters is approved by the USEPA. An integral part of this remedial planning process is the development of Total Maximum Daily Loads (TMDLs) which limit the mass of pollutants entering a waterbody so as to restore or maintain a waterbody in a swimmable-fishable state.

As of 1998, the Wisconsin Department of Natural Resources, the State agency designated to develop the Section 303(d) list for the State of Wisconsin, has identified nine waterbodies in Racine County as being impaired or threatened by impairment. This list was approved by the USEPA during December 1996 and March 1997, and the WDNR is currently working toward the establishment of TMDLs along the impaired or threatened stream reaches throughout the State.

---

[26]*SEWRPC Technical Report No. 39,* Water Quality Conditions and Sources of Pollution in the Greater Milwaukee Watersheds*, in preparation; and SEWRPC Memorandum Report No. 93,* A Regional Water Quality Management Plan for Southeastern Wisconsin: An Update and Status Report*, March 1995.*

[27]*SEWRPC Community Assistance Planning Report No. 198, 2nd Edition,* A Lake Management Plan for Wind Lake, Racine County, Wisconsin*, in preparation; SEWRPC Community Assistance Planning Report No. 283,* op. cit.

[28]*SEWRPC Planning Report No. 50,* A Regional Water Quality Management Plan Update for the Greater Milwaukee Watersheds, *in progress. SEWRPC Technical Report No. 39,* op. cit.

Table 21

REVISIONS TO WATER USE OBJECTIVES SET FORTH IN CHAPTERS NR 102 AND NR 104 OF THE WISCONSIN ADMINISTRATIVE CODE AS PROPOSED BY THE WDNR

Watershed	Designation on Map 23[a]	Stream Reach Designation per S. NR 104.06	Water Use Objective per S. NR 104.06	Proposed Water Use Objective	Notes
Des Plaines River	(1) 6	Tributary-Des Plaines River (Fonks Mobile Homes #2 and Union Grove Industrial)–From Fonks Tributary downstream to the Union Grove Industrial Park Tributary	Limited aquatic life	Limited aquatic life	Variance still recommended
		The Union Grove Industrial Tributary to the juncture of Fonks Tributary	Limited aquatic life	Limited aquatic life	Variance still recommended
		The Union Grove Tributary Below Fonks Tributary to the confluence with the Des Plaines River	Limited forage fish	Limited forage fish	Variance still recommended
Fox River	(1) 4	Eagle Creek (Eagle Creek Sanitary District) from Eagle Lake to CTH J	Limited aquatic life	Warmwater forage fish	- -
		From CTH J to the confluence with the Fox River	Limited forage fish	Warmwater forage fish	- -
	(1) 8	Dover Ditch–Goose Lake Branch Canal (Midwest Rehabilitation Center, formerly the Holy Redeemer College STP) upstream from Dover Line Road	Limited aquatic life	Limited forage fish	Revised location description to extend designation of Dover Ditch downstream of Dover Line Road to the confluence with the Goose Lake Branch Canal
Pike River	(1) 27	Pike River tributary (Waxdale Creek) from St. Bonaventure School STP downstream to Sturtevant tributary	Limited aquatic life	Warmwater sport fish	Point source discharge eliminated
	(1) 29	Pike River tributary (Waxdale Creek) from Sturtevant STP to the first railroad crossing at SC Johnson Wax Company	Limited aquatic life	Warmwater sport fish	Point source discharge eliminated
		Tributary from above location to the confluence with the Pike River	Limited forage Fish	Warmwater sport fish	- -
	(2) 4	Pike River- Racine County	Variance water	Warmwater sport fish	- -
Root River	(1) 5	East Branch Root River Canal–Upstream from STH 20	Limited aquatic life	Limited aquatic life	Revised location description to define designation from CTH E to STH 20
		East Branch Root River Canal (Fonks Mobile Home Park #1)–from STH 20 downstream to the West Branch Root River Canal	Limited forage fish	Limited forage fish	Variance still recommended
	(1) 20	Root River tributary upstream from Hoods Creek towards Ives Grove (Racine County Highway and Park Commission STP)	Limited aquatic life	Warmwater forage fish	The Yorkville Sewer Utility District #1 STP is the only permitted discharge to the Tributary of Hoods Creek. The previous Racine County Highway and Park Commission STP discharge has been eliminated

Table 21 (continued)

Watershed	Designation on Map 23[a]	Stream Reach Designation per S. NR 104.06	Water Use Objective per S. NR 104.06	Proposed Water Use Objective	Notes
Root River (continued)	(1) 20	Hoods Creek from STH 20 downstream to confluence with Root River	Limited forage fish	Warmwater forage fish	- -
	(1) 30	West Branch Root River Canal (Union Grove)–West Branch Root River Canal from 67th Drive downstream to CTH C	Limited aquatic life	Limited aquatic life	Revised location description to include upstream portion of the unnamed tributary of the West Branch Root River Canal from Union Grove WWTP and WI-DHSS Southern Wisconsin Colony Training School to 67th Drive
		West Branch Root River Canal from above location downstream to STH 20	Limited forage fish	Limited forage fish	Variance still recommended
	- -	Unnamed tributary of the West Branch Root River Canal from the WWTP outfall in the NE 1/4, SW 1/4, Section 34, T4N, R21E to the West Branch Root River Canal	Not previously published	Limited forage fish	Recommended addition
Lake Michigan	(1) 14	Tributary Lake Michigan (North Park STP)	Limited forage fish	Warmwater sport fish	Point source discharge eliminated

[a]*The first number refers to the subsection of Section NR 104.06 and the second number is the number assigned to the stream reach in Table 4 of NR 104.06 or in NR 104.06 (2).*

Source: Wisconsin Department of Natural Resources and SEWRPC.

The waterbodies in Racine County that have been listed as Section 303(d) waters are included for various reasons, as shown on Table 22. The Fox River, Root River, the Root River Canal, West Branch of the Root River Canal, Racine Harbor, and Wind Lake are designated as low-priority waters. The North Branch of the Pike River is designated as medium-priority waters. The priority is assigned based on the schedule for establishing total maximum daily loads for the pollutant causing the impairment.

SUMMARY

The Racine County land and water resources management plan draws on the numerous plans which focus on the natural resources of the County. Plans that have been developed at the regional level include a regional land use plan, transportation system plan, natural areas plan, and a water quality management plan. Preparation of a regional water supply plan is underway. Plans developed at the County level include a farmland preservation plan; County park and open space plan; hazard mitigation plan; land and water resources management plan; shoreland development management study; Lake Michigan costal erosion study; and Des Plaines, Fox, and Pike River watershed plans. In addition, the Towns of Dover, Rochester, Yorkville, Burlington and Waterford have all adopted long-range land use plans, and many of the communities in the County have developed park and open space plans. The plans described above provide guidelines for natural resource management in Racine County and they address the interconnectedness of the natural resources of the County and the Southeastern Wisconsin Region.

The plans collated and reviewed for input into this current planning program were generally most relevant to actions undertaken by the County or potentially to be undertaken by the County. In addition, selected plans prepared at the local level, including local land use plans, park and open space plans, and lake and water quality management plans prepared for individual communities or for specific watersheds were considered. All of these

Table 22

WISCONSIN 303(d) LISTED WATERS WITHIN RACINE COUNTY: 2004

Waterbody Name	Stream Length (miles)	Priority[a]	Impairments	Pollutant	Source of Pollutant
Fox River, Including Lake Tichigan Downstream of Confluence with Unnamed Tributary near CTH A in Waukesha	- -	Low (2002)	Fish consumption advisory	PCB[b]	Contaminated sediment
Wind Lake	- -	Low	Dissolved oxygen, eutrophication	Phosphorus	Nonpoint pollution
Racine Harbor	- -	Low	Aquatic toxicity	Metals	To be determined
Root River Upstream of Horlick Dam	12.0	Low	Dissolved oxygen	Phosphorus, sediment	Nonpoint and point pollution
Root River from the Horlick Dam in the City of Racine to Lake Michigan	- -	Low	Fish consumption advisory	PCB	To be determined
Root River Canal	5.8	Low	Dissolved oxygen	Phosphorus, sediment	Nonpoint pollution
West Branch Root River Canal	4.5	Low	Dissolved oxygen	Phosphorus, sediment	Nonpoint pollution
North Branch of the Pike River	4.0	Medium	Aquatic toxicity, fish kill	To be determined	Nonpoint and point pollution

[a]*Priority for establishment of total maximum daily loads (TMDLS).*

[b]*PCB = Polychlorinated Biphenyls.*

Source: Wisconsin Department of Natural Resources and SEWRPC.

documents provide the basis for developing an integrated scheme for the sustainable management of the natural resources of Racine County through the coordinated efforts of State, County, and local governments, special-purpose units of government, and community groups. These existing plans and programs promote detailed action at the local level while achieving strategic objectives within the boundaries of the County, its watersheds, and the Southeastern Wisconsin Region as a whole.

(This page intentionally left blank)

Chapter IV

GOALS, OBJECTIVES, AND ESTIMATED COSTS

INTRODUCTION

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

- Increase Natural Resource, Environmental, and State Performance Standards Information and Education;
- Implement The State Agricultural and Nonagricultural Performance Standards and Prohibitions to Reduce Nonpoint Pollution;
- Invasive and Nonnative Species Management and Control;
- Protect and Preserve Land and Water Resources and;
- Increase Cooperation with Local, State and Federal Partners.

These concerns and issues were used as a basis for developing the goals, workplan objectives, and planned actions for the Racine County Land and Water Resources Management Plan. To achieve these goals the Racine County LCD plans to partner with State and Federal agencies and other environmental organizations on a variety of projects and programs. The objectives of the plan were divided into categories, including educational programming, agricultural and nonagricultural performance standards implementation, invasive species control, land and water quality protection, and improved partner relationships. The recommended goals, workplan objectives, and planned actions for the years 2008-2012 are summarized in the following section, and are presented in Table 23. Racine County's Land and Water Resource Management Plan is a long-range, living instrument to plan conservation efforts over a five-year period, therefore, the workplan activities may require amendment due to varying environmental conditions, local priorities and commitments, changing programs and policies, and funding considerations. The general goals of this plan, developed as a part of a public participation process and approved by the department, will not change and any necessary amendments to workplan activities would only be accomplished with proper approvals from the Racine County LCC and DATCP.

Table 23

RACINE COUNTY WORKPLAN: 2008-2012

Goal	Workplan	Planned Actions	Status of Planned Action	Agencies
GOAL #1 Increase Natural Resource, Environmental, and State Performance Standards Information and Education (0.50 FTE and 10 percent of Budget per year)	Enhance the general public's appreciation and involvement in natural resource protection and restoration	**1) Conduct two Rural Landowner workshops annually on important conservation issues** 2) Make available informational brochures and fact sheets to walk-ins 3) Provide and keep up-to-date information on the County website 4) Use radio, newspaper, and cable TV to deliver environmental programming	Ongoing	LCD, UW-Ext
	Provide I & E to rural landowners and farm operators on the agricultural performance standards	**Inform new and existing landowners about their obligation to maintain compliance with agricultural performance standards and prohibitions through personal contact, direct mail notifications, newsletters, fact sheets, web pages, workshops etc.**	Ongoing	LCD, UW-Ext, DATCP, WDNR
	Promote learning strategies for environmental education among our youth	**1) Make available one internship annually to provide real work experience opportunities for High School or College students** 2) Utilize new and existing programs to help implement a curriculum to inform students about natural resource issues, their function and role in the environment, and ways they can manage and restore those resources 3) Assist area youth groups in the development of outdoor classroom activities to promote land and water conservation	Ongoing	LCD, UW-Ext, Schools, Youth Groups
	Provide outreach programs to developers, engineers, landscapers, local officials, and work groups that will increase awareness of stormwater pollution impacts	**1) Host one yearly workshop or presentation on stormwater and erosion control BMPs** 2) Promote environmentally sensitive land development designs 3) Educate landowner associations in charge of stormwater basin management and maintenance 4) Provide information to developers about nonagricultural performance standards and prohibitions	Ongoing	LCD, UW-Ext, Work Groups, Towns, Local Govt.
	Increase landowner and producer/operator awareness of conservation practices and programs	**1) Continue to provide a quarterly newsletter *Ties to the Land* to 3500+ landowners and producers** **2) Provide an I&E at display booth at the County and lake fairs and periodic SE Area bus tours** **3) Help sponsor a Dairy Breakfast field day annually to promote dairy farming** 4) Maintain web page on conservation programs, technical services, and cost-shared practices 5) Distribute information material during office and site visits 6) Use direct mailings to contact priority farms	Ongoing	LCD, UW-Ext, NRCS, FSA

Table 23 (continued)

Goal	Workplan	Planned Actions	Status of Planned Action	Agencies
GOAL #1 (continued)	Provide information to riparian property owners and landscape contractors on the benefits of riparian buffers	**1) Continue to distribute 15+ lake information packets to new riparian landowners** 2) Hold seminars targeted towards landscape contractors on the effectiveness of riparian buffers and potential design options for residential and business situations 3) Assist in developing demonstration sites to illustrate sound riparian land management and buffer establishment 4) Partner with lake districts and associations on shoreline protection and restoration demonstration projects and workshops 5) Informational and educational programming targeted towards riparian property owners	Ongoing	LCD, UW-Ext, WDNR, Lake Groups
	Educate landowners, agricultural supply businesses, lawn maintenance companies, and golf course superintendents on the importance of nutrient and chemical management	**1) Organize an annual nutrient management planning certification, update or revision training course** 2) Work with area coops and other suppliers to develop seminars targeted to nutrient and agri-chemical management and regulations, as well as area lawn companies and golf course and park superintendents	Ongoing	LCD, UW-Ext, DATCP
	Provide information to County residents about how they can control water pollution and groundwater contamination	1) **Conduct one annual workshop presentation to promote water conservation, rain gardens, groundwater protection, etc.** 2) Continue to distribute informational materials to homeowners on pet waste, leaf and grass clipping disposal, lawn fertilization techniques, and the problems associated with dumping chemicals directly into storm sewers 3) Promote storm drain stenciling and provide materials to schools and youth groups	Ongoing	LCD, UW-Ext, WDNR, Schools, Youth Groups, Work Groups
	Provide information to County residents about how they can control nonnative and invasive species	**1) Conduct one hands-on workshop annually to educate local work and youth groups on how to identify and eliminate nonnative and invasive species** 2) Host a Garlic Mustard pull-a-thon event 3) Assist the Clean Boats, Clean Waters Volunteer program 4) Support Purple Loosestrife Biological Control 5) Create a monitoring program to track control measures over time	Ongoing	LWCD, UW-Ext, WDNR, Schools, Youth Groups, Work Groups

Table 23 (continued)

Goal	Workplan	Planned Actions	Status of Planned Action	Agencies
GOAL #2 Implement the State Performance Standards to Reduce Agricultural Nonpoint Source Water Pollution (1.00 FTE and 50 percent of Budget per year)	Implement the State Agricultural Performance Standards	**1) Inventory/visit three priority farm landowners yearly to evaluate compliance status** 2) Create an inventory tracking system for landowner's compliance status to State performance standards 3) Utilize GIS to map priority farms and compliance status 4) Notify landowners of compliance status and identify key problems and needed BMPs when necessary 5) Offer technical assistance cost sharing if available 6) Inspect landowners' efforts to maintain and/or implement compliant practice(s) 7) Notify landowner of compliance status. Refer noncompliance to the WDNR if necessary for enforcement	Ongoing	LCD, DATCP, NRCS, WDNR
	Support the Farmland Preservation Program	**1) LCD staff will randomly monitor program participants for compliance with the applicable County soil and water conservation standards, at a minimum, once every six years through a combination of field inspections and examination of aerial orthophotography** 2) Continue to assess and evaluate farm practices and parcel management 3) Review farm plans and update farmland-zoning certificates, recalculating acres lost to sale, purchase or rezone and notify DATCP of status changes	Ongoing	LCD, DATCP, NRCS
	Reduce soil erosion to or below T, and to one-third to one-half T on fields in water quality management areas (WQMA) as required by State and County performance standards	**1) Conduct the annual transect erosion survey to monitor cropland erosion levels and farming practices** 2) Encourage landowners to develop farm conservation plans on critical agricultural fields and develop practices as needed A. Practice conservation tillage to leave 30 percent or more residue B. Use no-till practices for fields in WQMA if practical C. Practice crop rotations to minimize soil loss D. Contour farm if practical E. Establish permanent vegetation in concentrated flow channels F. Rotationally graze horses and cattle where practical	Ongoing	LCD, DATCP, NRCS, FSA, WDNR

Table 23 (continued)

Goal	Workplan	Planned Actions	Status of Planned Action	Agencies
GOAL #2 (continued)	Manage manure and livestock access to water resources in accordance with State performance standards	**1) Utilize SWRM cost-share funds to install conservation practices that improve feedlot runoff control, manure handling, or storage** 2) Make producers aware of local, State and Federal guidelines and performance standards 3) Continue to work with dairy farmers to contain or control the discharge of milkhouse waste 4) Locate manure stack areas outside of WQMA 5) Install fencing to properly manage livestock and horses in areas with water resources 6) Limit manure applications on highly erodible lands and in WQMA 7) Enforce the Racine County Livestock Facilities Siting Ordinance	Ongoing	LCD, DATCP, NRCS, WDNR
	Reduce soil delivery rate from riparian cropland	**1) Utilize SWRM cost-share funds to create 2000+ linear feet of effective grassed waterway systems** 2) Work with landowners, FSA and NRCS to utilize CRP and CREP to establish buffers in the riparian corridor 3) Reduce sediment delivery from fields by promoting best management practices to reduce soil erosion 4) Clean out accumulated sediment from agricultural drainageways as needed, incorporating the proper permitting process and associated sediment removal actions	Ongoing	LCD, DATCP, NRCS, FSA
	Develop, implement, and monitor compliance of nutrient and pest management plans to protect water quality	**1) Work with producers, DATCP, NRCS and technical service providers to expand nutrient and pest management planned acreage each year** 2) Utilize integrated pest management to reduce the amount of applied chemicals 3) Assist NRCS and TSPs with compliance inspections and updates of expired NMPs and PMPs	Ongoing	LCD, DATCP, NRCS, TSP
	Utilize GIS technology to develop detailed mapping of important agricultural land management areas and priority farms	**1) Develop a GIS tool to track compliance to agricultural performance standards** 2) Map restricted manure application sites 3) Map locations of all horse and livestock farms 4) Map locations of CRP contracts, NMP, and HEL farm plans and WQMAs	2008-2009	LCD

Table 23 (continued)

Goal	Workplan	Planned Actions	Status of Planned Action	Agencies
GOAL #3 Implement the State Performance Standards to Reduce Nonagricultural Nonpoint Source Water Pollution (0.50 FTE and 25 percent Budget per year)	Implement the State Nonagricultural Performance Standards	**1) Continue to review 100+ erosion control plans for new and re-development sites within the shoreland zone** 2) Continue to encourage the adoption of stormwater management and construction site erosion control standards and guidelines for urban, urbanizing, and redeveloping areas as set forth in Chapter NR 151 of the *Wisconsin Administrative Code*; and will be designed to achieve the pollutant reduction goals set forth in the regional and watershed water quality management plans 4) Work with local governments and towns to develop programs to routinely inspect, remove sediment, and otherwise maintain stormwater detention basins and other facilities 5) Encourage municipalities and towns to take responsibility for maintenance of major stormwater management systems 6) Continue to respond to complaints of erosion problems and notify local building inspectors of uninstalled or unmaintained erosion control measures 7) Assist contractors, developers and local building inspectors with erosion control issues 8) Recommend special protection to environmentally sensitive areas	Ongoing	LCD, WDNR, Towns, Local Govt.
	Comply with the Municipal Separate Storm Sewer System (MS4) permit requirements under NR 216 of the *Wisconsin Administrative Code*	**Assist in the implementation of permit requirements that will include: Public outreach and education, Illicit discharge detection and elimination, Construction site pollution control and prevention**	Ongoing	LCD, Towns, Local Govt.
GOAL #4 Invasive and Nonnative Species Management and Control. (0.25 FTE and 1 percent of Budget per year)	Control the infestation of nonnative and invasive plant and animal species	**1) Conduct one annual workshop or presentations on nonnative and invasive plant and animal species control** 2) Distributed informational material, answer phone and direct inquiries 3) Organize and educate local work and youth groups to identify and eliminate nonnative and invasive species 4) Help sponsor a garlic mustard pull-a-thon event, assist the clean boats, clean waters volunteer program, and support purple loosestrife biological control 5) Encourage the development and adoption of aquatic plant management plans for all inland lakes	Ongoing	LCD, UW-Ext

Table 23 (continued)

Goal	Workplan	Planned Actions	Status of Planned Action	Agencies
GOAL #5 Protect and Preserve Land and Water Resources (0.75 FTE and 12 percent of Budget per year)	Conserve Racine County's unique natural resources in the face of increasing urbanization and resulting loss of farmland	**1) Help to prepare and distribute an annual *Farm Fresh Atlas* to advertise farmer's markets to support farm to table initiatives, helping connect local farmers with local buyers** 2) Continue use of land use planning and regulatory tools to preserve productive farmland and agricultural businesses: A. Recommend the preservation of open/green space to builders and developers B. Promote conservation subdivisions and rural cluster development C. Continue to encourage Exclusive Agricultural Zoning D. Protect farmland through Land Division Ordinances E. Support the Purchase of Development Rights and the Transfer of Development Rights to conserve farmland F. Promote Sustainable and Alternative Farm Practices 3) Advise subdivision associations on how to manage their wetlands, woodlots and detention ponds 4) Continue to support acquisition and preservation of environmental corridors and important identified natural areas and critical species habitat areas 5) Encourage urban-density land use to be confined to and within the identified urban service areas	Ongoing	LCD, UW-Ext, Towns, Local Govt.
	Create, restore, enhance , and protect wetland, riverine, and wildlife habitat throughout the County	**1) Assist planning commission staff, State and Federal partners, and local work groups with 1 or more wetland mitigation or stream relocation project** 2) Work with landowners, WDNR, FSA, USF&W, Racine/Kenosha Land Trust and NRCS to utilize local, State and Federal program funds for wetland and riverine improvements 3) Seek funding sources for lake and river water quality protection 4) Continue to notify the appropriate government agencies of wetland disturbance or destruction 5) Work together with the WDNR, USCOE and SEWRPC to resolve wetland related issues	Ongoing	LCD, UW-Ext, NRCS, WDNR, SEWRPC, FSA, USCOE, USF&W, Work Groups

Table 23 (continued)

Goal	Workplan	Planned Actions	Status of Planned Action	Agencies
GOAL #5 (continued)	Prepare, update and implement comprehensive lake and watershed management plans	**1) Work with planning commission staff, lake association members, and outside contractors in the development of one or more lake or watershed management plans** 2) Discourage the use of rock riprap as a shoreline stabilization approach, where applicable 3) Support regulations that prohibit the application of lawn fertilizer that contains phosphorus to lawns, golf courses, and other mowed grassy areas (turf)	Ongoing	LCD, UW-Ext, NRCS, WDNR, FSA, Work Groups
	Promote riparian buffers along all water resources in the County	**1) Continue to implement CREP agreements/easements (estimate 40 acres per year)** 2) Continue to implement CRP to protect water quality 3) Continue to work with and form more resource partnerships to educate riparian landowners of the water quality benefits of buffers 4) Use GIS and field inspections to characterize the existing riparian buffer widths along County streams 5) Recommend alternative methods available to protect shorelines subject to low erosion intensity 6) Offer SWRM cost-share funds to install bio-engineered systems with vegetated buffers	Ongoing	LCD, DATCP, WDNR, NRCS, FSA
	Protect the quality and quantity of groundwater supplies	**1) Utilize SWRM and EQIP cost-share funds to permanently abandon one to two unused wells annually** **2) Conduct one spring and one fall hazardous waste clean-up day each year** 3) Encourage the infiltration of stormwater as set forth in Chapter NR 151 of the *Wisconsin Administrative Code* 4) Help developers identify potential stormwater infiltration areas using field data, web based GIS mapping, and the soil survey layer 5) Incorporate SEWRPC Regional Water Supply Plan recommendation into future planning efforts 6) Work with agricultural producers to soil test farm fields and provide assistance to producers to develop nutrient management plans for farm fields	Ongoing	LCD, DATCP, WDNR, NRCS, SEWRPC
	Support efforts to protect and enhance our forests and woodlots	**1) Administer the Racine County annual tree program distributing 55,000+/- trees and shrubs every spring** 2) Work with the area forester to provide forestry assistance to landowners 3) Continue to support the Woodland Stewardship Program 4) Support the Managed Forest Law Program	Ongoing	LCD, WDNR

Table 23 (continued)

Goal	Workplan	Planned Actions	Status of Planned Action	Agencies
GOAL #5 (continued)	Implement and refine the County's shoreland/floodplain management program	**1) Continue to enforce the County Shoreland regulations through review and issuance of 100+ shoreland permits** 2) Update existing floodplain maps and encourage the mapping of unmodeled areas 3) Recommend adoption of floodland zoning regulations and participation in the National Flood Insurance Program to effected municipal units of government 4) Preserve and protect streams and watercourses impacted by new construction and redevelopment 5) Continue to monitor Lake Michigan shoreline, especially in those reaches with relatively high unprotected bluffs	Ongoing	LCD, WDNR, Towns, Local Govt.
	Assure the reclamation of terminated nonmetallic mining sites	**1) Approve and annually permit reclamation plans** 2) Conduct compliance inspections of reclaimed sites	Ongoing	LWCD
GOAL #6 Increase cooperation with Local, State and Federal Partners (0.50 FTE and 2 percent of Budget per year)	Develop a countywide comprehensive and smart growth plan	**1) Work with the multi-jurisdictional advisory committee and citizens to develop a countywide comprehensive plan based on Wisconsin's Smart Growth law. The plan will provide a vision for future land use in Racine County** 2) Once approved, incorporate the countywide comprehensive planning goals and objectives into land use planning programs	2008-2009	LCD, DATCP, NRCS, FSA, WDNR, UW-Ext, USF&W, SEWRPC
	Look for opportunities to coordinate efforts with local grass roots groups, conservation and wildlife clubs, local, State and Federal agencies to help implement the goals this LWRMP	**1) Develop an MOU with the WDNR to describe the roles and responsibilities of the LCD and the WDNR in the implementation of NR 151 and proposed NR 115 revision** 2) Enter into working agreements with other agencies to coordinate ordinance administration 3) Work with lake associations and districts to promote innovations in shoreline protection and restoration through demonstration sites of new products and techniques and cost-share incentives 4) Continue to rely on NRCS and DATCP for engineering and technical assistance, and grant funding 5) Look for opportunities to coordinate efforts with local grass roots groups, conservation and wildlife clubs, local, State and Federal agencies 6) Continued active membership of the Root/Pike Watershed Initiative Network, Sustainable Racine Environmental Group, Seno Woodland Education Center, Kenosha/Racine Land Trust, WALCE, and WLWCA	Ongoing	LCD, DATCP, NRCS, FSA, WDNR, UW-Ext, USCOE, USF&W, SEWRPC, Schools, Work Groups, Youth Groups, Lake Groups

Table 23 (continued)

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

Agency acronyms used in this table are defined below:

DATCP = Wisconsin Department of Agriculture, Trade and Consumer Protection
WDNR = Wisconsin Department of Natural Resources
FSA = U.S. Department of Agriculture Farm Service Agency
LCD = Racine County Land Conservation Division
NRCS = U.S. Department of Agriculture Natural Resources Conservation Service
TSP = Technical Service Provider
SEWRPC = Southeastern Wisconsin Regional Planning Commission
USCOE = U.S. Army Corps of Engineers
USF&W = U.S. Department of Agriculture–Fish & Wildlife Services
UWEX = University of Wisconsin-Extension

Source: SEWRPC.

EDUCATIONAL PROGRAMMING

Goals and Workplan Objectives

Developing and implementing sound educational programming is an important component of the land and water resources management plan. The goals and workplan objectives related to educational programming include the following:

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

Planned Actions

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

The planned actions to meet the educational goals and objectives in the nonagricultural and urban areas include offering seminars or short courses on the principals of sound erosion control and stormwater management practices on construction sites. Residents will also be included in educational programming efforts. Specifically, it is recommended that residents be provided with information on yard waste management practices designed to reduce nonpoint source pollution. This can be done through distributing literature on lawn maintenance, such as proper fertilization and chemical application techniques, on yard landscaping alternatives to turf, and on the proper management of leaf and grass clippings, pet waste, and household chemicals. Additionally, informational materials on buffer effectiveness and buffer design options will be made available to riparian property owners. This information will also be made available to landscape contractors and architects, in addition to offering informational seminars related to this topic. Riparian buffer demonstration sites may be established and promoted to illustrate the desirable aesthetics and environmental soundness of riparian buffers.

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

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

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

- Provide one-to-one contact with individuals, businesses, or local levels of government;
- Inform new and existing landowners about their obligation to maintain compliance with performance standards through personal contact, direct mail, newsletters, fact sheets, webpage, workshops etc;
- Utilize new and existing programs to help implement a curriculum to inform students about natural resource issues, their function and role in the environment, and ways they can manage and restore those resources;
- Assist area youth groups in the development of outdoor classroom activities to promote land and water conservation;
- Make available internships to provide real work experience opportunities for High School and College students;
- Participate in the State of Wisconsin Environmental Poster Contest. This educational contest allows students to make posters using their creativity and artistic skills. Winning posters are advanced to regional and State competitions.
- Distribute informational material during office and site visits. Provide I&E at display booths at County and lake fairs;
- Partner with lake districts and associations on shoreline protection and restoration demonstration projects and workshops. Continue to distribute lake information packets to new riparian landowners;
- Continue to distribute informational materials to homeowners on pet waste, leaf and grass clipping disposal, lawn fertilization techniques, and the problems associated with dumping chemicals directly into storm sewers;

- Promote storm drain stenciling and provide materials to schools and youth groups;
- Organize and educate local work and youth groups to identify and eliminate nonnative and invasive species;
- Conduct seminars or workshops for the farming community, riparian residents, businesses, and local levels of government to include:
    - General awareness of conservation and/or runoff pollution
    - State Performance standards and manure management prohibitions
    - Nutrient management planning and soil preservation techniques
    - Land use planning (including farmland preservation and development rights)
    - Groundwater management (including well abandonment and septic systems)
    - Urban stormwater management and erosion control
    - Water conservation, rain gardens, groundwater protection
    - Lake/river/shoreland management
    - Wetland/pond creation/enhancement/restoration
    - Woodlot/prairie/savannah management
    - Invasive species management
    - Wildlife habitat management
- Provide informative news articles in the *Ties to the Land* newsletter; with sections focusing on different land conservation issues in the County;
- Use cable TV, radio and newspaper to deliver environmental programming and circulate opinion surveys; and
- Maintain a County natural resource and land conservation website devoted to conservation programs, technical services, and cost-shared practices, with links to other sources of information.

AGRICULTURAL PERFORMANCE STANDARDS

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

- Implement the statewide agricultural nonpoint pollution performance standards;
    - Soil erosion rates on all cropland must be maintained at or below "T." [Note: "T" is the tolerable erosion rate for each soil type to maintain its productivity indefinitely. T-values

generally range from three to five tons per acre per year and are documented in the NRCS Technical Guide.]

- Starting in 2005 for high-priority areas such as impaired or exceptional waters, and 2008 for all other areas, application of manure or other nutrients to croplands must be done in accordance with a nutrient management plan, designed to meet State standards for limiting the entry of nutrients into groundwater or surface water resources.

- Clean water runoff must be diverted away from contacting feedlots, manure storage facilities, and barnyards in water quality management areas (areas within 300 feet of a stream, 1,000 feet from a lake, or areas susceptible to groundwater contamination).

- All new or substantially altered manure storage facilities must meet current engineering design standards to prevent surface or groundwater pollution. The following manure management prohibitions also apply statewide:

  - No direct runoff from animal feedlots to "waters of the state."

  - No overflowing manure storage facilities.

  - No unconfined manure piles in shoreland areas (areas within 300 of a stream, 1,000 feet from lakes).

  - No unlimited livestock access to "waters of the state" where the livestock prevent sustaining an adequate vegetative cover.

- Support the Farmland Preservation Program;

- Reduce soil delivery rate from riparian cropland;

- Develop, implement, and monitor compliance of nutrient and pest management plans to protect water quality; and

- Utilize GIS technology to develop detailed mapping of important agricultural land management areas and priority farms.

Planned Actions

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

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

The Racine County LCD plans to develop a detailed data base utilizing geographic informational system (GIS) technology to identify and assist in management of farms prioritized for compliance with State performance standards. The initial information to be inventoried and mapped will include horse and livestock farms and water

quality management areas (WQMA). It is eventually anticipated that additional information will be inventoried and mapped and may include restricted manure, septage, wastewater and/or sludge land application sites, nutrient management plan locations, cost-shared practices installed, U.S. Natural Resources Conservation Service (NRCS) farm plans for highly erodible lands and conservation reserve and reserve enhancement program contracts.

Planned actions associated with improving stream sedimentation and agricultural drainage include the implementation, by individual agricultural producers, of best management practices to reduce soil erosion and sediment delivery as identified in farmland management plans to be prepared by the Natural Resources Conservation Service staff. In addition farmers and rural landowners shall be encouraged to periodically clean out accumulated sediment from drainage channels utilizing the proper permitting procedures.

NONAGRICULTURAL PERFORMANCE STANDARDS

Goals and Workplan Objectives

Nonagricultural and urban land uses are a significant source of nonpoint pollution. To achieve the requirements of NR 151 Nonagricultural Performance Standards, the goals and objectives of this plan focus on stormwater management, construction site erosion control, and sound land use planning. Specifically, goals and workplan objectives include the following:

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

Planned Actions

In order to accomplish the identified nonagricultural nonpoint pollution goals and workplan objectives, a number of management practices need to be implemented. Construction sites are one of the highest contributors of erosion and sedimentation when best management practices are not properly installed and maintained. Stormwater management and erosion control standards need to be established to provide consistent stormwater permit requirements countywide. In addition, Racine County and the towns and local governments, should work together to develop a consistent monitoring program for construction sites to ensure proper establishment and maintenance of best management practices. Racine County and the towns and local governments should set standards that require developers and contractors to leave the maximum amount of vegetation on a construction site. The

County, towns, and local government should also require, through guidelines or adopted ordinance, developers to provide a site plan inventory of the drainage network including contiguous properties extending beyond the site boundary to show surface and subsurface runoff patterns onto, through, and from the site; watercourses that may affect or be affected by runoff from the site; flow path and direction for all stormwater conveyance sections; watershed boundaries used in hydrology determinations to show compliance with performance standards; lakes, streams, wetlands, channels, ditches, and other watercourses on and immediately adjacent to the project site.

Storm water runoff is one of the principal factors associated with nonpoint source pollution. Not only does stormwater transport sediment and contaminants, but it also contributes to erosion of streambanks, and temperature fluctuations of water resources. A coordinated program should be developed to prepare and implement detailed comprehensive stormwater management plans for logical subwatershed and groundwater protection areas. This program should emphasize new development, redevelopment of existing urban areas, and existing urban areas. Additionally, the towns and local government should take on the primary responsibilities associated with maintenance of major stormwater management facilities for future developments, to ensure that long-term maintenance issues are properly addressed, by providing a stable, responsible party for stormwater management. Racine County and the towns and local government should continue to work to develop coordinated and simplified requirements for stormwater management facility permitting and regulation. Additionally, local requirements should be coordinated with the Wisconsin Department of Natural Resources permitting program.

Racine County LCD's strategy to address applicable nonpoint pollution performance standards and prohibitions under NR 151 are described in more detail below.

INVASIVE AND NONNATIVE SPECIES MANAGEMENT AND CONTROL

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

- Distribute informational material, answer phone and direct inquiries;
- Organize and educate local work and youth groups to identify and eliminate nonnative and invasive species;
- Continue to conduct periodic workshops and presentations on nonnative and invasive plant and animal species control;
- Host a garlic mustard pull-a-thon event, assist the clean boats, clean waters volunteer program, support purple loosestrife biological control;
- Create a monitoring program to track control measures over time; and
- Encourage the development and adoption of aquatic plant management plans for all inland lakes.

Planned Actions
Nonnative and invasive species control strategies rely heavily on information, education and communication. Therefore, our plan will include a wide range of activities to implement an effective identification, prevention, and eradication program. Racine County will continue to conduct Gypsy Moth suppression monitoring in all areas of the County. The emerald ash borer is a nonnative insect, native to Asia, which currently threatens ash trees in the Great Lakes region. Infestations have been confirmed (summer 2006) in Kane and Cook counties in Illinois. Racine County will work together with DATCP, the WDNR, U.S. Forest Service, the University of Wisconsin and other State and local agencies and groups to educate the public on prevention and prepare them for potential

infestation. The WDNR has recognized aquatic invasive species as a potentially serious problem in Racine County lakes. Planned activities include the continuation of an ongoing program of public information and education being provided to both riparian landowners and lake users. Also, encourage lake association/districts to develop and adopt aquatic plant management plans for their individual lakes.

Invasive shrubs such as Buckthorn and Honeysuckle prevent the regeneration of young trees, causing long-term, serious impacts to the forestry of Racine County. Garlic Mustard can invade woodlands and displace native vegetation. It spreads rapidly and can dominate the forest floor within 10 years. It not only invades disturbed habitats, but readily spreads into high quality forests. Garlic mustard provides little food and habitat wildlife. Purple Loosestrife has become an aggressive weed in our natural wetlands and even roadside ditches of Racine County. This plant spreads quickly and chokes out high-quality native wetland plant species, which consequently makes wetlands less useful for wildlife. Racine County LCD will work to coordinate an annual invasive species awareness event.

PROTECT AND PRESERVE LAND AND WATER RESOURCES

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

- Conserve Racine County's unique natural resources in the face of increasing urbanization and resulting loss of farmland;
- Prevent the degradation and disturbance of wetlands;
- Create, restore and enhance wetland, riverine, and wildlife habitat throughout the County;
- Prepare and/or update comprehensive lake and watershed management plans;
- Promote riparian buffers along all water resources in the County;
- Protect the quality and quantity of groundwater supplies;
- Support efforts to protect and enhance our forests and woodlots; and
- Continue to implement and refine the County's shoreland management program with emphasis on shoreline protection, restoration, and enhancement.

Planned Actions
The loss of farmland and the rural character is an important concern in Racine County. Efforts should be made by the County, towns, and local government to restrict over-development by following existing and newly adopted land use plans. Ongoing and future development should be held to a high environmental standard through the implementation of existing and newly adopted local ordinances and policies. Racine County LCD will encourage farmers to keep farming, through sustainable and alternative agricultural practices and other initiatives which may include the purchase of development rights, comprehensive land use plans, farmland protection, farm-to-table programs (connecting local farmers with local buyers), cooperative farm approaches, trusts, deeded outlots, conservancies, etc.

The regional water quality management plan update[1] will provide specific recommendations on land use, the point source pollution abatement, and the nonpoint source pollution abatement. These recommendations were determined by detailed modeling needed to achieve the adopted water use objectives for the southeastern Wisconsin region. The recommendations and guidance for water quality management set forth in SEWRPC Planning Report No. 50 will be an invaluable resource tool for Racine County, the towns, and local governments in land and water management planning. In order to meet the identified goals and workplan objectives related to the protection and preservation of Racine County's land and water resources, soil erosion from unstable river and lake shorelines should be quantified and priority sites mapped and funding should be identified and obtained to assist landowners in implementing shoreline protection measures. Wetlands should to be protected through NR 151, NR 103 and local ordinances to insure the setback requirements for protected areas are met. The County and local governments will continue to work cooperatively to implement the recommended actions identified in the regional natural areas and critical species habitat plan.

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

Riparian buffers are one of the most effective means of protecting water quality through reducing sediment delivery. Accordingly, Racine County LCD will continue to work with and form more resource partnerships to educate riparian landowners of the water quality benefits of buffers. Racine County LCD will offer SWRM cost-share funds, as available, to install bio-engineered systems with vegetated buffers. Racine County is currently promoting voluntary programs such as the Conservation Reserve Program (CRP) and the Conservation Reserve Enhancement Program (CREP) to protect water quality. The LCD encourages alternative methods available to protect shorelines subject with low erosion intensity. At present, the WDNR is redesigning the State nonpoint pollution control program to include buffer standards that were omitted from the original code. When the WDNR adopts a buffer standard for NR 151, the LCD plans to incorporate it into local program efforts and revise annual planned activities as necessary. Racine County will work to achieve the pollutant reduction goals set forth in both regional and watershed water quality management plans. Racine County LCD will continue to monitor the Lake Michigan shoreline, especially in those reaches with relatively high unprotected bluffs and where shoreline protection structures are in need of maintenance, failing or failed, and where shoreline protection structures have been placed in isolated situations and are likely to cause differential erosion processes acting on unprotected portions of the shoreline in the vicinity of those structures. Additionally, Racine County will protect the shoreline and water resources from continued degradation by continuing to administer its shoreland ordinance regulation limiting the extent of activities such as filling, tree cutting, and grading that occurs within the shoreland zone. Racine County LCD also provides shoreland erosion control reviews for one- and two-family dwellings and subdivisions within the shoreland jurisdiction of the County zoning. Racine County will continue to update existing floodplain maps and encourage the mapping of unmodeled areas. The LCD will also recommend adoption of floodland zoning regulations and participation in the National Flood Insurance Program to effected units of local government. Racine County plans to continue its annual tree program and work with the area forester to provide forestry assistance to landowners.

In order to meet the goals and objectives to reduce the threat to groundwater contamination, Racine County LCD will continue to use SWRM grant funds to cost-share the decommissioning of abandoned and unused wells. The

[1]*SEWRPC Planning Report No. 50,* A Regional Water Quality Management Plan Update for the Greater Milwaukee Watersheds*, in progress.*

County will also encourage and support local governments in developing wellhead protection programs to ensure safe setbacks from all municipal wells. The County will continue the current comprehensive onsite sewage disposal system management program and also address the provisions set forth in the recently revised Comm 83 as needed. The County will continue to facilitate the use of funding sources for repairing or replacing failing septic systems.

Because of the concerns associated with groundwater contamination from agriculture and related industries, the County LCD and NRCS staff will work with agricultural producers to soil test farm fields and provide assistance to producers to develop nutrient management plans for farm fields. The County will utilize the available inventory data and GIS mapping that is set forth in the regional groundwater inventory to delineate those areas that are considered groundwater related water quality management areas. The educational program activities mentioned above will include an element to increase the awareness level of the importance of groundwater and ways to protect groundwater resources through informational workshops, fact sheets and literature. In addition to existing programs and educational materials, new in-school programs will be encouraged to include: sources of groundwater and its importance, groundwater uses, and protection of groundwater.

To ensure the continued quality of groundwater resources in Racine County, the LCD, towns, and local government shall incorporate information on groundwater recharge areas and the potential for groundwater contamination as one component of future land use planning. Furthermore, new urban development will be encouraged to be located in areas where public water supply systems are available.

The Southeastern Wisconsin Regional Planning Commission is conducting a regional water supply study for the Southeastern Wisconsin Region. The recommendations and guidance for groundwater sustainability set forth in SEWRPC Planning Report No. 52 will be considered by Racine County when evaluating the sustainability of proposed developments and in conducting local land use planning.[2]The plan is expected to be completed in mid-2008.

INCREASE COOPERATION WITH LOCAL, STATE, AND FEDERAL PARTNERS

Goals and Workplan Objectives
Coordination with Federal, State and local agencies is necessary to protect land and water resources in Racine County. In order to increase cooperation with local, State, and Federal partners, specific goals and workplan objectives have been identified as follows:

- Develop a countywide comprehensive and smart growth plan;
- Foster existing relationships with WDNR, FSA, DATCP, and NRCS; and
- Look for new opportunities to coordinate efforts with local grass roots groups, conservation and wildlife clubs, local, State, and Federal agencies to help implement the goals of this LWRMP.

Planned Actions
Racine County LCD will work with the multi-jurisdictional advisory committee and citizens to develop a countywide comprehensive plan based on Wisconsin's Smart Growth law. The plan will provide a vision for future land use in Racine County. In order to improve the consistency and effectiveness of ordinance administration, the County may enter into working agreements with other agencies to coordinate and streamline the permit processes. Racine County LCD will consider developing a memorandum of understanding with the WDNR to describe the roles and responsibilities of the LCD and the WDNR in the implementation of NR 151 and the proposed NR 115 revision. The LCD will improve relationships with lake associations and districts to promote

[2]*SEWRPC Planning Report No. 52*, A Regional Water Supply Plan for Southeastern Wisconsin*, in progress.*

innovations in shoreline protection and restoration through demonstration sites of new products and techniques and cost-share incentives. Racine County LCD will continue to rely on NRCS and DATCP for engineering and technical assistance, and grant funding. Racine County will continue its active membership with the Root/Pike Watershed Initiative Network, Sustainable Racine Environmental Group, Seno Woodland Education Center, Racine/Kenosha Land Trust, Southeast Fox River Basin Partnership, Wisconsin Association of Land Conservation Employees (WALCE), Wisconsin Land and Water Conservation Association, etc. Partnerships are becoming the backbone of conservation efforts throughout the country. Partnerships enhance communication techniques and improve methods of in reach and outreach. Multi-agency partnerships are often a funding source and/or a funding prerequisite and make more grant programs available.

PERFORMANCE STANDARDS IMPLEMENTATION STRATEGY

The goals, workplan objectives and planned activities presented in this chapter represents part of the framework for an annual workplan that will be developed and carried out by the Racine County LCD over the next five years. Proposed planned activities were purposely broadly defined in order to meet future changes in the environment, changes in programs and policies, changes in local priorities and changes in available funding. As required by DATCP, a more detailed list of planned activities are set forth below, as a strategy to implement the nonpoint pollution performance standards and prohibitions under NR 151. Also an estimate of the costs associated with plan implementation is provided.

Implementation Strategy (agricultural)
To implement the abovenoted standards and prohibitions fairly in the agricultural areas, a systematic and comprehensive approach will be required. Racine County anticipates entering into a Memorandum of Understanding (MOU) with the WDNR at some point in the future. Specific roles and responsibilities would be negotiated during the framing of the agreement. However, the strategy for implementation detailed below is a likely process for implementation with some need for flexibility as program experience develops and fiscal conditions may dictate. In the following sections, the term "landowner" is used generically to describe the person responsible for compliance with the abovenoted standards.

1. Conduct information and education activities.
   Racine County LCD will distribute information and educational material prepared by the WDNR and DATCP to appropriate landowners. The information will also be distributed via our *Ties to the Land* newsletter, the County website, public information meetings, and one-on one contacts.

   The educational materials will be designed to achieve the following objectives:

   - Educate landowners about Wisconsin's agricultural performance standards and prohibitions, County ordinances, applicable conservation practices, and cost-share grant opportunities;
   - Promote voluntary implementation of conservation practices necessary to meet the performance standards and prohibitions;
   - Inform landowners of compliance procedures and agency roles to be used statewide and locally; and
   - Make landowners aware of expectations for compliance and consequences for noncompliance.

2. Priority Farms Strategy: Identify and evaluate farms for compliance with standards and prohibitions.
   Racine County LCD will use GIS as a tool to identify priority farms for compliance determinations, track progress on implementing performance standards and meet reporting requirements. Color digital orthophotos from spring 2005 will be used as a base map for initial screening. Using County two-foot contour maps and water resource layers, Water Quality Management Areas (WQMA) (300 feet from a stream or 1,000 feet from a lake) will be delineated. This is the same area defined as the Shoreland

Zone for the Racine County Economic Development and Land Use Planning Department. Digital land units from the USDA-Farm Service Agency will be used to identify field boundaries. Information from the Soil Survey may also be used to identify "potential" locations of runoff or groundwater problems. These data layers combined with a hydrologic data layer will help identify water resources and locate potential problem areas within the WQMA. Agricultural fields and livestock operations within this area can be identified and a list of owners for contacting generated from the Land Information System parcel maps. Once the list of landowners is created, LCD staff can conduct a records inventory search for files related to conservation planning prepared by our department or the NRCS. This is an initial review to determine potential compliance with the performance standards based on past or present program participation. If no records are found, or if the records are found to be out-of-date with existing farming operations, an onsite farm visit will be scheduled.

In the initial stages, implementation will focus on high priority areas, WQMA, livestock operations, highly erodible soil areas, and lands not slated for development in the near future. Landowners within these areas will be contacted for compliance evaluation based on initial screening data noted above. Additional onsite review may also be identified through complaints or staff observations. The Racine County LCD plans to conduct a minimum of three priority farm inventory visits annually. This number may increase after the GIS tool is in place and initial screening data is collected. The number of compliance evaluations is also limited by existing program efforts and staffing levels.

3. Document and report compliance status.
Following completion of records review and onsite evaluations, an NR 151 Status Report will be prepared and issued to owners of the parcel evaluated. This report will include at a minimum:

- Compliance status of individual parcels with each of the performance standards and prohibitions.
- Corrective measure options and an approximate cost estimate to comply with each of the performance standards and prohibitions for which a parcel is not in compliance.
- Status of eligibility for cost-sharing available.
- Grant funding sources and technical assistance available from Federal, State, and local government, and third party service providers.
- An explanation of conditions that apply if public cost share funds are used.
- A timeline for completing corrective measures, if necessary.
- Signature lines indicating landowner agreement or disagreement with report findings.
- Process and procedures for contesting evaluation results to the County.
- A copy of performance standards, prohibitions and technical design standards.

All evaluations and compliance status reports will be kept as public record in the office of Racine County Economic Development and Land Use Planning Department. If a landowner agrees with the initial compliance determination and no corrective actions are required, a Letter of NR 151 Compliance will be issued (See (5)) and the site mapped appropriately on the Racine County Land Information System. If a landowner disagrees with the initial compliance determination, the landowner may meet and discuss concerns with the LCD regarding the compliance determination process and results. If, after discussing the NR 151 Status Report with the LCD, the landowner still

disagrees with conclusions, the landowner may choose to follow the appeals process to be detailed in the anticipated MOU between the LCD and the WDNR.

4. Offer technical assistance and available cost-sharing to implement appropriate best management practices.
   If a site is determined to be out of compliance with the State standards, technical assistance and cost-sharing will be offered to the landowner to bring them into compliance. A list of conservation practices likely to be utilized to meet State performance standards and potential sources of cost-share funding is found in Appendix A. If no cost-sharing is available, a landowner is not required to comply until such time that cost-sharing becomes available. However, if cost-sharing is offered, and a landowner still refuses to make the corrective actions needed to bring the site into compliance, future cost-sharing is not required.

5. Administer funding and technical assistance.
   Once a landowner agrees to implement the corrective actions to bring the site into compliance with the State standards, and if cost-sharing is involved, the cost-share agreement and schedule for implementation will be executed. If technical assistance is required it will be arranged for through appropriate agencies/staff with the proper engineering job approval or conservation planning certifications.

   After the corrective measures are applied, the site will be re-evaluated to determine if the parcel is now in compliance with the relevant performance standards or prohibitions. If the site is in compliance, the NR 151 Status Report will be updated to include a Letter of NR 151 Compliance. This would serve as official notification that the site has been determined to now be in compliance with applicable performance standards and prohibitions. Under NR 151, once a site is determined to be in compliance, it is required that the site remains in compliance for perpetuity without additional cost-sharing being required.

6. Issue required notices and enforcement activities.
   Following compliance status notification, if appropriate action is not taken by the landowner/operator in a reasonable amount of time as detailed in the NR 151 Status Report, enforcement action may commence.

   Generally, a NR 151 Violation Letter would be sent via certified mail to notify the landowner of the violation and explain possible enforcement action that may follow. It is anticipated that the LCD would refer the case to the WDNR for further enforcement, depending on the outcome of the MOU described earlier.

7. Compliance monitoring and Annual reporting.
   Racine County LCD will use GIS and a spreadsheet database to record progress on implementing performance standards and meet reporting requirements. Compliance monitoring may be done as random spot checks or through scheduled inspections of sites previously cost-shared. Annual reports will be compiled to evaluate the progress of administering performance standards and prohibitions and submitted to the WDNR and DATCP.

Implementation Strategy (nonagricultural)

To implement the abovenoted standards and prohibitions fairly in the nonagricultural areas, a systematic and comprehensive approach will be required. Runoff pollution from urban lands can be the leading cause of water quality problems in some areas. As in rural areas the number one pollutant is sediment, or small bits of soil particles washed into streams and lakes. Attached to the soil particles are nutrients such as phosphorus that fuels the growth of algae and weeds in bodies of water. Other pollutants from urban areas include flakes of metal from vehicles, particles from vehicle exhaust, bits of tire and brake linings, soot from smokestacks, lead, zinc, pet waste, leaves and grass clippings and a variety of chemical compounds. At the present time the Racine County LCD has not taken a lead role in stormwater management and general erosion control. The LCD regulates erosion

control measures for development within the shoreland zone. This permit process involves plan review, onsite inspection, and necessary enforcement actions. In Racine County, stormwater drainage and stormwater management is regulated by the local municipality. Storm water management and erosion control information for Racine County is presented in Table 24. With the exception of the Towns of Rochester and Yorkville all the towns in Racine County have a stormwater management and construction site erosion control plan or ordinance. Both the City of Burlington and the City of Racine have a stormwater management and construction site erosion ordinance.

It should be noted that local erosion control ordinances do not apply to single-family home construction as these are regulated under COM 21 *Wisconsin Administrative Code*. By State *Statute*, COM 21 supersedes all local ordinances. In Racine County, the towns regulate erosion control on single-family home construction and as mentioned above the Racine County LCD provides shoreland erosion reviews for one- and two-family dwellings and subdivisions within the shoreland jurisdiction of the County zoning.

Municipal Stormwater Discharge Permits

Administrative Rule NR 216 also contains stormwater permitting requirements for communities, designed to treat discharges from municipal storm sewer systems. NR 216 requires municipalities outside urbanized areas with a population greater than 10,000 and a density over 1,000 persons per square mile to obtain a WPDES Storm Water Discharge Permit. As a result of these requirements, Racine County, the City of Racine, and the Villages of Caledonia, Mt. Pleasant, Sturtevant and Wind Point will be required to obtain permits. Permitted municipalities are required to implement the following:

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

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

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

Under the requirements of Chapter NR 151, by March 10, 2008, incorporated municipalities with average population densities of 1,000 people or more per square mile that are not required to obtain municipal stormwater discharge permits must implement those same three programs.

Estimated Costs of Plan Implementation

Since this plan does not have the authority to establish County budget items, the estimated costs provided below are solely intended to satisfy State LWRM planning requirements and do not in any way represent anticipated Racine County LCD budgets. It is also assumed that no additional staff resources will be made available to implement this plan beyond what is currently allocated to land conservation programs in the County (approximately 3.5 full time employees). The cost estimates contained in Table 25 are based on average annual costs to maintain existing program efforts and staffing levels.

The cost-sharing estimates in Table 25 are based on a statutory requirement of 70 percent cost-sharing and are dependent on the need for landowners to comply with the State performance standards described earlier in this chapter. Crop erosion control has greatly improved in Racine County owing to the widespread practice of conservation tillage and sowing of herbicide resistant field crops. Also Racine County has only a few livestock operations remaining. Therefore, compared to other Wisconsin counties, the costs to meet these requirements should be nominal. Racine County has, however, been under intensive agriculture for over a hundred years and many of its streams have accumulated sediment throughout that period. If a new standard is established for stream buffers, and nutrient management standards are enforced, these costs could be greater. Average salary increases and inflationary costs are included in the increases shown each year. Currently all cost-share funding is acquired from Federal and State sources. Racine County LCD will continue to apply for grants to supplement those funds. The table below assumes that Racine County's current budgeted staffing level of 3.5 full-time employees is

Table 24

STORMWATER MANAGEMENT AND EROSION CONTROL INFORMATION FOR RACINE COUNTY: 2006

Community	Type of Ordinance and/or Plan	
	Stormwater Management	Construction Site Erosion Control
Racine County	- -	- -
City of Burlington	X	X
City of Racine	X	X
Village of Caledonia	X	X
Village of Elmwood Park	- -	- -
Village of Mt. Pleasant	X	X
Village of North Bay	- -	- -
Village of Rochester	X	- -
Village of Sturtevant	X	X
Village of Union Grove	X	X
Village of Waterford	X	X
Village of Wind Point	- -	- -
Town of Burlington	X	X
Town of Dover	X	X
Town of Norway	X	X
Town of Raymond	X	X
Town of Rochester	- -	- -
Town of Waterford	X	X
Town of Yorkville	- -	- -

Source: Wisconsin Department of Natural Resources and SEWRPC.

maintained, and it assumes stable segregated and bonding cost-share funds by the State. Conservation practices, such as diversions, riparian buffers, filter strips and building projects such as manure storage facilities, concrete barnyards and roofed feedlots are considered "hard practices." Cropping practices, such as nutrient management and conservation tillage, are known as "soft practices." The projected cost-share needs for installing hard and soft best management practices over the next five years is only an approximate estimate due to uncertain funding levels, changing land use and farm economy, and increasing practice installation costs.

SUMMARY

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

Table 25

ESTIMATED TOTAL COSTS FOR PLAN IMPLEMENTATION: 2008-2012

Cost Category	2008	2009	2010	2011	2012	Five-Year Total Costs
Salary and Benefits[a]	$217,149	$228,006	$239,407	$251,377	$263,946	$1,199,885
Operating Expenses[a]	15,750	16,538	17,364	18,233	19,144	87,029
Landowner Cost-Share Hard Practices[b]	42,964	60,000	60,000	60,000	60,000	282,964
Landowner Cost-Share Soft Practices[b]	50,000	70,000	70,000	70,000	70,000	330,000
Total Annual Costs	$325,863	$374,544	$386,771	$399,610	$413,090	$1,899,878

[a]*Anticipate 5 percent annual increases for salaries, benefits, and operating expenses.*

[b]*The costs provided by landowners and other grant recipients would be approximately $183,890.*

Source: SEWRPC.

(This page intentionally left blank)

Chapter V

PROGRESS MONITORING AND EVALUATION

MONITORING AND EVALUATION

The monitoring and evaluation of program efforts is important to ensure the effectiveness of the planned activities detailed in Chapter IV of this plan. Racine County LCD currently employs and plans to expand a variety of methods to monitor and evaluate the progress of program efforts which include: geographic information system (GIS) database, public surveys, advisory committees, annual progress reports, and water quality monitoring. Monitoring program effectiveness will be carried out through analyses and quantification of soil erosion and sediment delivery; priority farm compliance; tracking the level of protection of environmentally sensitive lands, and analysis of water quality data. This chapter describes some of these efforts in more detail and how they will be used to monitor and evaluate the success of implementing planned activities.

GIS/Database Tracking Systems
Racine County's priority farms strategy will involve the identification and evaluation of farmland for compliance with performance standards and prohibitions. Racine County will use GIS as a tool to identify priority farms for compliance determinations, track progress on implementing performance standards and meet reporting requirements. This database will be designed to inventory parcel ownership, track notices sent to landowners and record conservation measures installed and cost-share awarded. In addition, the LCD will be able to track progress on riparian buffer installation accomplished through the Conservation Reserve Program or SWRM cost-share. If a statewide buffer standard is adopted, this database will be used to track compliance with the new standard as well.

Racine County currently tracks storm water reviews using a spreadsheet database. A GIS system is proposed to monitor compliance with the urban nonpoint performance standards and to generate annual reports of activities such as plan reviews, permits issued, inspections conducted and enforcement action taken. In addition, a GIS component may be incorporated to allow mapping of the sites where storm water BMPs are located and to track and schedule maintenance activities.

Citizen Surveys
One way to measure progress in information and education efforts is through random citizen surveys. Racine County LCD plans to include an annual survey or questionnaire in the *Ties to the Land* newsletter. Such surveys will help to measure the level of understanding of rural nonpoint pollution and the impacts of urban stormwater runoff. The LCD will analyze the results of these surveys to optimize planned activities to address particular problems, concerns, or deficiencies. Racine County LCD will continue to survey workshop participants to get feedback and suggestions for improvement and ideas for future informational and educational program efforts.

Progress Reporting
Regular meetings to report progress to the Racine County Land Conservation Committee regarding conservation plans and nutrient management plans that were developed, buffers implemented, contacts made, and educational activities are currently held. These meetings are used to evaluate the effectiveness of current practices, to approve and review cost-share contracts, and to change or modify programs to better address current conditions and local priorities.

Water Quality Monitoring
Water quality monitoring is an important means to assess the present condition of water resources and to gauge the effectiveness and progress of land conservation related activities and best management practices. Unfortunately, due to the high number of variables involved in monitoring water quality, nonstandardized parameters and sampling techniques, and the broad spatial and temporal sampling effort, it is often difficult to interpret the data. Overall, there is a shortage of water quality monitoring information available to the LCD and much of the data is antidotal or otherwise not quantifiable. The Racine County LCD supports the monitoring efforts of programs, such as the Self-Help Monitoring and Water Action Volunteers, among others. The LCD also plans to continue to work in cooperation with conservancy and environmental organizations, State and Federal Agencies, school districts, utility companies, local governments, lake, sanitary, and utility districts, and adjacent County and local governments and other groups such as the Root-Pike Watershed Initiative Network, Southeastern Fox River Basin and SEWRPC. These groups work directly or indirectly, through project funding, to collect water quality data on a regular basis.

The principal methods that will be used to evaluate soil erosion and sediment delivery will include: State and Federal farm plan monitoring, plan revisions, random field checks, and conducting the annual cropland erosion survey. In 1999, the LCD began conducting an annual cropland erosion survey program, which is a method to determine the average rate of cropland erosion throughout Racine County. The County has conducted the survey every year. In 2006, 91 percent of all cropland was eroding at or below tolerable soil loss rates. This suggests that past local, State, and Federal conservation program efforts have been successful in helping farmers manage soil erosion. Additionally, nonagricultural and shoreline erosion will be monitored through quantification of shoreland permits, and gauging the effectiveness of construction site best management practices through onsite inspections and the cooperation with municipal building inspectors. Environmentally valuable lands will be quantified in the preliminary planning stage by utilizing GIS and other computer databases to introduce protective measures for environmental corridor areas and other environmentally important lands identified in the regional natural areas and critical species habitat plan and the watershed management plans.

WDNR Water Quality Monitoring
The Department of Natural Resources also conducts baseline monitoring of lakes and streams in Racine County. Department staff conducts fish collections, examines macroinvertebrates, and conducts habitat assessments at a number of locations throughout Racine County. This information is summarized in periodic State of the Basin reports.

United States Geological Survey Monitoring
The United States Geological Survey (USGS) is actively collecting surface water resources data at two stream locations in Racine County and at numerous locations around Wisconsin. The two stream monitoring sites, USGS No. 04087233 and USGS No. 04087240 on the Root River, record water-stage and gage crest-stage. The USGS operates a lake water-quality and lake-stage station at the outlet of Wind Lake (USGS No. 424848088083100). The type of data collected varies depending on program and project scope but includes historic and current stream flow on selected waterbodies, water quality, and lake-stage data. The USGS regularly partners with the WDNR and other agencies and local interest groups to collect information on the condition of surface and groundwater resources. More information on the variety of data collected by the USGS and the ability to view real-time stream gage data can be found at the USGS website: *http://wi.water.usgs.gov/*.

Lake Michigan Beach Monitoring

The Federal Beach Act was passed in October of 2000, requiring States that border coastal or Great Lakes waters to develop beach monitoring and public notification programs. The Beach Act also authorized the U.S. Environmental Protection Agency (EPA) to provide grants to States that have beaches bordering these coastal waters for the purpose of developing and implementing monitoring and public notification programs. The WDNR and its partners have participated in this grant program since the 2002 swimming season. The Wisconsin Beach Monitoring Program was developed in accordance with EPA performance criteria. The City of Racine Health Department adheres to the performance criteria for monitoring, public notification, and reporting. Racine County beaches that are tested regularly include: North Beach and Zoo Beach. Water quality data is posted daily from Memorial Day to Labor Day. The County and State websites are updated daily and, therefore, have the latest available advisories. The Racine County beach website is: *www.cityofracine.org/Depts/health/beach.aspx*. The State of Wisconsin beach website is: *www.wibeaches.us*.

In addition to BEACH Act funds used for monitoring their beaches, the City of Racine works closely with partners to seek additional funding through grants to do source identification research. Research conducted over the 2006 beach season included:

- Characterization of *E. coli* in beach sands relative to sediment size and hydrologic factors (Wisconsin Coastal Management Program (WCMP) Grant, partner with Dr. John Skalbeck, UW-Parkside). Results indicated that well-sorted, fine sand has the highest concentration of E. coli and this is most pronounced at the berm crest, an area prone of continual wetting. In conclusion fine sandy beaches, like those in Racine, may benefit most from beach sand manipulation tactics.

- Sampling of gull feces for the isolation of Campylobacter spp. (UW-Milwaukee WATER Institute, source of funding and partner, Dr. Sandra McLellan) This research will ultimately help determine if *E. coli* from gulls carries the same health risk to humans as from other sources. This may allow Racine to discount the number of advisories in areas where sources have been adequately characterized.

- The evaluation of real-time, quantitative polymerase chain reaction (PCR) as a method to determine pollutant loading (WCMP Grant). This project began in 2006 and continued through June of 2007. The project will allow Racine to compare the DNA concentration present in treated wastewater effluent, bypasses, storm water, and surface water runoff and to assess pollutant loading in real-time.

For the most up-to-date research information concerning recreational water quality monitoring and remediation and control measures, visit the City of Racine Health Department website: *www.cityofracine.org/depts/health/water_quality.aspx*.

Wisconsin's Self-Help Lake Monitoring Program

Wisconsin's Self-Help Lake Monitoring Program began in 1986 as one component of the Department of Natural Resources Lake Management program. The Program is designed as a data collection program on some of Wisconsin's 15,000 lakes and serves as a citizen education program about lakes in general. Each volunteer learns about his or her own lake by collecting the data and through a detailed report he or she receives at the end of the sampling season. The Program was designed with six specific objectives in mind:

1. To teach citizen volunteers some concepts of basic limnology, how lakes "work" and to increase their understanding of the water quality of their lake in particular.

2. To teach citizens about basic lake sampling techniques, specifically how to use a Secchi disc carefully, regularly, and according to set procedures.

3. To document changes in water clarity over time by tallying the data on a centralized computer system.

4. To differentiate between normal and seasonal variations in water clarity and long-term trends over time. In this way we can judge whether water clarity and, presumable water quality, is getting better, getting worse, or staying the same.

5. To compare the water clarity data for all of the lakes in the program on both a regional and statewide basis.

6. To collect data accurately over time in order to make sound lake management decisions.

Lake monitoring volunteers may measure water clarity using a Secchi disk or may elect to do chemical analysis as well as water clarity readings. Lakes in Racine County with a Self-Help Lake Monitoring Program include: Bohners Lake, Browns Lake, Buena Lake, Denoon Lake, Eagle Lake, Tichigan Lake, Lake Waubeesee, and Wind Lake. Water Quality in Racine County Lakes, A report by Rachel Gall - Wisconsin DNR, April 2006, summarized baseline monitoring data from WDNR biologists, USGS Monitoring data, and Self-help Lake Monitoring data collected by volunteers and found a wide range of water quality in the eight lakes tested in Racine County from 2000 to 2004. Denoon and Waubeesee lakes exhibited the best water quality of the lakes tested. Buena and Tichigan lakes exhibited the worst water quality of the lakes tested.

SUMMARY

Consistent and thorough evaluation and monitoring of conservation efforts is essential to ensure the effectiveness of the Racine County Land and Water Resource Management Plan. An annual progress report will be the primary method used to evaluate progress of implementing the planned activities outlined in Chapter IV of this plan. The progress report will utilize the standardized units of measurement for conservation practices and information and education activities prescribed by DATCP. The progress report will consist of a summary of the annual outcomes and accomplishments of planned activities outlined in the workplan. This summary may include, but is not limited to: completed information and education activities, landowners contacted, BMP's designed and installed, conservation and nutrient management plans written or revised, cost-share agreements developed, storm water and erosion control plans reviewed, compliance monitoring and status, and other planned program results. These annual progress reports will be compiled and forwarded to the Department of Agriculture, Trade and Consumer Protection and the Department of Natural Resources. Periodic updates will also be posted on the Racine County website. The results of the monitoring and evaluations described in this chapter, and conducted over the term of this plan (2008-2012), will be used to improve the next land and water resource management plan.

ACRONYMS AND GLOSSARY

ACRONYMS

BMP	Best Management Practice
CAC	Citizen Advisory Committee
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
DATCP	Department of Agriculture, Trade and Consumer Protection
EPA	Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
FPP	Farmland Preservation Program
FSA	USDA Farm Service Agency
GIS	Geographical Information Services
HEL	Highly Erodible Land
I&E	Information and Education
LCC	Land Conservation Committee
LCD	Land Conservation Division
LWRMP	Land and Water Resource Management Plan
MOU	Memorandum of Understanding
NMP	Nutrient Management Plan
NPS	Nonpoint Source Pollution
NRCS	USDA Natural Resources Conservation Service
PDR	Purchase of Development Rights
RC&D	Resource Conservation and Development
SEWRPC	Southeastern Wisconsin Regional Planning Commission
SWRM	Soil and Water Resource Management
“T”	Tolerable Soil Loss Rate
TSP	Technical Service Provider
USCOE	United States Army Corp of Engineers
USDA	United States Department of Agriculture
USF&W	United States Fish and Wildlife Service
UW-Ext	University of Wisconsin-Extension
WDNR	Wisconsin Department of Natural Resources
WHIP	Wildlife Habitat Incentive Program
WRP	Wetland Reserve Program
WQMA	Water Quality Management Area

GLOSSARY

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

ATCP 50 – The chapter of *Wisconsin's Administrative Code* that implements the Land and Water Resource Management Program as described in Chapter 92 of the *Wisconsin Statutes*.

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

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

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

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 that land into grass or tree cover for 10 to 15 years.

Conservation Reserve Enhancement Program (CREP) – An add-on to the CRP program which expands and builds on CRP's success.

Department of Agriculture, Trade and Consumer Protection (DATCP) – The State agency responsible for establishing statewide soil and water conservation policies and administering the State's soil and water conservation programs. The DATCP administers State cost-share funding for a variety of LWCC operations, including support for staff, materials and conservation practices.

Economic Development and Land Use Planning – The Racine County office responsible for zoning administration, land conservation, land use planning, land information and GIS.

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

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

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

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

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

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

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

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

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

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

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

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

University of Wisconsin-Extension – The outreach program of the University of Wisconsin that is responsible for formal and informal educational programs throughout the State.

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

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

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

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

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

Wisconsin Association of Land Conservation Employees (WALCE) – Membership organization that represents all of Wisconsin's Land and Water Conservation employees.

Wisconsin Land and Water Conservation Association (WLWCA) – Membership organization that represents the State's 72 County Land Conservation Committees.

(This page intentionally left blank)

APPENDICES

(This page intentionally left blank)

Appendix A

CONSERVATION PRACTICES

This table lists the current technical standards and potential sources of cost-share funding for the conservation practices likely to be utilized in Racine County to meet the agricultural nonpoint pollution performance standards.

Conservation Practice	Practice Code	Potential Funding Source	Standard
Access Road	560	SWRM, EQIP, WHIP	ATCP 50.65
Animal Trails and Walkways	575	SWRM, EQIP	ATCP 50.66
Barnyard Runoff Control Systems	Various	SWRM, EQIP	ATCP 50.64
Contour Farming	330	EQIP	ATCP 50.67
Critical Area Stabilization	342	SWRM, EQIP	ATCP 50.69
Diversion	362	SWRM, EQIP	ATCP 50.70
Field Windbreak	612	EQIP, WHIP	ATCP 50.71
Filter Strips	393	SWRM, EQIP, WHIP, CREP, CRP	ATCP 50.72
Grade Stabilization Structure	468	SWRM, EQIP	ATCP 50.73
Heavy Use Area Protection	561	SWRM, EQIP	ATCP 50.74
Livestock Fencing	382	EQIP, WHIP	ATCP 50.75
Livestock Watering Facilities	614	EQIP	ATCP 50.76
Manure Storage System	313	SWRM, EQIP, TRM	ATCP 50.62
Manure Storage System Closure	360	SWRM	ATCP 50.63
Milking Center Waste Control Systems	Various	SWRM, EQIP	ATCP 50.77
Nutrient Management	590	EQIP	ATCP 50.78
Pesticide Management	595	EQIP	ATCP 50.79
Prescribed Grazing	Various	EQIP	ATCP 50.80
Riparian Buffer	391	SWRM, WHIP, CREP, CRP	ATCP 50.83
Roof Runoff System	558	SWRM, EQIP	ATCP 50.85
Roofs	Various	SWRM	ATCP 50.84
Sediment Basin	350	SWRM, EQIP	ATCP 50.86
Sinkhole Treatment	725	SWRM	ATCP 50.87
Streambank and Shoreline Protection	580	SWRM, EQIP, WHIP, TRM	ATCP 50.88
Subsurface Drain	606	EQIP	ATCP 50.90
Terrace System	600	SWRM	ATCP 50.91
Underground Outlet	620	EQIP	ATCP 50.92
Wastewater Treatment Strip	635	SWRM, EQIP	ATCP 50.94
Water And Sediment Control Basin	638	SWRM, EQIP, TRM	ATCP 50.95
Waterway Systems	412	SWRM, EQIP, CREP, CRP	ATCP 50.96
Well Decommissioning	351	SWRM, EQIP	ATCP 50.97
Wetland Development or Restoration	657	SWRM, WRP, CREP, CRP, TRM	ATCP 50.98

NOTE: Practice codes refer to NRCS field office technical guides available at http://efotg.nrcs.usda.gov/

SWRM = Soil and Water Resource Management Program
EQIP = Environmental Quality Incentives Program
WHIP = Wildlife Habitat Incentives Program
WRP = Wetland Reserve Program
CREP = Conservation Reserve Enhancement Program
CRP = Conservation Reserve Program
TRM = Targeted Runoff Management

(This page intentionally left blank)

Appendix B

NOTICE OF PUBLIC HEARING

Notice of Public Hearing
Racine County Land Conservation Division
Monday, August 6, 2007 at 5:15 p.m.
Ives Grove Complex Auditorium
14200 Washington Avenue
Sturtevant, WI 53177

Notice is hereby given that on Monday, August 6, 2007, starting at 5:15 p.m., the Racine County Planning and Development Department – Land Conservation Division will conduct an informational meeting followed by a public hearing on the update to the Racine County Land and Water Resource Management Plan (LWRMP). This is the second edition Land and Water Resource Management Plan for Racine County and is intended as an update to the initial LWRMP, adopted by the County Board in September, 2000. This five-year plan is to be used as a guide for the Land Conservation Division in carrying out their duties related to land and water resource protection in Racine County. Adoption of the plan will also help the County qualify for future state and Federal grants. The informational meeting and public hearing will be held at the Ives Grove Complex Auditorium, 14200 Washington Avenue, Sturtevant, WI 53177.

The Racine County Land and Water Resource Management Plan may be viewed online at *www.racineco.com* - look under the alphabetical listing "L" for Land Conservation, and choose "Land and Water Resource Management Plan." It may also be viewed at the Ives Grove Complex in the Racine County Land Conservation Division office. For additional information regarding this hearing, please contact Chad Sampson of the Racine County Land Conservation Division at 262-886-8479. All interested parties will be heard.

Published: July 23rd & July 30th, 2007 – Racine Journal Times

* * *

(This page intentionally left blank)

Appendix C

CONSERVATION-RELATED LINKS

1000 Friends of Wisconsin	http://www.1kfriends.org/
American Fisheries Society	http://www.fisheries.org/afs/
Center for Land Use Education	http://www.uwsp.edu/cnr/landcenter/landcenter.html
Ducks Unlimited	http://www.ducks.org/
Great Lakes Commission	http://www.glc.org/
Kenosha/Racine Land Trust	http://www.krlt.org/
MMSD Water Quality Initiative	http://www.mmsd.com/wqi/
National Association of Conservation Districts	http://nacdnet.org/
National Fish and Wildlife Foundation	http://www.nfwf.org/
Nature Conservancy	http://www.nature.org/
Pheasants Forever	http://www.pheasantsforever.org/
Racine County GIS Map Server	http://www.sewrpc.org/regionallandinfo/racinemapping/
Racine County Land Conservation Division	http://www.racineco.com/landconv/index.aspx
River Alliance of Wisconsin	http://www.wisconsinrivers.org/
Root – Pike Watershed Initiative Network	http://www.rootpikewin.org/
Seno Woodland Education Center	http://www.senocenter.org/
Southeastern Fox River Partnership	http://basineducation.uwex.edu/southeastfox/
Southeastern Wisconsin Regional Planning Commission	http://www.sewrpc.org/
Soil and Water Conservation Society	http://www.swcs.org/
Soil Data Mart	http://soildatamart.nrcs.usda.gov/
Standards and Oversights Council	http://www.socwisconsin.org/
Sustainable Racine	http://www.sustainable-racine.com/
Town and Country Resource Conservation and Development	http://www.townandcountryrcd.org/
U.S. Army Corp of Engineers	http://www.usace.army.mil/
U.S. Environmental Protection Agency	http://www.epa.gov/
U.S. Geological Survey	http://www.usgs.gov/
University of Wisconsin Geological & Natural History Survey	http://www.uwex.edu/wgnhs/
Wisconsin Association of Lakes	http://www.wisconsinlakes.org/
Wisconsin Lakes Partnership	http://www.dnr.state.wi.us/org/water/fhp/lakes/index.htm
Wisconsin Lakes Publication	http://www.dnr.state.wi.us/org/water/fhp/lakes/wilkbook.htm
Wisconsin Association of Land Conservation Employees	http://www.walce.org/
Wisconsin Department of Agriculture, Trade & Consumer Protection, Environmental Protection	http://datcp.state.wi.us/core/environment/environment.jsp
Wisconsin Department of Agriculture, Trade & Consumer Protection, Nutrient Management	http://datcp.state.wi.us/arm/agriculture/land-water/conservation/nutrient-mngmt/planning.jsp
Wisconsin Department of Natural Resources, Runoff Management	http://www.dnr.state.wi.us/org/water/wm/nps/index.htm
Wisconsin Land and Water Conservation Association	http://www.wlwca.org/
Wisconsin League of Conservation Voters	http://www.conservationvoters.org/
Wisconsin Shoreland Restoration	http://www.uwex.edu/ces/shoreland/
Wisconsin USDA Farm Service Agency	http://www.fsa.usda.gov/FSA/stateoffapp?mystate=wi&area=home&subject=landing&topic=landing
Wisconsin USDA Natural Resources Conservation Service	http://www.wi.nrcs.usda.gov/
Wisconsin Wetlands Association	http://www.wisconsinwetlands.org/
Wisconsin Woodland Owners Association	http://www.wisconsinwoodlands.org/