

ENROLLED RESOLUTION 160-15

APPROVE THE WAUKESHA COUNTY  
LAND AND WATER RESOURCE MANAGEMENT PLAN 2006-2010

WHEREAS, Chapter 92 Wisconsin Statutes requires every county to prepare a Land and Water Resource Management (LWRM) Plan as a condition of continuing to receive state grant funds to support county land and water conservation programs; and,

WHEREAS, the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) required Waukesha County to update their LWRM plan by 2006 in accordance with Chapter ATCP 50 Wisconsin Administrative Code; and

WHEREAS, the department of Parks and Land Use – Land Resources Division worked with two citizen advisory committees, one urban and one rural focused, to assist them in preparing the updated LWRM plan, and the advisory committees recommended approval of the draft plan at their October 24, 2005 meeting; and

WHEREAS, a public hearing draft of the LWRM plan was posted on the county web page in early December 2005, a public hearing was held on December 20, 2005, and no objections were raised on the draft plan; and

WHEREAS, on February 7, 2006 the final draft of the Waukesha County Land and Water Resource Management Plan 2006-2010 was approved by the Wisconsin Land and Water Conservation Board and the DATCP; and

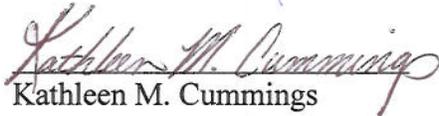
WHEREAS, the above noted final draft of the LWRM plan represents an update to the LWRM plan approved by the County Board in January 1999 and is available for public review on the county web page.

THEREFORE BE IT RESOLVED BY THE WAUKESHA COUNTY BOARD OF SUPERVISORS that the Waukesha County Land and Water Resource Management Plan 2006-2010, on file in the Department of Parks and Land Use – Land Resources Division, is hereby approved.

APPROVE THE WAUKESHA COUNTY  
LAND AND WATER RESOURCE MANAGEMENT PLAN 2006-2010

Presented by:  
Land Use, Parks, and Environment Committee

  
\_\_\_\_\_  
Walter L. Kolb, Chair

  
\_\_\_\_\_  
Kathleen M. Cummings

Absent  
\_\_\_\_\_  
Pauline T. Jaske

  
\_\_\_\_\_  
Scott J. Klein

  
\_\_\_\_\_  
Bill Kramer

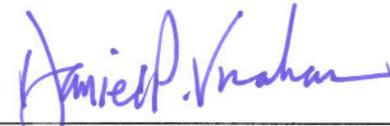
  
\_\_\_\_\_  
Daniel Pavelko

Absent  
\_\_\_\_\_  
Vera Stroud

The foregoing legislation adopted by the County Board of Supervisors of Waukesha County, Wisconsin, was presented to the County Executive on:

Date: 3-3-06,   
\_\_\_\_\_  
Kathy Nickolaus, County Clerk

The foregoing legislation adopted by the County Board of Supervisors of Waukesha County, Wisconsin, is hereby:

Approved:  \_\_\_\_\_  
Vetoed: \_\_\_\_\_  
Date: 3/6/06,   
\_\_\_\_\_  
Daniel P. Vrakas, County Executive

# Waukesha County Land and Water Resource Management Plan 2006 - 2010



Plan Summary - January 2006

15  
160-R-013

## ACKNOWLEDGEMENTS

The update to the Waukesha County Land and Water Resource Management Plan could not have been prepared without the contributions of a large group of individuals with a wide range of backgrounds and expertise. These people gave generously of their time and talents to produce a plan that will guide local efforts to protect and improve the natural resources of Waukesha County. A sincere thank you is extended to all who had a hand in the process.

### Rural Advisory Committee:

Robert Bartholomew – Farmer, Town of Vernon  
Al Bohachek – Waukesha Co. Conservation Alliance  
Marsha Burzynski – Dept. of Natural Resources  
Lisa Conley – Town & Country RC&D, Lake resident  
Neil Derkowski – Dept. of Natural Resources  
Adam Dowling- Natural Resources Conservation Service  
Robert Fox – University of Wisconsin - Extension  
Jeff Herrmann – Town Planner/Administrator  
Pauline Jaske – County Board Supervisor  
Marlin Johnson – Waukesha County Land Conservancy  
James Koepke – Farmer, Town of Oconomowoc  
Gary Korb – University of Wisconsin - Extension  
Maureen McBroom – Dept. of Natural Resources  
Joan Oberhaus – Farmer, Town of Delafield  
Brandi Richter – Natural Resources Conservation Service  
Mike Sieger – Dept. of Natural Resources  
Ron Williams – Farmer, Town of Genesee

### Urban Advisory Committee:

Tim Barbeau – R.A. Smith and Associates  
Curt Bolton – Village of Sussex  
Tom Chapman – Milwaukee Metropolitan Sewerage Dist.  
Jim D'Antuono – Dept. of Natural Resources  
Paul Day – City of Waukesha  
Gary Evans – Waukesha County Public Works  
Mike Hahn – Southeastern WI Regional Planning Comm.  
Walter Kolb – County Board Supervisor  
Richard Mace – Waukesha Co. Planning & Zoning Div.  
Mark Mickelson – Yaggy Colby Associates  
Neal O'Reilly – Hey and Associates  
Kurt Peot – Ruckert and Mielke  
John Siepmann – Siepmann Realty Corporation  
Dan Warren – Pabst Farms Development, LLC  
Steve Wurster – Ruckert and Mielke

### Waukesha County Land Use, Parks and Environment Committee:

Walter L. Kolb (Chair)	Bill Kramer
Kathleen M. Cummings	Daniel Pavelko (Vice-Chair)
Pauline T. Jaske (Secretary)	Vera Stroud
Scott J. Klein	

### Waukesha County Department of Parks Land Use – Land Resources Division:

Perry Lindquist – Land Resources Manager	Mark Jenks – Land Conservation Supervisor
Leif Hauge – Senior Civil Engineer	Jayne Jenks – Conservation Specialist
Alan Barrows – Senior Conservation Specialist	Karen Doyle – Conservation Specialist
James Rose – Senior Conservation Specialist	Marcia Bufton – Administrative Assistant

Also, special thanks are extended to Randy Schumacher (DNR), Dr. Jeff Thornton (SEWRPC) and Dr. Tom Slawski (SEWRPC) for information included in this plan revision.

Cover photo: Fue Yang, Waukesha County Information Systems

# Waukesha County Land and Water Resource Management Plan 2006-2010

## Plan Summary

### **Introduction**

The Waukesha County Land and Water Resource Management (LWRM) Plan is a state-mandated long-range planning document intended to guide the activities of the Department of Parks and Land Use - Land Resources Division (LRD) in its efforts to protect and improve the land and water resources in Waukesha County. The plan will also help the county qualify for grants from various sources to help implement the goals and activities described in the plan.

This document contains a summary of the second-generation LWRM plan for Waukesha County. The first LWRM plan was adopted by the County Board in February 1999, and served as a "prototype" for the planning process when it was first adopted by the Wisconsin Legislature in 1997 Act 27. The second-generation LWRM plan has been prepared following the requirements of state administrative rules ATCP 50 and NR 151, as adopted in 2002. A full copy of that plan is available through the LRD office, as noted on page 14.

This document describes some of the key factors considered in updating the LWRM plan and summarizes the goals, objectives, planned activities, estimated costs and progress tracking contained in the full plan.

### **Plan Development**

The focus of the plan development process was to identify the resource issues of concern and develop plan goals, objectives and activities intended to address the resource concerns, including implementation of the agricultural and non-agricultural performance standards of NR151. Two advisory committees (Rural and Urban), including 32 people, played a key role in plan development by identifying and prioritizing local resource issues of concern. The membership of the advisory committees are shown on page 1 and included a diverse group of local farmers, homeowners, developers, engineers, local government, conservation groups and agencies. The advisory committees met three times in the fall of 2005 and also reviewed and provided comments on draft documents. A public informational meeting and public hearing was held on December 19, 2005.

### **Resource Assessment**

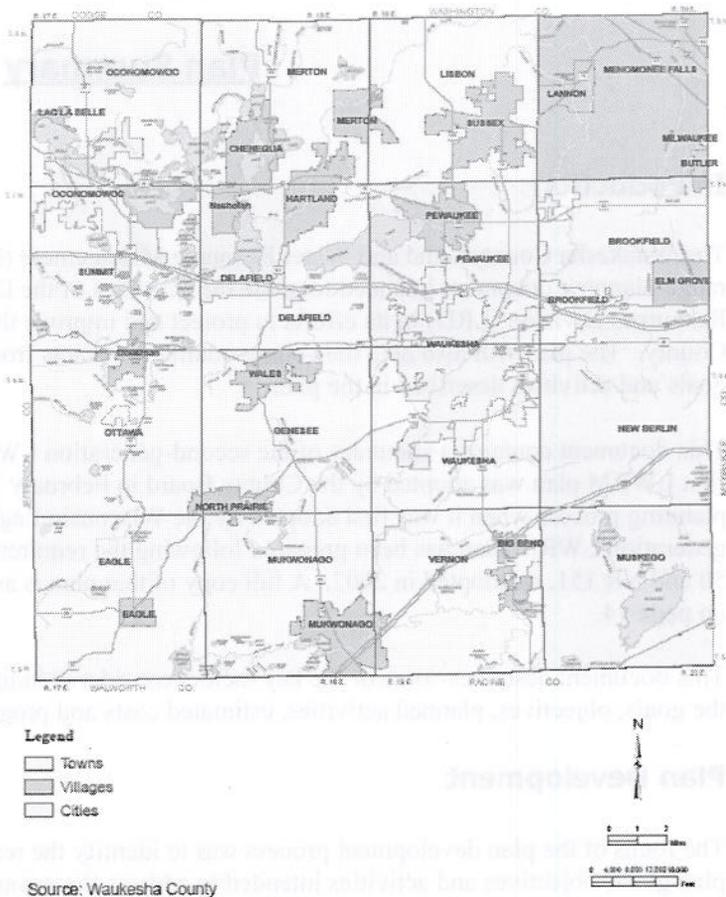
#### Population and Housing

Waukesha County is a rapidly urbanizing county located in southeastern Wisconsin directly west of Milwaukee County. The county is made up of 16 survey townships, covering approximately 580 square miles or 371,600 acres. Located within its borders are 37 municipalities, including 7 cities, 18 villages and 12 towns, as shown in Map 1. Population in the county has grown from 158,249 in 1960 to more than 377,000 in 2005. It is projected that the population will continue to grow to more than 446,000 residents by 2035. The number of households is also expected to rise at a slightly higher rate due to the projected lower number of persons per household. Households in 1960 numbered 42,394. By the year 2000 the number of households had grown to 135,229. It is projected that by the year 2035 there will be 174,100 households in Waukesha County.

Map 1  
Municipalities of Waukesha County

Geology and Physiography

The legacy of the last glacial age has largely determined the physiography, topography, and soils of Waukesha County. The dominant physiographic and topographic feature in Waukesha County is the Kettle Moraine, a glacial deposit that formed between two lobes of the last continental glacier and is oriented across western Waukesha County in a general northeast-southwest direction (Eagle to North Lake). The combined thickness of unconsolidated glacial deposits, alluvium, and marsh deposits overlying bedrock generally exceeds 100 feet throughout most of the County, sometime reaching up to 300 feet. There are currently 16 active sand and gravel mines around the county. However, there is also a band of shallow dolomite bedrock that runs from the Village of Eagle to the Villages of Lannon and Menomonee Falls. There are currently 10 active limestone quarries along this band between Waukesha and Lannon.



Soils and Soil Erosion

The soils in Waukesha County range from very poorly drained organic soils to excessively drained mineral soils. Nearly 150 different soil map units have been identified in the county. These soils vary in their individual susceptibility to erosion depending on a number of factors including: parent material, vegetative cover, and position on the landscape. Tolerable soil loss, or “T” for a particular soil is the defined as the maximum average rate of soil erosion that will permit a high level of crop productivity to be sustained economically and indefinitely. “T” is not however, a water quality standard. In Waukesha County “T” values for the different soil types range from 2-5 tons per acre, per year.

In 1999 and 2001 Land Resources Division staff conducted an inventory process for estimating average soil erosion rates from cropland using the transect survey methodology. This involves random sampling of about 600 cropland fields and calculating erosion rates based on slopes, soil types and land management practices, using the Universal Soil Loss Equation. Results from the survey indicated that nearly 90% of the cropland was eroding at rates equal to or less than “T” values. The average soil loss from the survey sample points was determined to be 1.5 tons per acre.

Groundwater Resources

The majority of residents in Waukesha County obtain their water supplies from one of three aquifers that underlie the county. From the land surface downward the aquifers are: 1) sand and gravel deposits in glacial drift; 2) shallow dolomite layer in the underlying bedrock; and 3) the deeper sandstone, dolomite,

160-R-015  
613

5

siltstone, and shale layer. The first two aquifers are referred to collectively as the “shallow” aquifer while the latter is referred to as the “deep” aquifer. Throughout most of the county the shallow and deep aquifers are separated by a Maquoketa shale layer, which forms a nearly impermeable barrier between the two aquifer zones. That shale layer is absent in the far western part of the county. Because of this, the western area serves as the recharge area for the deep aquifer, which provides drinking water for many of the communities in the eastern part of the county.

Groundwater use has increased steadily over the years. Projected increases in demand, contamination of groundwater supplies in the shallow and deep aquifers, and detections of substantial drops in the water table elevations over the years prompted the formation of an ongoing water supply study for the Southeastern Wisconsin region. When complete in 2006, it is expected that the study will include water use forecasts; recommendations for water conservation efforts; evaluations of alternative sources for supply; identification of groundwater recharge areas; and other specific recommendations regarding development and sustainability issues.

Watersheds

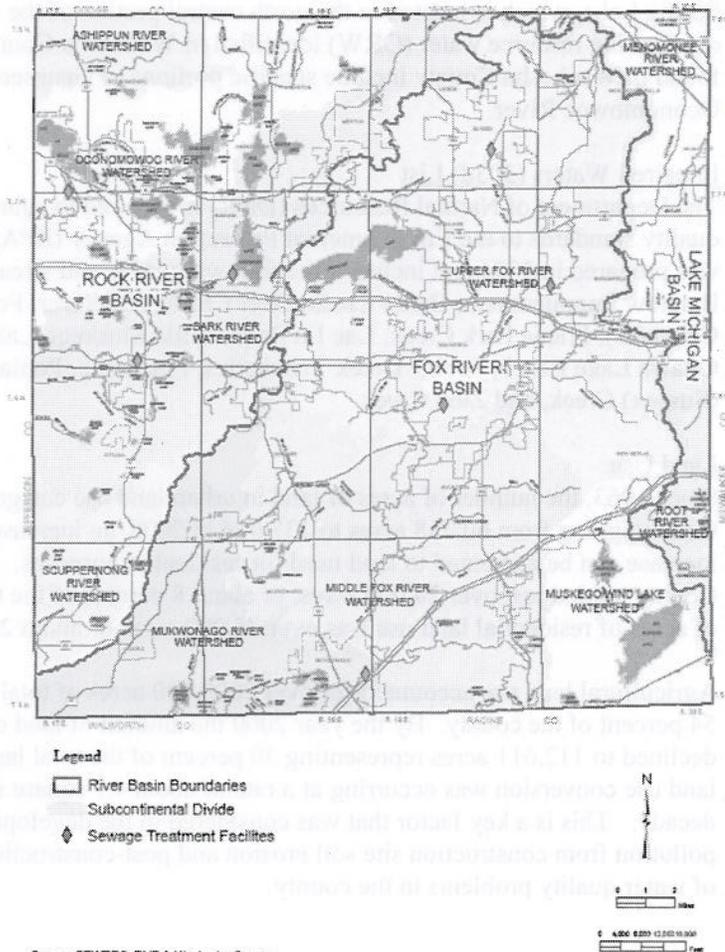
Waukesha County can be divided among three major drainage basins, the Fox River basin, the Rock River basin and the Lake Michigan basin. The Fox and Rock River basins are found west of the subcontinental divide and make up the majority of the county (92%). Each basin is further divided into 10 smaller watersheds, as shown in Map 2. These watersheds often serve as the basis for natural resource protection plan development. Examples of these include nonpoint pollution abatement plans or “Priority Watershed” plans for the Oconomowoc River, Upper Fox River, and the Muskego/Wind Lakes watersheds, completed in the 1980’s and 1990’s. Waukesha County played a key role in implementing these projects.

Streams

There are 50 major perennial streams in Waukesha County that total 306 miles in length. The longest major stream segments are the Fox River and Bark River, with 50.6 and 29.7 stream miles located in the county respectively, as shown in Map 3.

Most of the streams support warm water fisheries of either game or forage fish. However, there are some streams which support cold water species. Streams which are listed as trout streams for either all or a portion of their length include: Brandy Brook, Coco Creek, Genesee Creek, Jericho Creek, Mason Creek,

Map 2  
Watersheds of Waukesha County



160-R-013  
015

6

McKeawn Springs Creek, Mill Brook, Mukwonago River, Paradise Springs Creek, Pebble Creek, Rosenow Creek, Scuppernong River, Scuppernong River (South Branch), and Spring Brook.

#### Lakes

Major inland lakes are defined as those with a surface area of 50 acres or larger. Waukesha County contains all or portions of 33 major lakes with a combined surface area of over 14,400 acres. A concentration of these lakes occurs in the northwestern part of the county, as shown in Map 3. In addition to the major lakes, there are 47 other named water bodies with lake characteristics found in Waukesha County with a combined surface area of over 800 acres. Combined, these water resources cover over 15,000 acres or approximately 4 percent of the county. The recreational, aesthetic, and economic benefits afforded by these valuable resources adds greatly to the quality of life in Waukesha County.

#### Exceptional and Outstanding Resource Waters

Chapter NR 102 of the Wisconsin Administrative Code lists water quality standards and classifications for all surface waters in Wisconsin. Map 3 shows some of the key classification codes applied to county surface waters. The two highest classification categories are Outstanding Resource Waters (ORW) and Exceptional Resource Waters (ERW).

Spring Lake, which is located in the north central portion of the Town of Mukwonago, is the only outstanding resource water (ORW) identified in Waukesha County. Exceptional resource waters (ERW) found in Waukesha County include specific portions of Genesee Creek, the Mukwonago River and the Oconomowoc River.

#### Impaired Waters (303d) List

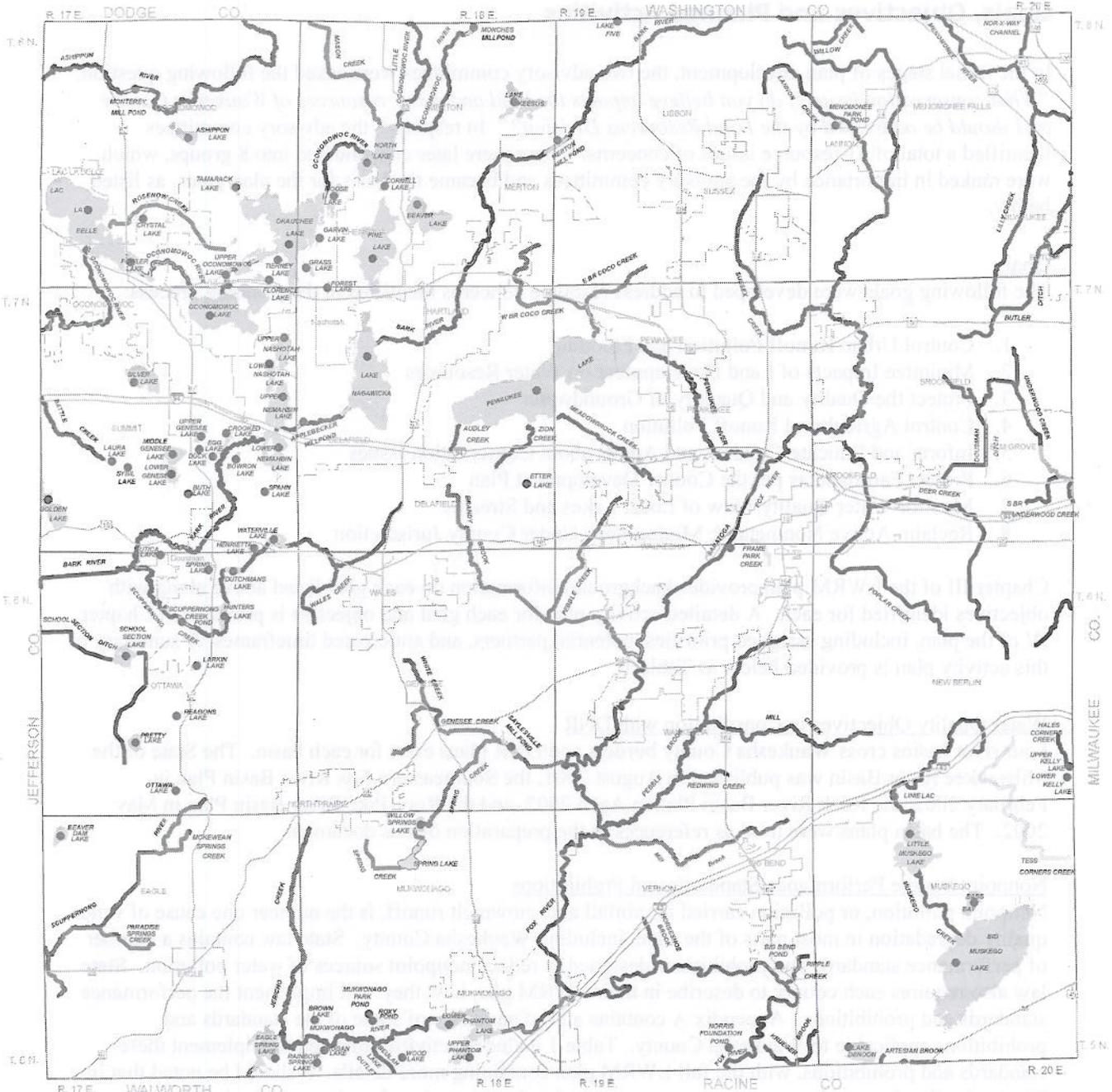
The Department of Natural Resources (DNR) is required to submit a list of waters not meeting water quality standards to the Environmental Protection Agency (EPA) every two years. The most recent list was prepared in 2004 and included the following lakes and streams in Waukesha County: Bark River, Barstow Impoundment, Battle Creek, Deer Creek, Fox River, Fox River (Master Disposal Drainage Channels), Frame Park Creek, Lac La Belle, Little Muskego Lake, Mason Creek, Oconomowoc Lake, Ottawa Lake Beach, Pebble Creek Tributaries, Pine Lake, Poplar Creek, Scuppernong River, Spring (Sussex) Creek, and Zion Creek.

#### Land Use

Since 1963, the number of acres of land in urban land use categories has more than doubled in Waukesha County, going from 60,718 acres to 137,044 in 2000, an increase of more than 225 percent. Much of the increase can be attributed to land used for residential purposes. In 1963 residential land use in Waukesha County totaled just over 28,000 acres, or about 8 percent of the total land use. By 2000 the total number of acres of residential land use was over 75,000 acres or about 20 percent of the total land use.

Agricultural land use accounted for over 2000,000 acres of total land use in 1963. This represented about 54 percent of the county. By the year 2000 the amount of land classified as some type of agricultural use declined to 112,611 acres representing 30 percent of the total land use. During the 1990's rural to urban land use conversion was occurring at a rate of about 4.7 square miles per year, more than any other decade. This is a key factor that was considered in the development of the LWRM plan. Nonpoint pollution from construction site soil erosion and post-construction storm water runoff is the primary cause of water quality problems in the county.

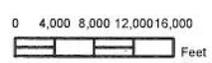
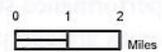
# Map 3 Surface Water Resources of Waukesha County



### WATER RESOURCE CLASSIFICATION CODES

- |   |  |
|---|--|
|  Outstanding Resource Water (ORW)          |  Limited Forage Fish (LFF)  |
|  Exceptional Resource Water (ERW)          |  Limited Aquatic Life (LAL) |
|  Lake Supports Fish and Aquatic Life (FAL) |  |
|  Lake Supports Cold Water Species (Cold)   |  |
|  Cold Water Streams (Cold)                 |  |
|  Fish and Aquatic Life (FAL)               |  |
|  Special Variance Waters                   |  |

Source: WDNR, SEWRPC & Waukesha County



## Goals, Objectives and Planned Activities

In the initial stages of plan development, the two advisory committees were asked the following question: "What conservation issue(s) do you believe impacts the land and water resources of Waukesha County and should be addressed by the Land Resources Division?" In response, the advisory committees identified a total of 61 resource issues of concerns. These were later consolidated into 8 groups, which were ranked in importance by the advisory committees and became the basis for the plan goals, as listed below.

### Goals

The following goals were developed to address resource concerns identified in the planning process:

1. Control Urban Runoff Pollution and Flooding
2. Minimize Impacts of Land Development on Water Resources
3. Protect the Quality and Quantity of Groundwater
4. Control Agricultural Runoff Pollution
5. Inform and Educate Children and Adults about Conservation Issues
6. Protect Farmland as per the County Development Plan
7. Monitor Water Quality/Flow of Local Lakes and Streams
8. Reclaim Active Nonmetallic Mining Sites Under County Jurisdiction

Chapter III of the LWRM plan provides background information on each goal listed above along with objectives identified for each. A detailed activity plan for each goal and objective is provided in Chapter IV of the plan, including assigned priorities, potential partners, and anticipated timeframes. A summary of this activity plan is provided below as Table 1.

### Water Quality Objectives in Consultation with DNR

Four river basins cross Waukesha County borders and DNR plans exist for each basin. The State of the Milwaukee River Basin was published in August 2001, the Southeastern Fox River Basin Plan in February 2002, the Rock River Basin Plan in April 2002, and the Root-Pike River Basin Plan in May 2002. The basin plans were used as references in the preparation of this document.

### Nonpoint Source Performance Standards and Prohibitions

Nonpoint pollution, or pollution carried in rainfall and snowmelt runoff, is the number one cause of water quality degradation in most parts of the state, including Waukesha County. State law contains a number of performance standards and prohibitions designed to reduce nonpoint sources of water pollution. State law also requires each county to describe in their LWRM plan how they will implement the performance standards and prohibitions. Appendix A contains a brief summary of some of the standards and prohibitions applicable to Waukesha County. Table 1 includes activities planned to implement these standards and prohibitions, with the full LWRM plan containing more details. It should be noted that in Waukesha County, much more resources are planned to be devoted to the urban standards than the agricultural standards due to the high development pressures in the county.

### Priority Farm Strategy

State law requires each county LWRM plan to describe a "priority farm strategy" for implementing the agricultural performance standards. Following is a brief summary of this strategy for Waukesha County. Priority farms will be selected based on a combination of geographic and resource characteristics. Two pilot watersheds (Lac LaBelle and Pebble Creek) are currently being used to test the agricultural performance standards compliance strategy and tracking system developed by the LRD. After the pilot areas are completed, refinements to the compliance strategy and tracking system will be made as needed

160-R-013  
015

and additional areas for compliance evaluation will be selected based on resource needs. Farms located in the watersheds of designated trout streams, outstanding or exceptional resource waters, 303(d) listed waters and shoreland areas will be mapped using the County Land Information System and ranked according to presence of livestock, status of nutrient management and conservation plans. LRD staff will screen these sites and contact targeted farm operation to determine compliance with the state standards and provide technical assistance and cost-sharing as needed to help bring them into compliance.

Five-Year Activity Plan

Table 1 provides a summary of general activities planned for the years 2006-2010. The activity plan is based on the goals and objectives described above. After each goal is a projected level of staff and budget resources that will be assigned to that goal on an average annual basis. These staff projections are based on Land Resources Division 2005 staffing levels of approximately 6 full-time equivalents (FTE) available to work on land and water resource management programs. One FTE is equal to 2080 hours of work, but may actually be distributed to any number of employees, full or part time. These assumed staffing levels do not represent a commitment by Waukesha County, but are required by the state planning process.

The Land Resources Division will add more details to these activities during the development of internal annual work plans. At that point, measurable outcomes are assigned as much as possible to specific staff and used for annual performance reviews. The LWRM plan provides the framework for this more detailed level of planning to occur later, consistent with the legislative intent under s.s. 92.10 Wisconsin Statutes.

**Table 1**  
**Waukesha County LWRM Activity Plan: 2006-2010**

<b>Goal 1: Control Urban Runoff Pollution and Flooding (2.5 FTE and 42% of Budget/year)</b>	
<b>Objectives</b>	<b>Summary of Key Activities</b>
A. Improve consistency & effectiveness of storm water ordinance implementation	Schedule annual field days with staff and pursue "authorized local program" status to improve program coordination with DNR. Implement citation process in current ordinance and schedule regular workshops with developers and builder groups. Update county web page with new ordinance materials.
B. Clarify ordinance infiltration and soil testing requirements.	Develop design standards and recommendations for best management practices and provide to permit applicants.
C. Improve maintenance plans and agreements for storm water practices.	Update sample maintenance agreement documents and incorporate "as-built" information. Discuss at workshops.
D. Encourage innovative best management practices for erosion control & storm water management	Consider demonstrations at county gravel pit using yard waste compost and encourage permit applicants to use new practices.
E. Encourage practices that treat storm water as an asset.	Encourage rain gardens, native plantings, and constructed wetlands into site landscaping plans and promote in workshops.
F. Control runoff from existing developments.	Conduct storm water inventory and evaluation activities on county-owned land and maintain compliance with NR 216 requirements, as needed. Facilitate long-term maintenance of storm water practices by populating the storm water database and providing access and training to interested local units of government in its use.

166-R-013  
015

10

**Table 1 (continued)**

<b>Goal 1: Control Urban Runoff Pollution and Flooding (2.5 FTE and 42% of Budget/year)</b>	
<b>Objectives</b>	<b>Summary of Key Activities</b>
G. Promote stream and wetland buffers	Use GIS system to identify limitations for urban development in shoreland areas. Enforce buffer provisions in county storm water ordinance. Encourage buffers in watershed protection planning efforts.
H. Update existing floodplain maps and encourage mapping of unstudied areas.	Assist Land Information and Planning & Zoning Divisions in county-wide floodplain mapping updates.
I. Provide technical services to other agencies on request	Assist with storm water designs for county highways, airport, parks and other building projects. Assist lake organizations, nonprofits and partner agencies with site planning and storm water designs as needed.

<b>Goal 2: Minimize Impacts of Land Development on Water Resources (0.5 FTE and 8% of Budget/yr.)</b>	
<b>Objectives</b>	<b>Summary of Key Activities</b>
A. Promote and demonstrate watershed protection planning.	Complete Pebble Creek Watershed Protection Plan using DNR grant funds and promote plan implementation through existing review processes. Encourage similar efforts in other watersheds.
B. Work towards the protection of outstanding & exceptional resource waters.	Show the locations of these water resources, along with cold-water streams, on GIS maps on the LRD web page to raise public awareness. Require additional protections for these watersheds under the County Storm Water and Erosion Control Ordinance.
C. Promote low impact development.	Assist the MBA in evaluating the minimum street width requirements for public safety and water quality improvement. Encourage innovative approaches to site design and layout for resource protection. Encourage and cooperate with DNR's Green Tier program to promote development that exceeds current storm water regulatory standards.

<b>Goal 3: Protect the Quality and Quantity of Groundwater (0.5 FTE and 8% of Budget/year)</b>	
<b>Objectives</b>	<b>Summary of Key Activities</b>
A. Promote water conservation.	Partner with other agencies and groups to develop and implement a water conservation program. Include information on LRD web page and in presentations to schools, civic groups, and general public.
B. Assist with regional water supply planning efforts.	Assist SEWRPC with identifying groundwater recharge areas using the soil database, GIS and field inventories.
C. Encourage protection of groundwater recharge areas.	Incorporate final water supply plan recommendations into future storm water permitting activities. Encourage innovative approaches to storm water management that protects groundwater. Evaluate soil potential for storm water infiltration and post guidance maps on the web.

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**Table 1 (continued)**

<b>Goal 3: Protect the Quality and Quantity of Groundwater (0.5 FTE and 8% of Budget/year)</b>	
<b>Objectives</b>	<b>Summary of Key Activities</b>
D. Minimize the impacts on groundwater of nutrients, pesticides and road salt contained in storm water.	Research options and incorporate pollutant prevention and treatment practices into storm water permitting activities. Include information on the LRD web page and in workshops conducted.

<b>Goal 4: Control Agricultural Runoff Pollution (1.0 FTE and 17% of Budget/year)</b>	
<b>Objectives</b>	<b>Summary of Key Activities</b>
A. Implement the state agricultural performance standards.	Identify location of all farms by type and map on GIS system. Identify "priority farms" in shoreland areas and target watersheds. (Lac Labelle and Pebble Creek watersheds to be pilots). Complete all steps outlined in Chapter V, including: records inventory, landowner contacts, compliance checks, landowner notification, technical assistance, cost sharing, site re-evaluation (if necessary) and final compliance status notification to landowner. Refer non-compliance to the DNR if necessary for enforcement.
B. Promote wetland restoration	Map for potential wetland restoration sites using GIS system. Encourage wetland restoration efforts through partnerships with conservation groups, and other interested parties. Investigate cost-share opportunities and encourage wetland restoration through watershed protection planning efforts and county greenway acquisitions.
C. Promote buffers along all water resources for water quality, wildlife habitat, and groundwater recharge.	Promote CREP program with GIS maps of eligible lands. After a state buffer standard is adopted, incorporate it into agricultural compliance evaluation process under (A) above. Assist parks division with buffer planning as part of greenway land acquisition efforts.

<b>Goal 5: Inform &amp; Educate Children/Adults on Conservation Issues (0.8 FTE and 13% of Budget/yr)</b>	
<b>Objectives</b>	<b>Summary of Key Activities</b>
A. Provide I&E to homeowners and general public on nonpoint pollution, groundwater & public health. Also cover exotics species control.	Partner with other groups on material development, marketing and presentations on groundwater & water conservation. Continue offering presentations on request to lakes and civic groups on nonpoint pollution and invasive species control through the county speakers bureau. Provide information and brochures to walk-ins and through the LRD web page. Post GIS maps on LRD web page showing building limitations due to water table & bedrock.
B. Provide I&E to rural landowners and farm operators on the agricultural performance standards.	One-on-one contacts/material distribution during compliance checks relating to nutrient and animal waste management, soil erosion control, buffers, wetland restoration and cost-sharing opportunities. Target mailing for priority areas.

160-7-015  
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12

**Table 1 (continued)**

<b>Goal 5: Inform &amp; Educate Children/Adults on Conservation Issues (0.8 FTE and 13% of Budget/yr)</b>	
<b>Objectives</b>	<b>Summary of Key Activities</b>
C. Provide I&E to developers, engineers, landscapers and local officials on the storm water ordinance requirements.	Conduct regular workshops or presentations on the storm water and erosion control ordinance. Include discussions on conservation subdivisions, native plantings and exotic species control. Maintain web page on all ordinance forms, check lists, guidance documents, sample plans, etc. Partner with other groups on demonstration projects.
D. Provide I&E to schools and youth organizations on nonpoint pollution, groundwater protection and invasive species control.	Conduct classroom presentations to promote rain gardens, water conservation and the identification and control of exotic and invasive species. Promote participation in the Greens Schools program and assist schools with completing assessments for school grounds, recycling and water conservation. Promote storm drain stenciling and provide materials. Assist with outdoor classroom development and field activities relating to water quality monitoring, wetland restoration and habitat assessment on request.
E. Provide I&E to riparian owners, lake and river groups on nonpoint pollution and shoreline management.	Conduct presentations on topics such as water quality, shoreline buffer establishment, and exotic and invasive species control. Look for opportunities to partner with other groups on demonstration projects for shoreline restoration.

<b>Goal 6: Protect Farmland per Co. Comprehensive Development Plan (0.1 FTE and 2% of Budget/yr.)</b>	
<b>Objectives</b>	<b>Summary of Key Activities</b>
A. Assist local governments with farmland protection efforts.	Provide data and analysis on soils, land use, water resources, or any other information as requested.

<b>Goal 7: Monitor Water Quality/Flow of Local Lakes and Streams (0.2 FTE and 3% of Budget/year)</b>	
<b>Objectives</b>	<b>Summary of Key Activities</b>
A. Encourage and promote volunteer citizen monitoring efforts.	Conduct citizen monitoring training for established and new monitor teams. Provide quality control and site visits with monitoring teams. Maintain LRD web site with current information about monitoring programs. Promote water quality monitoring data to be entered into publicly accessible database(s).
B. Promote agency monitoring, stream gauges and data sharing	Promote agency monitoring of county lakes and streams to track water quality trends and provide data for floodplain management. Seek funding for maintaining and expanding stream gauges in the county. Encourage a joint database and agency analysis of data for public uses.

1160-R-013

**Table 1 (continued)**

<b>Goal 8: Reclaim Active Nonmetallic Mining Sites (0.2 FTE and 3% of Budget/year)</b>	
<b>Objectives</b>	<b>Summary of Key Activities</b>
A. Enforce county nonmetallic mining reclamation ordinance.	Review plans, issue permits, inspect sites and enforce ordinance provisions.
B. Coordinate information exchange with the Waukesha County Mineral Extraction Advisory Committee.	Hold quarterly meetings with MEAC. Provide information as requested to the County Development Plan Advisory Subcommittees.
C. Assist with related land use planning efforts.	Work through MEAC to prepare nonmetallic mining "buffer" zoning standards and to plan for future mine expansions in the county.
D. Continue yard waste composting and mine reclamation project on county-owned land	Continue intergovernmental contracts for yard waste and use compost as topsoil substitute to reclaim a county-owned gravel pit. Complete landfill exhumation and mining phases per approved permits. Complete construction of storm water management basins and fully implement reclamation plans. Maintain reporting requirements.

**Cost Estimates**

Since this plan does not have the authority to establish fiscal policy for the county, the estimated costs provided below are solely intended to satisfy state LWRM planning requirements and do not in any way reflect anticipated LRD budgets. Assuming that 2005 staffing levels in the LRD remain the same for the 5-year planning horizon, cost estimates were prepared for both program operating expenses and landowner cost-sharing. Program operating expenses assume that 6 full-time equivalent staff positions are available for plan implementation, following historical cost trends. With this scenario, operating costs are projected to range from \$505,000 in 2006 to \$608,900 in 2010. Of this amount, state law currently obligates grant funds to the county in the range of \$188,400 in 2006 to \$229,000 in 2010. However, it should be noted that there is no guarantee that the state will meet these obligations.

Landowner cost-sharing needs are estimated to range from \$60,000 in 2006 to \$120,000 in 2010. This amount depends on the number of conservation practices needed to maintain landowner compliance with the state agricultural nonpoint performance standards. Current state law generally prevents enforcement of these standards unless 70% cost-sharing is made available. These costs would depend on the level of noncompliance encountered in the rural implementation efforts and the staff time available to work with the farm community. State and federal sources may be available to cover these costs.

**Progress Tracking and Plan Evaluation**

Citizen Surveys

Formal surveys sponsored by the LRD in 1994 and 2003 tried to measure the level of understanding of nonpoint pollution, particularly urban runoff. Comparing results between the two surveys indicated an increase in the general level of knowledge about runoff pollution and an increase in the belief that individuals play a key role in solving nonpoint pollution problems. Although another formal survey is not anticipated to be completed during the five-year planning horizon of this plan, questionnaires completed at the conclusion of various workshops conducted by the LRD will continue to be a standard part of LRD information and education program efforts.

Water Quality Monitoring

On-going water quality monitoring efforts by agencies and citizen volunteers will be utilized as feasible to evaluate general long-term trends in water quality and the effectiveness of local pollution control

160-R-03  
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efforts, including those described in this plan. Expansion of stream monitoring through the use of citizen volunteers is a goal stated in DNR Basin Plans and is supported by Waukesha County. There are currently 20 active volunteer citizen monitoring teams sponsored by the county.

Utilizing GIS for Plan Evaluation

The Land Information System in Waukesha County will be utilized as much as possible when evaluating plan implementation success. Compliance with the agricultural performance standards will be able to be tracked on a field-by-field basis. In addition, the data available through this system will be utilized to prepare watershed protection plans, monitor storm water management BMPs, and implement county ordinances for storm water management, nonmetallic mine reclamation, and animal waste management.

Annual Work Plans, Reports and Plan Evaluation

Progress toward accomplishing the goals, objectives and activities listed in Table 1 will be included in the annual budget to the County Board and the annual report submitted to the Department of Agriculture, Trade and Consumer Protection. Each year, the LRD will review and evaluate progress on implementing the LWRM plan and modify internal annual work plans accordingly to meet constantly changing program demands, policies and mandates.

**Conclusion**

As noted earlier, the information contained in this document represents the key factors considered in updating the Waukesha County LWRM plan and summarizes the goals, objectives, planned activities, estimated costs and progress tracking contained in the full plan. For a complete copy of the Waukesha County Land and Water Resource Management Plan 2006-2010, please contact:

**Waukesha County Land Resources Division  
1320 Pewaukee Road, Room 260  
Waukesha, WI 83188  
Phone: 262-896-8300**

160-2-015

15

## Appendix A

### Wisconsin Nonpoint Pollution Performance Standards and Prohibitions

Wisconsin Administrative Code NR 151 contains agricultural and non-agricultural nonpoint pollution performance standards and prohibitions. Below is a summary of the standards and prohibitions that apply to the Waukesha County LWRM plan:

#### Agricultural Performance Standards and Prohibitions

The agricultural performance standards are:

- Soil erosion rates on all cropland must be maintained at or below "T".
- 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, 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.

#### Nonagricultural Performance Standards

The performance standards for new construction sites are:

- Control 80% of sediment from construction sites.
- Control 80% of post-construction total suspended solids (TSS) from new developments and 40% from redevelopments.
- Maintain pre-development peak discharge rates for the 2-year, 24-hour design storm for new developments.
- Infiltrate 90% of pre-development runoff volumes for new residential developments and 60% for non-residential.
- Maintain protective areas (50-75 feet) between new impervious surfaces and lakes, streams, and wetlands.
- Control petroleum runoff (visible sheen) from fueling and vehicle maintenance areas.

#### Buffers

A performance standard is still being developed at the state level for vegetated buffers along water resources. When DNR adopts a buffer standard, the LRD will incorporate it into local program efforts and revise annual work plans as necessary. Until that time, NRCS technical standards will be used.