

MARATHON COUNTY

LAND AND WATER
RESOURCE MANAGEMENT
PLAN



MARATHON COUNTY
LAND CONSERVATION AND ZONING COMMITTEE

2010

ACKNOWLEDGEMENTS

The development of Marathon County's Land and Water Resource Management Plan involved a diverse group of individuals with a wide range of expertise. Their input was critical for plan development and will continue to play an integral role in addressing the issues and achieving the goals set forth in the following document. Thank you to everyone who helped with this process.

Marathon County Land Conservation and Zoning Committee

James Seefeldt, – Chair
Alan Kraus – Vice-Chair
Kurt Gibbs
Ken Fabel
Shawn Bahr – FSA Member

Marathon County Conservation, Planning and Zoning Department

James Burgener, Director
Paul Daigle, Conservation Program Manager
Andy Johnson, Environmental Resources Coordinator
Diane Wessel, Comprehensive Planner

Wisconsin Department of Agriculture, Trade and Consumer Protection

Dennis Presser and Mark Jenks – Conservation Specialist

USDA Natural Resources Conservation Service

Amy Niegum, District Conservationist

USDA Farm Service Agency

Diana Pernsteiner – County Executive Director

University of Wisconsin Cooperative Extension

Mary Kluz – Community Resource Development Agent
Mike Wildeck – Dairy Agent, Department Head

Citizen Advisory Committee Members

Kevin King, City of Schofield
Dennis Dieringer
Phil Hein
John Czerwonka
Rick Duerr
Jon Blume
Peter Arnold
James Knorr*
Doug Eisele, BEPCO

Wisconsin Department of Natural Resources

Scott Watson, Basin Supervisor
Terry Kafka, Wastewater Specialist

* James Knorr served and contributed throughout the planning process, but passed away prior to its adoption. Marathon County gives special thanks for his voice for the preservation of farmland.

TABLE OF CONTENTS

Plan Summary	1
Introduction	3
Chapter I - Public Participation	5
Chapter II - Description Of Physical Resources.....	7
Chapter III - Resource Conditions.....	23
Chapter IV - Goals And Implementation Strategies	35
Chapter V - Work Plan Implementation And Coordination.....	49
Chapter VI - Information And Education Acitivities	59
Chapter VII - Compliance Notification, Compliance Monitoring And Resource Evaluation	63
Chapter VIII - Conclusion.....	65
References.....	67

List of Maps

Map 1 Land Use	9
Map 2 General Soils.....	13
Map 3 Outstanding & Exceptional Resource Waters and Impaired Waters.....	15
Map 4 Water Quality Management Areas	17
Map 5 Depth to Ground Water	19
Map 6 Generalized Ground Water Availability	21
Map 7 Soil Erosion Rates by Watershed.....	25
Map 8 Major Basins and Watersheds	31

Figures

Figure 1. Marathon County Location	7
--	---

Tables

Table 1 Land Use Classification & Acres in Marathon County 2000-2008.....	8
Table 2 Annual Soil Erosion Rates.....	23
Table 3 DNR Nonpoint Source Watershed Scores	30

Appendices

Appendix A Glossary	A-1
Appendix B Marathon County Land Use Cover Classifications	B-1
Appendix C Listing of ATCP Best Management Practices.....	C-1

MARATHON COUNTY LAND AND WATER RESOURCE MANAGEMENT PLAN

PLAN SUMMARY

Through Wisconsin Act 27 (1997-1999 Biennial Budget Bill), Chapter 92.10 of the Wisconsin Statutes was amended, creating a county land and water resource management planning program. The Marathon County Land and Water Resource Management (LWRM) Plan responds to soil and water quality concerns through local, state, and federal programs. The current plan represents a 10 year (2010-2020) implementation plan that emphasizes cooperation with State and Federal conservation partners, as well as a renewed emphasis on education. The LWRM Plan is intended to complement and coordinate with existing plans rather than replace them. It focuses on the Marathon County Conservation, Planning and Zoning Department's (CPZ) strengths in the areas of conservation planning, water quality planning, information and education, technical assistance, and program administration. The quality of life for Marathon County residents is dependent upon sound management of the natural resources and thoughtful land use policies. The LWRM Plan brings the human and natural resources together in a strategic plan to protect and improve our soil and water resources.

This LWRM plan was developed through a process that assessed the resource conditions, identified goals and developed a strategy to integrate existing programs with new initiatives into a working, dynamic document. The Marathon County LWRM Plan was written with the assistance of partner agencies, including the Wisconsin Department of Agriculture, Trade and Consumer Protection; Wisconsin Department of Natural Resources; Farm Services Agency; Natural Resources Conservation Service; and University of Wisconsin Cooperative Extension. Input on the plan also came from a local Citizens Advisory Group (CAG), comprised of individuals who represent a wide array of interests such as local officials, local farmers and landowners, municipalities, lake residents and watershed organizations. A public hearing on the plan was held December 7, 2010.

The function of the plan is to provide:

1. An assessment of the current resource conditions of land and water resources;
2. An overview and status report on current land and water conservation programs;
3. An overview of regulatory requirements related to land conservation and water quality, including land use and state agricultural performance standards;
4. A review of monitoring and evaluation methods administered by the CPZ Department and other agencies for the purpose of determining conservation needs and documenting responses in natural resources;
5. An overview of Information and education initiatives that will be used to raise awareness of the importance of maintaining and enhancing natural resources;
6. An implementation strategy to guide the CPZ in carrying out the recommendations of the plan; and
7. To provide maximum coordination of county, federal and state conservation programs.

In summary, the LWRM Plan outlines a comprehensive strategy for the implementation of soil and water conservation in Marathon County from 2010 through 2020. The Marathon County Land Conservation and Zoning Committee identified four (4) long term program outcomes for the natural resource protection efforts in Marathon County:

1. Land use activities are well planned to enhance community development, minimize conflicts, maximize infrastructure investments, and protect rural character.

2. Improve and protect the surface and ground water assets to enhance public health and safety, recreational opportunities, and economic development.
3. Maintain the soil and water resources as productive assets through topsoil and organic matter conservation.
4. Marathon County agricultural and woodlot producers are economically strong.

The Conservation, Planning and Zoning Department and Land Conservation and Zoning Committee will evaluate the work plan on an annual basis to ensure the resource needs are being adequately addressed and the plan is responsive to new and emerging resource priorities. The plan also aims to build on previous planning efforts and the major accomplishments associated with prior plans. Since 2005, Marathon County has reached several significant milestones, including:

- Amending Chapter 11 of the Marathon County Code of Ordinances in 2008 to align local regulatory policy with State Performance Standards for agricultural nonpoint source pollution.
- Development of Chapter 13 of the Marathon County Code of Ordinances in 2006 to require operational licenses for livestock facilities with greater than 500 animal units.
- Provide administration support and education to landowners and agronomists for nearly 400 nutrient management plans covering 140,000 cropland acres.
- Provide education and technical assistance to over 220 farmers that utilize Managed Grazing to improve environmental performance and profitability.
- Safely closed 90 “idled” waste storage facilities.
- Completed approximately 44 landowner projects funded with Targeted Runoff Management (TRM) funds. Projects result in landowners complying with local ordinances and State Agricultural Performance Standards.
- Completed approximately 77 nutrient management plans and 59 conservation projects funded with Soil and Water Resource Management funds. Projects result in landowners complying with local ordinances and State Agricultural Performance Standards.
- Completed the Lower Big Rib River Priority Watershed which reduced sedimentation by nearly 5,000 tons and phosphorus loading by 24,000 pounds annually.
- Conducted agricultural performance standard evaluations on nearly 400 farms.
- Initiated land use and water quality assessment project for the Big Eau Pleine River Watershed, and
- Initiated land use and water quality assessment project for the Eastern Lakes Project.

Implementing the goals identified in this plan will help to protect and enhance the natural resources in Marathon County. This can only be accomplished through ongoing partnerships with resource conservation agencies, landowners, watershed groups, recreationists, and the citizens of Marathon County.

INTRODUCTION

Through Wisconsin Act 27 (1997-1999 Biennial Budget Bill), Chapter 92.10 of the Wisconsin Statutes was amended, creating a county land and water resource management planning program. The impetus behind the program is to develop a locally led strategic planning process that protects Wisconsin's land and water resources by streamlining administrative and delivery mechanisms, improving decision-making, and making better use of local, state, and federal funds. This plan revises prior plans that were approved in 2000 and 2005. It reflects an overall effort to tie together conservation programs, available grant funding, and other resources to effectively address the land and water resource management issues facing Marathon County.

Revisions found in this plan include: an updated resource assessment, additional programs for conservation, a revised enforcement program for the implementation of runoff guidelines and performance standards established through Wis. Administrative Code NR 151, and the Marathon County work plan. In addition, this plan includes a review of the accomplishments from the previous plan. The conservation programs that the Marathon County CPZ will use to implement the goals and objectives outlined are also discussed. These programs provide the necessary administrative structure and technical support for implementing conservation practices in Marathon County.

Marathon County's LWRM Plan is intended to complement and coordinate with existing plans rather than replace them. It is a strategic plan that emphasizes cooperating with our conservation partners. The successful implementation of this plan depends upon many divisions, agencies, and organizations working together. The goals and objectives outlined in this work plan clearly reflect the existing resource concerns in Marathon County and were developed to specifically meet conservation goals and objectives. Previous resource management plans and current CPZ responsibilities factored into the final development of the work plan. Using the resource assessment and information from existing water quality plans as a starting point, five major goals were developed.

The Conservation, Planning and Zoning Department is comprised of 4 divisions:

The Conservation Division administers programs to implement the Land and Water Resource Management Plan which includes the Farmland Preservation Program, Managed Grazing, Lake Districts, Wildlife Damage and Abatement, as well as regulatory activities associated with the Waste Storage Facility and Nutrient Management Ordinance and the Livestock Facilities Licensing Ordinance.

The Planning Division is involved with the preparation and implementation of the Comprehensive Plan, transportation planning services for the metropolitan area (MPO), and census/redistricting.

The Geo-Services Division is comprised of the County Surveyor's office, the Geographic Information System (GIS) and the implementation of the 911 Rural Address Numbering Ordinance. The Surveyor replaces, re-establishes and records information for section markers. The office also reviews and keeps records for private surveys. GIS manages the electronic mapping system and prepares paper maps for the County.

The Zoning and Regulatory Division administers the County's zoning, shore land, floodplain, private sewage system, airport, subdivision, nonmetallic mining and other ordinances. These ordinances are administered and enforced county wide except for comprehensive zoning.

To help the reader, a glossary of terms and acronyms along with a short description of the programs that are commonly associated with conservation programs can be found in Appendix A.

CHAPTER I – PUBLIC PARTICIPATION

The following activities outline the efforts taken by the Marathon County Land Conservation & Zoning Committee and Conservation, Planning and Zoning Department staff to communicate with our community citizens and leaders. Most importantly, a Citizens Advisory Group (CAG) was established to gain insight into local community concerns and to outline priorities. The efforts of the CAG, as well as guidance from resource agency staffs were used to develop the “priority farm” and implementation strategies found in the LWRM Plan.

A. LOCAL CITIZENS ADVISORY GROUP (CAG)

The Public Participation Strategy of the Land and Water Resource Management Plan included the creation Citizens Advisory Group that represented a diverse group of citizens, industry representatives, resource advocates and local officials. The CAG met over a period of 5 months to identify the most critical resource concerns and to develop goals that would be pursued through implementation of the LWRM Plan. The CAG’s recommendations were presented to the Marathon County Land Conservation and Zoning Committee (LC&ZC) on September 2, 2010 for their consideration.

Representatives from the USDA – Natural Resources Conservation Services (NRCS) and Wisconsin Department of Natural Resources (DNR) provided information to the CAG relative to the most significant resource concerns facing Marathon County. Areas of interest included agricultural and urban nonpoint runoff, aquatic invasive species, groundwater quantity and quality, forestry, lake management, wetlands, cropland soil erosion, soil organic matter trends, and land use conversion trends.

After discussions, the CAG rated the resource concerns in importance as follows:

1. Agricultural Nonpoint Runoff
2. Groundwater Protection
3. Forestry
4. Wetlands
5. Lake Management
6. Urban Nonpoint Runoff
7. Soil erosion and organic matter
8. Invasive Species
9. Point Source Pollution

Specific recommendations and guidance on each identified resource concern was developed by the CAG. A consistent theme throughout the discussions with the CAG was the need to provide education and technical support to students and landowners in Marathon County that conveys the importance of local conservation programs and regulations to protect our soil, forest and water resources. A link to the Executive Summary of the CAG’s final recommendations, as well as the membership can be found in the reference section.

B. COMPREHENSIVE PLANNING

In 2006, the Marathon County Board of Supervisors approved the Comprehensive Plan. The plan’s development, as well as the implementation of individual community plans represents an extensive public engagement of citizens and leaders. Working with the county’s villages, cities, and townships, the Conservation, Planning and Zoning Department (CPZ) advocates for and implements the natural resource objectives and goals found within local and County

Comprehensive Plan. The CPZ and UW-Extension staffs conduct regularly scheduled implementation and education meetings with local officials to build coordination and local leadership capacity to advance the implementation of respective plan objectives. The integration DNR Central Wisconsin River Basin Wide Priorities, Marathon County Comprehensive Plan, and the Marathon County Land and Water Resource Plan provides the basis of conservation programming for the County. These plans establish the policies and direct the resource allocations used to implement strategies such as land use zoning, the regulation of Livestock Facility Siting and Animal Waste Storage Facility and Nutrient Management, shore land and floodplain rules, and agricultural performance standards and prohibitions.

A complete listing of the land and water resource management goals, objectives, policies and actions identified in the Comprehensive Plan, as well as the WI DNR's Central Wisconsin River Basin Wide Priorities can be found through an electronic link located in the reference section.

C. Public Hearing

On December 7, 2010, the Marathon County Land Conservation and Zoning Committee noticed and conducted a public hearing to solicit broad public input relative to the accuracy of findings, recommendations, allocations and planning activities found within the proposed 2010-2020 Land and Water Resource Management Plan.

A listing of press releases, notice of public hearing, and minutes can be found in the reference section.

CHAPTER II – DESCRIPTION OF PHYSICAL RESOURCES

A. LOCATION/GEOGRAPHY

Marathon County is located near the geographic center of Wisconsin (see Fig. 1).

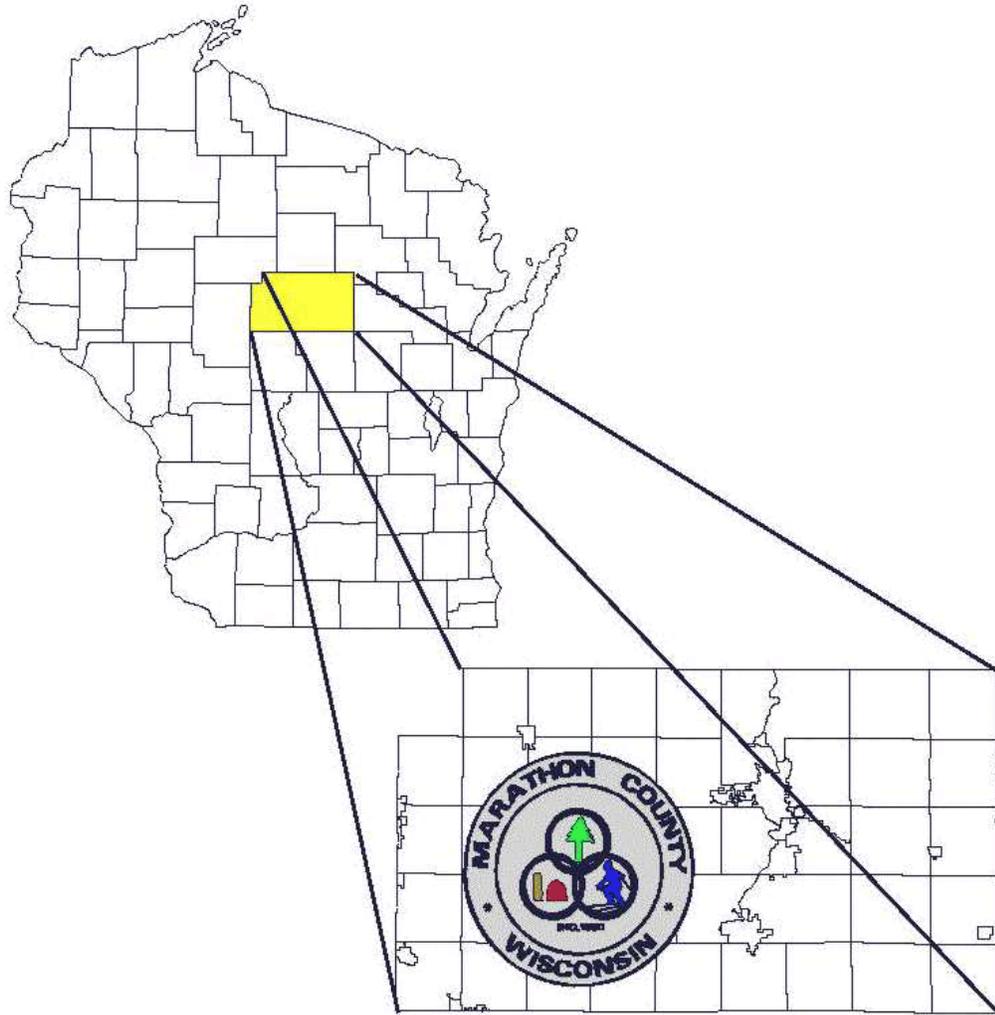


Figure 1. United States Department of Agriculture and Soil Conservation Service, “Soil Survey of Marathon County, Wisconsin.” September 1989.

B. DEMOGRAPHICS

Marathon County has a population of approximately 136,895 residents (WI Demographic Service Center, 2010). The Wausau metropolitan area which includes the City of Wausau, City of Schofield, Village of Rothschild, Village of Weston, Village of Kronenwetter and the towns of Rib Mountain, Stettin, Texas and Weston has a population of nearly 85,000 residents. Marathon County is considered a rural county with over one million acres of land.

Like most areas in Wisconsin, the economic impact of agriculture, scale of livestock operations and production methods within the county are changing. Over the past 20 years, the county has seen the number of dairies decline from 1700 to 791 dairies with over 63,500 cows producing 1.2 billion pounds of milk annually (WASS, 2008). Over 90% of all farms remain owned and operated by individuals or families. The agricultural industry in Marathon County provides for 10,427 jobs to the community or 12% of the total workforce.

C. LAND USE

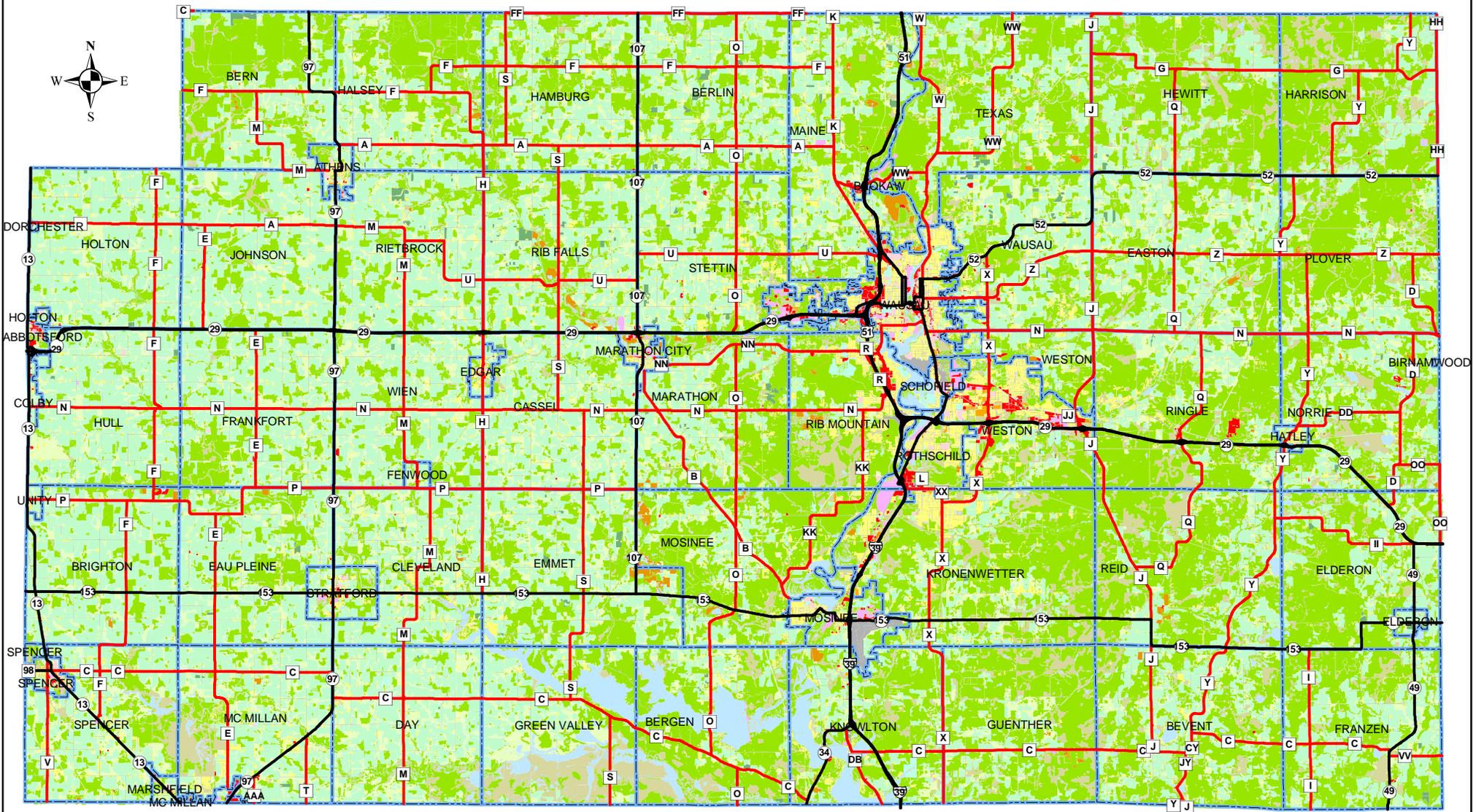
Over time, the distribution of land uses relative to cropland, woodland, pasture and residential needs has changed (Table 1). From 1992 to 2007, the amount of land in farms decreased from 529,966 to 490,628 acres (a decrease of 7.4 percent). Map 1 shows the 2008 land use cover types for Marathon County. A description of the land use cover classifications can be found in Appendix B.

Table 1. Estimated land use cover of Marathon County in 2008.

Land Use	Acres	Change from 2000
Cropland (32.9%)	331,948	- 20,893
Specialty Crops (0.4%)	3,874	- 1,983
Other Agriculture (10.3%)	104,123	+ 4,621
Commercial (0.5%)	5,245	+ 935
Forest Land (38%)	382,870	- 1,679
Barren (6%)	60,632	+ 11,071
Industrial (0.3%)	2,771	+ 271
Single Family Residential (4.7%)	47,386	+ 6,207
Multi-family Residential (0.1%)	886	+ 260
Open Water (2.8%)	28,322	- 502
Quarries (0.4%)	3,674	+ 692
Recreational (0.3%)	2,495	- 260
Transportation (3.3%)	33,113	+ 945
Public & Quasi-public (0.2%)	2,240	+ 343
Unknown	112	+ 79
Total Acres	1,009,691	

Source: Marathon County Land Use Cover Database.

MARATHON COUNTY LAND USE/COVER 2008



Classifications

SINGLE FAMILY RES	OTHER AGRICULTURE	PUBLIC/QUASI-PUBLIC
MULTI-FAMILY RES	SPECIALTY CROP	RECREATIONAL
COMMERCIAL	FOREST LAND	TRANSPORTATION
INDUSTRIAL	BARREN	UNKNOWN
CROP LAND	QUARRY	WATER

MAP DEVELOPED BY
MARATHON COUNTY CPZ DEPARTMENT

Thursday, October 28, 2010 10:03:15 AM
O:\Common\gisdata\projects\land_water_resources_plan\map_1_landuse08.mxd

D. SOILS

The soils of Marathon County are primarily derived from the weathering of glacial drift, outwash and bedrock. A few soils have formed in glaciolacustrine deposits, alluvial deposits, or organic material. Most soils in the county are suitable for agriculture, with the exception of the very steep areas and the poorly drained soils.

Groundwater characteristics of the various soil associations are influenced by the porosity of the soil profiles, textures of soil materials, and depth of the soil. These unique soil characteristics play a functional role in both quality and quantity of groundwater resources. For example, along the Wisconsin River, Rib River, and Eau Claire River, the Mahtomedi-Fordum-Sturgeon Association is dominant. This association, with its coarse texture soil type, has a high infiltration rate and high permeability rate because of its large pore space. Along these major river corridors high capacity wells are found to service the communities of Marathon, Brokaw, Wausau, Schofield, Weston, Rib Mountain, Rothschild and Mosinee. However, because of high infiltration and permeability rates of coarse soil types, the groundwater is vulnerable to contamination because of a low attenuation potential. Attenuation potential of a soil indicates the natural capability of a soil to reduce the impact of a contaminant by nature of its filtering potential.

Groundwater is also influenced by the landscape characteristics of the associations. Flatter areas produce less runoff and subsequently higher recharge rates. The presence of wetlands to filter runoff prior to recharge into surface and groundwater impacts the quality of surface water and groundwater. Sandy soils with high infiltration rates increase recharge rates. Map 2 shows the soil associations and distribution throughout the County.

E. WATER RESOURCES

1. Surface Water

Marathon County has 202 lakes with a total surface area of 28,322 acres. The lakes tend to be small and vary in depths ranging from one foot to thirty-four feet. The Big Eau Pleine Reservoir is the largest body of water with a potential area of 6,830 acres when full.

The county has 356 rivers and streams with a surface area of 3,748 acres. The Wisconsin River flows south through the county. The river is regulated by several dams on the mainstream and tributaries, which are controlled by the Wisconsin Valley Improvement Corporation (WVIC). Major tributaries flowing from the east to west include the Trappe, Eau Claire, Little Eau Claire and Plover Rivers. The major tributaries flowing from west to east are the Little Rib, Big Rib, Big Eau Pleine, and the Little Eau Pleine Rivers. The county contains all or part of 22 watersheds. All but two are part of the Central Wisconsin River Basin. The southeast corner of the county drains to the Fox-Wolf Basin. This represents 4% of the county area.

Most wetland areas of the county are wooded. Certain wetlands are important for nesting waterfowl and spawning fishes. The Mead (33,000 acres) and the McMillan (5,700 acres) Wildlife Areas are the most extensive wetland and grassland regions located in the county. The flowages in these areas were developed to create waterfowl nesting sites and feeding areas for migratory waterfowl.

From the late 1940's through the 1970's, many natural wetland areas on the west side of the county were drained for cropland through constructed "w"-shaped surface ditches. These long, narrow drainage channels improved crop production, but also increased runoff rates

and the flashy nature of the streams. The majority of these drainage ditches still function in agriculture areas.

2. Outstanding and Exceptional Resource Waters.

An Outstanding Resource Water (ORW) is a lake, stream or flowage having excellent water quality, high recreational and aesthetic value and high quality fishing. ORW waters are free from point source or nonpoint source pollution. An Exceptional Resource Water (ERW) is a lake, stream, or flowage exhibiting the same high quality resource values as outstanding waters, but may be affected by point source pollution. Several streams in the County are classified as ORW or ERW (Map 3). A complete listing of these high quality surface waters can be found on the WI DNR web site found in the reference section.

3. Water Quality Management Areas (WQMA's)

A Water Quality Management Area (WQMA) is defined as a) an area located within 1000 feet from the ordinary high-water mark of navigable waters; b) an area located within 300 feet from the ordinary high-water mark of navigable waters; or c) a site that is susceptible to groundwater contamination or that has the potential to be a direct conduit for contamination to reach groundwater. Marathon County has delineated the WQMA's areas greater than five acres in size on Map 4. Because of the highly developed drainage systems of the County, the WQMA's are extensive and widespread.

4. Groundwater

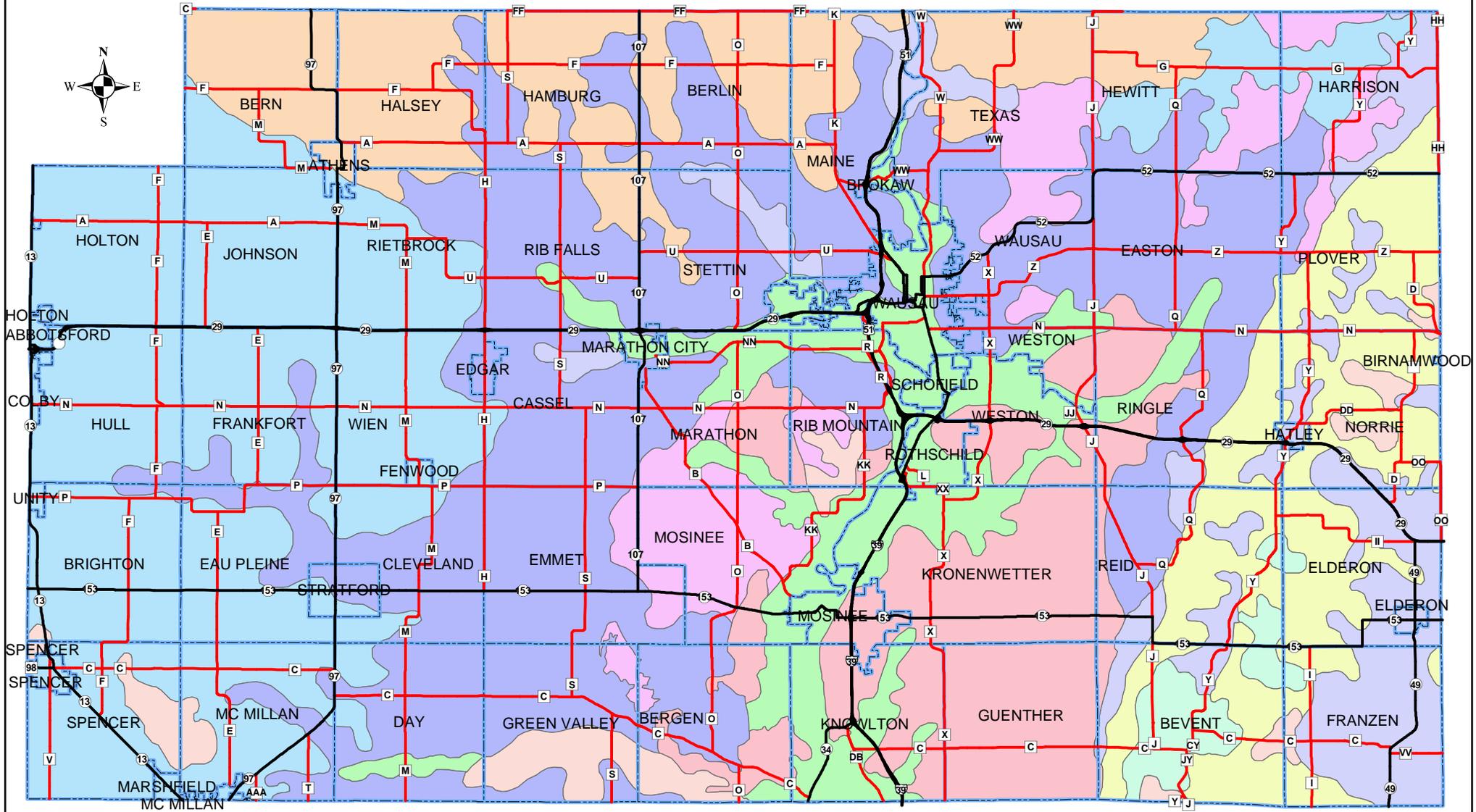
Groundwater is the major source of all water consumption in Marathon County (Maps 5 and 6). There are 17 municipal water systems in Marathon County owned and operated by a specific community. All public and private water supplies and most domestic, industrial, and agricultural supplies rely on groundwater. According to the Department of Natural Resources Inventory of Watersheds (Central Wisconsin River Basin Report, 2006), fifteen (15) of the twenty (20) inventoried watersheds rank "high" relative to groundwater impacts and threat to the resource. As residential development continues to expand into the rural areas of the county and agricultural production methods intensify, the concern for groundwater protection grows. Increased nitrate and bacteria levels in residential wells pose serious health concerns.

Over the past 3 years, the concern for groundwater quantity has increased. From 1979 to 2005, total water use in Marathon County increased from 40.7 million gallons per day to 68.2 million gallons per day. The increase of water use is due to a growing industrial consumption. Recently, the communities of Dorchester and Abbotsford have documented concerns about limited municipal water supplies and its impact to future growth. The concern has also extended to other small rural communities, as well as Towns where large scale livestock operations draw heavily on the regional water supplies.

Nearly 85% of 762 private well samples collected in Marathon County from 1990-2006 met the health-based drinking water limit for nitrate-nitrogen. 396 of these samples (52%) that contained 2-10 mg/L of nitrates serve as indicators that land use is affecting groundwater quality. The Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) and DNR reports that 80% of nitrate inputs to wells originate from the agricultural land spreading of nutrients and legume cropping systems.

Nearly 5,540 acres of land in south central Marathon County are located in atrazine prohibition areas.

MARATHON COUNTY GENERAL SOILS



Classifications

General Soil Association

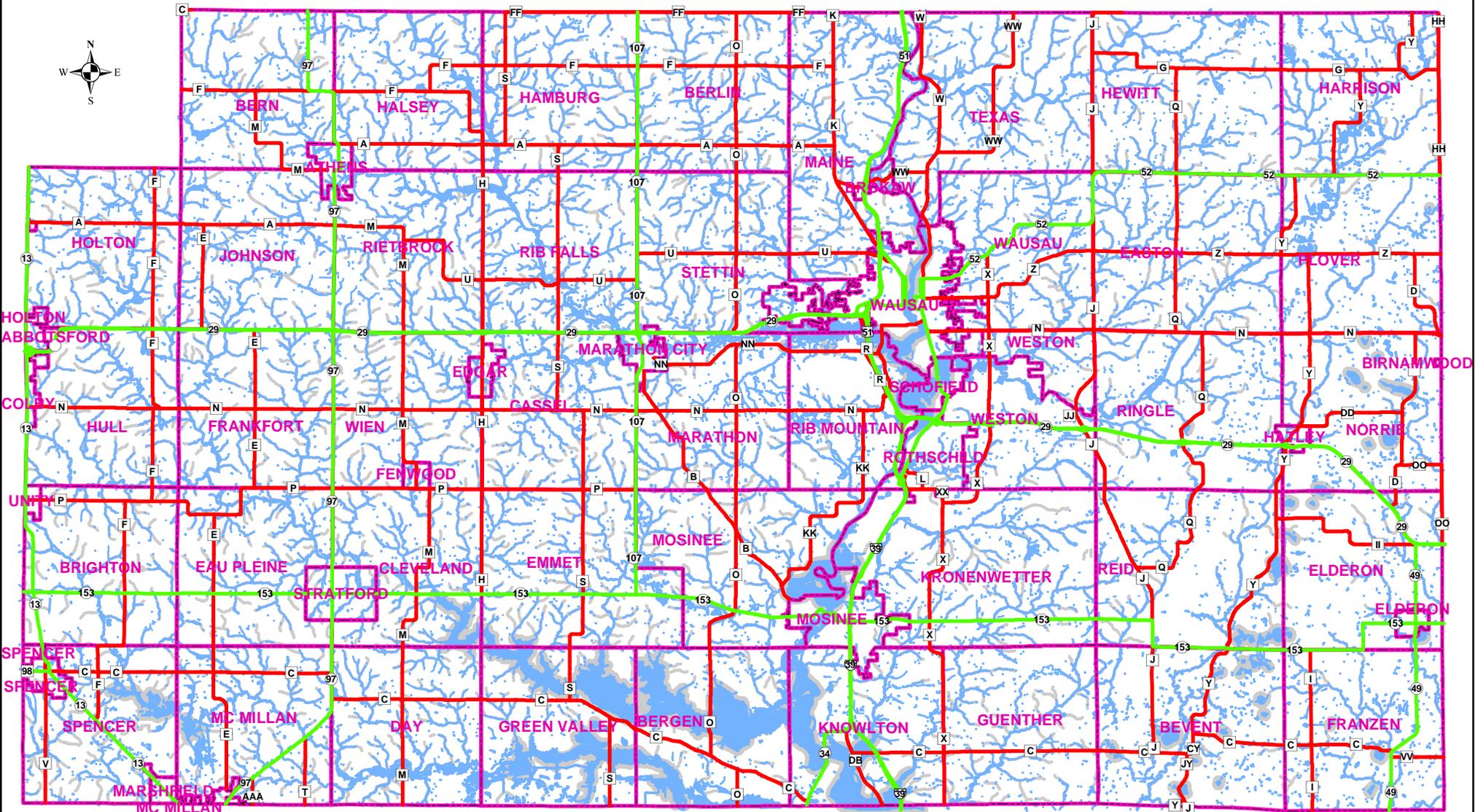
- | | | |
|-------------------------------|---------------------------|---------------------------|
| Cathro-Seelyville | Kennan-Hatley | Mahtomedi-Graycalm-Meehan |
| Chetek-Rosholt-Oesterle | Loyal-Withee-Marshfield | Marathon-Myirea-Moberg |
| Fenwood-Rietbrock-Rozellville | Magnor-Cable | Mosinee-Meadland-Dancy |
| | Mahtomedi-Fordum-Sturgeon | |

Source: U.S. Department of Agriculture
 Natural Resources Conservation Service
 The Research Division of the College of Agricultural and Life Sciences
 University of Wisconsin

MAP DEVELOPED BY
 MARATHON COUNTY CPZ DEPARTMENT

Thursday, October 28, 2010 11:59:57 AM
 O:\Common\gisdata\projects\land_water_resources_plan\map_2_general_soils.mxd

MARATHON COUNTY WATER QUALITY MANAGEMENT AREAS



- State & US Highways
- County Roads
- Municipal Boundary
- Water Features
- 300' From Streams - 1000' From Lakes

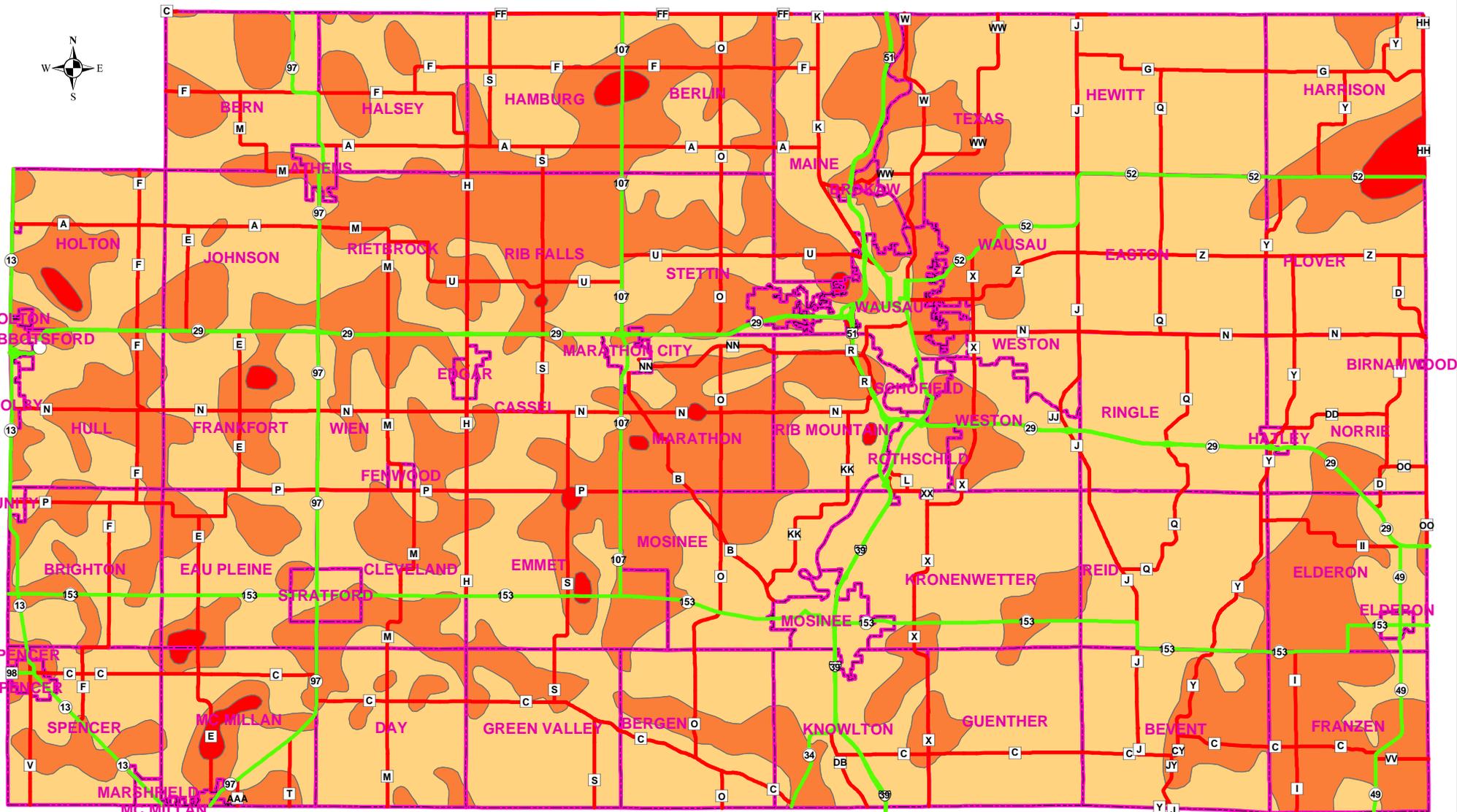
MAP DEVELOPED BY
MARATHON COUNTY CPZ DEPARTMENT

Friday, October 29, 2010 2:24:12 PM

O:\Common\gisdata\projects\land_water_resources_plan\mxd\map_4_water_quality_mgmt_areas_8_11.mxd

MAP #4

MARATHON COUNTY DEPTH TO GROUND WATER



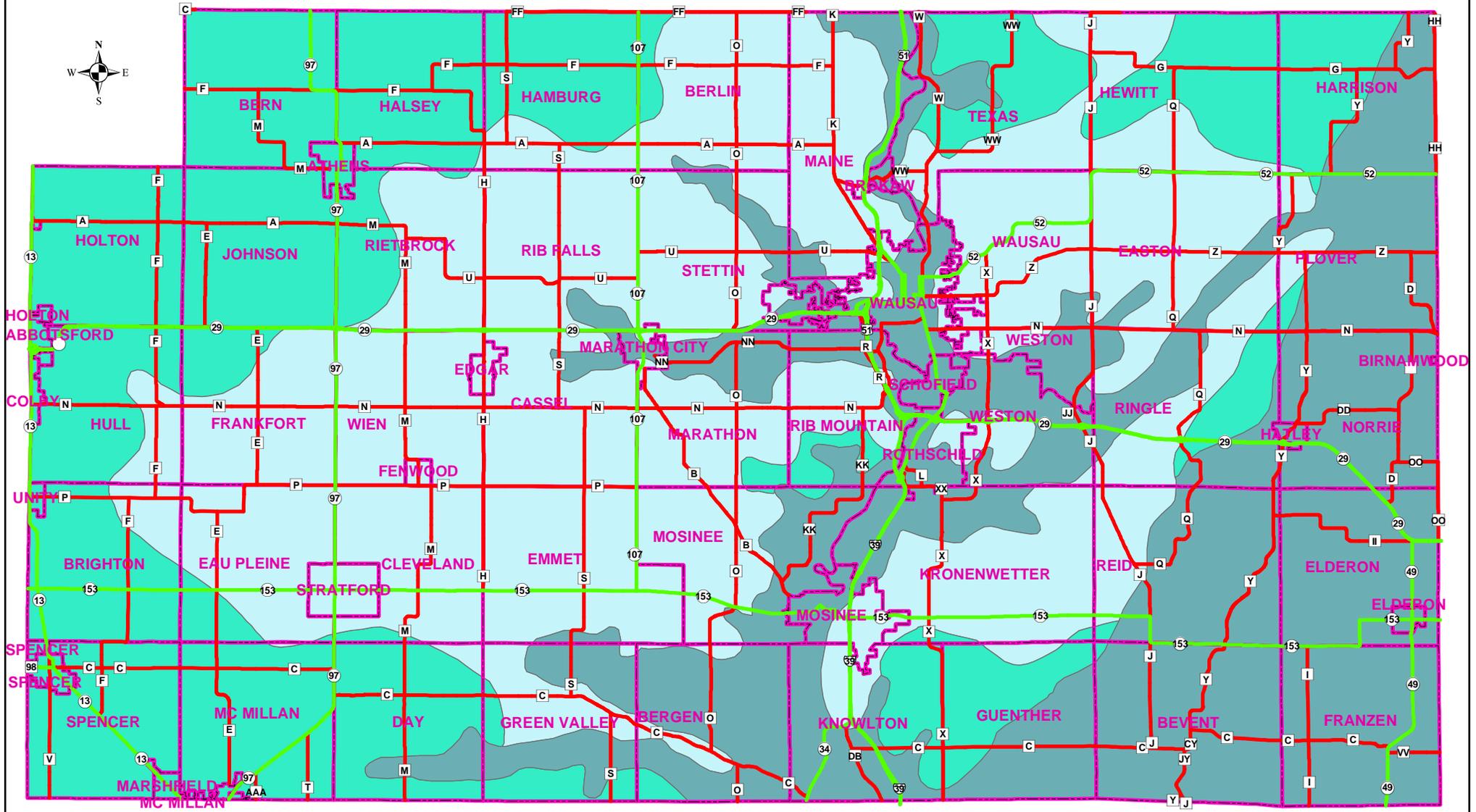
MAP DEVELOPED BY
MARATHON COUNTY CPZ DEPARTMENT

Source: "Irrigable Lands Inventory --- phase 1
Groundwater and Related Information", I.D. Lippelt
and R.G. Hennings, MP -81-1, WGNHS 1981.

Friday, October 29, 2010 2:24:52 PM
O:\Common\gisdata\projects\land_water_resources_plan\mxd\map_5_depth_to_gndwater_8_11.mxd

MAP #5

MARATHON COUNTY GENERALIZED GROUNDWATER AVAILABILITY



- Availability**
- State & US Highways
 - County Roads
 - Municipal Boundary
 - Adequate
 - Islands of Shortage
 - Shortage

Ground waters generally available in volumes adequate for industrial development, irrigation, and domestic uses.

Ground waters generally available in volumes large enough for domestic uses and scattered urban development. Islands of water shortage occur where bedrock is close to surface.

Ground waters in general short supply where dense bedrock is close to surface. Islands of more ample water reserves do occur in the area where granite is weathered to rather deep depths or scattered deposits of sand and gravel occur.

MAP DEVELOPED BY
MARATHON COUNTY CPZ DEPARTMENT

Source: "Irrigable Lands Inventory --- phase 1 Groundwater and Related Information", I.D. Lippelt and R.G. Hennings, MP -81-1, WGNHS 1981.

CHAPTER III – RESOURCE CONDITIONS

A. SOIL EROSION

Soil erosion has many potential sources. With over 331,948 acres of cropland within the county, agricultural soil erosion has been a longtime concern for the Marathon County Conservation, Planning and Zoning Department. However, other land disturbances such as mining, residential and commercial construction, roads and forestry have the potential to deliver significant amounts of sediment to waterways. Soil erosion delivers soil sediment, organic material and nutrients to surface waters and is considered the primary nonpoint source of pollutant to our waterways.

1. Soil Erosion Transect Survey

In June 1999, Marathon County conducted its first transect survey. The survey has been repeated every other year from 2000 to 2010. The average annual “tolerable” soil loss rate (“T”) per acre for Marathon County is 4.4 tons per acre per year. It is important to understand that soil loss calculations and acceptable “T” are performance values based on maintaining soil productivity not protecting water quality.

Table 2. Annual Soil Erosion Rates

Year	Average Soil Erosion Rate (tons/acre)	Percent % of Cropland < Tolerable Soil Erosion Rate
2000	2.0	82
2002	2.3	80
2004	2.3	82
2006	2.1	84
2008	1.7	87
2010	1.8	87

Source: Marathon County Soil Erosion Transect Survey

Average soil erosion rates by watershed are shown on Map 7. A link to the survey transect route map and detailed findings can be found in the reference section.

The soil transect survey reveals that nearly 50% of the cropland is tilled in some manner that disturbs the soil exposing fields to erosion in the spring and fall. Furthermore, the survey indicates that only 10% of the cropland utilizes conservation tillage to reduce erosion. More plant residue left on top of the soil surface reduces the impact of rain drops on the soil particles reducing soil erosion. Plant residue also roughens the surface of the soil which also lowers the runoff potential. No-till as a best management cropping practice remains an under utilized management option. With livestock operations, the most effective best management practice to minimize soil erosion is Managed Grazing which utilizes permanent grass pastures.

The number of acres planted to hay is declining (5% reduction in 5 years) while the number of acres planted to soybeans and other row crops has increased. Fields planted to soybeans are finely tilled, leave little plant residue on the surface when harvested and have a rooting system which loosens the soil; therefore, making it susceptible to erosion. Similarly, the total acres dedicated to corn silage continue to increase. Corn silage production also promotes soil erosion because relatively little plant residue cover is present post-harvest to protect the soil against detachment and transport.

Another concern relative to soil erosion is the potential reduction of organic matter in the cropland topsoil. The health and long-term sustainability of a soil is dependent upon the maintenance of its organic matter. Although rates of erosion are assessed throughout the county, we do not have data on the status of organic matter levels. The CPZ staff (along with UW-Extension and area agronomists) has initiated a project to track the status of our soil cropland organic matter content. In utilizing the soil testing data and the Soil Conditioning Index (SCI) from nearly 140,000 acres of cropland that have nutrient management plans on file with the department, the intent is to track the organic matter trends within the County. This data may also be analyzed to determine how specific cropland best management practices impact organic matter levels.

2. Construction Site Erosion

Residential and commercial construction sites have the potential to produce large amounts of sediment from small acreages. Furthermore, as impervious surface areas such as roads, parking lots, and roofs increase on a given site, the peak storm water flows increase potentially creating off-site problems. Wis. Administration Code NR 151, "Non-agricultural Performance Standards" requires that Best Management Practices - BMPs be followed on all construction sites exceeding one acre in size. Furthermore, changes in NR 216 - Storm Water and Erosion Control will minimize the issues of storm water control and treatment.

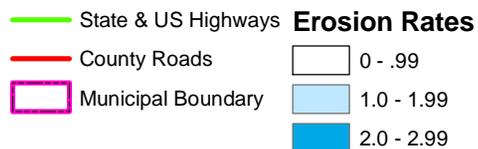
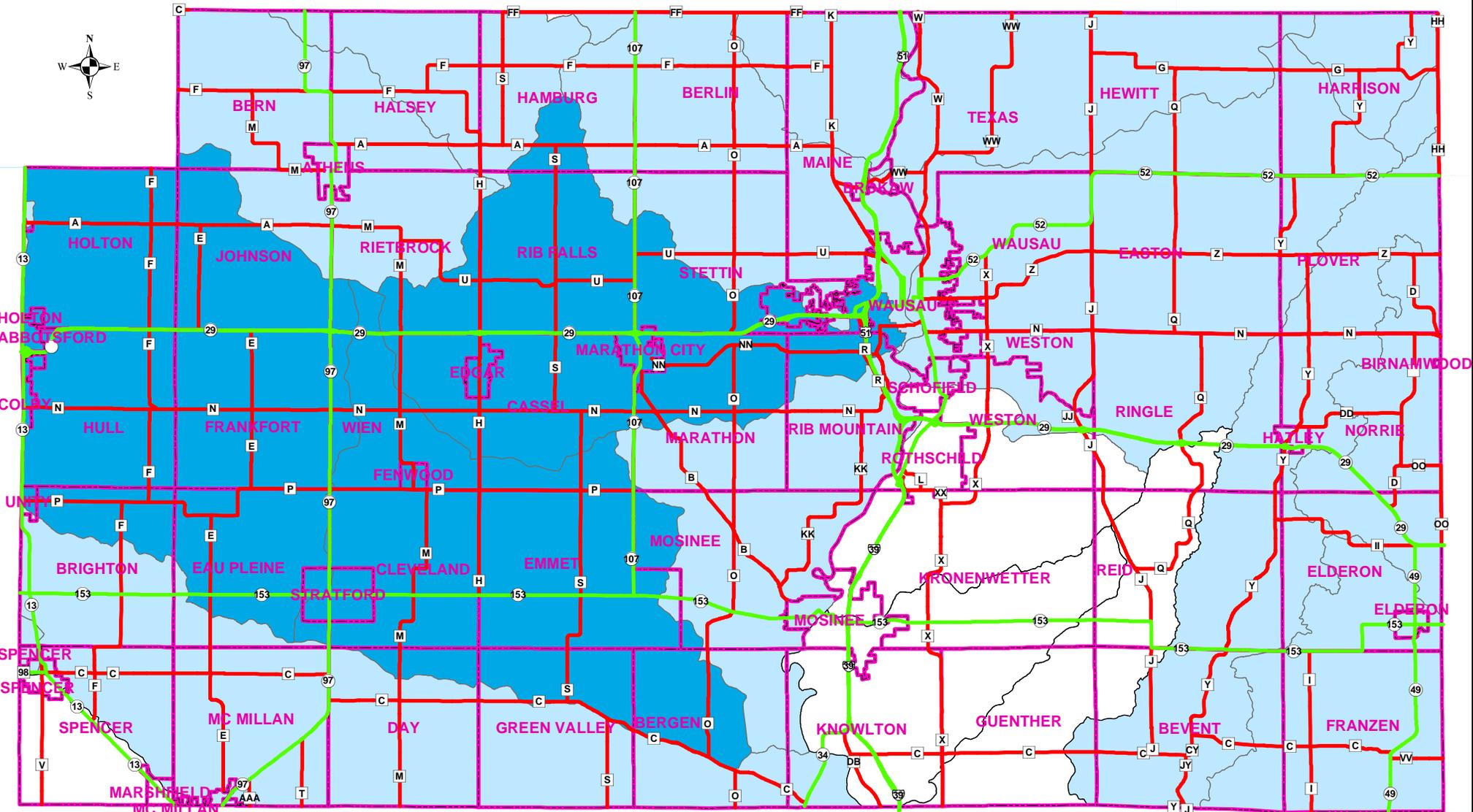
For urban runoff, the highest priority in Marathon County is the implementation and compliance with Municipal Separate Storm Sewer System (MS4). A Municipal Separate Storm Sewer System is a federally mandated program. Marathon County is a WPDES permittee regulated under Wis. Adm. Code NR 216. As part of the WPDES permit strategy, the County has developed a Memorandum of Agreement with Wausau Metropolitan communities to form a Storm Water Coalition to coordinate the educational and technical requirements of the permit. Through this coalition the urban communities will advance consistent model ordinances, educational strategies, and monitoring of storm water and construction site activities.

3. Nonmetallic Mining

Nonmetallic mining is an important industry in Marathon County. Sand and gravel is removed from the sandy outwash areas along the rivers. Additionally, rotten granite for road material and landscaping is mined in several areas of the county. Hard rock quarrying is done for road material, granite monuments, buildings, landscaping and roofing granules. Each of these activities has the potential to contribute sediment to surface waters.

The Conservation, Planning and Zoning Department along with the DNR have regulated nonmetallic mining operations through a local ordinance first adopted in 1989. The intent of the regulation is to minimize environmental impacts of mining and to assure that proper reclamation of the mining sites occurs. By requiring plans of operational activities, the County can minimize off-site discharges, groundwater concerns, public nuisances, and sediment releases. There are 149 permitted mine sites and more than 120 reclaimed excavation sites in Marathon County.

MARATHON COUNTY SOIL EROSION RATES BY WATERSHED



MAP DEVELOPED BY
MARATHON COUNTY CPZ DEPARTMENT

Source: Marathon County 2010 Transect Survey

Thursday, October 28, 2010 2:12:41 PM
O:\Common\gisdata\projects\land_water_resources_plan\map_7_soil_erosion_rates.mxd

B. AQUATIC INVASIVE SPECIES

Prevention through education continues to be an important activity for invasive species control. Clean Boat volunteers are having a positive affect on public awareness. Permits for work in public waterways or in areas of land disturbance near waterways should include provisions to clean equipment prior to moving to the next site to prevent the unintentional transport of invasive species. In 2010, Marathon County has entered into a working relationship with the Golden Sands Resource Conservation & Development agency to conduct an inventory of lakes and flowages unassociated with the Wisconsin River for aquatic species. The inventory efforts will also involve educational outreach efforts to Park Department employees and students.

Currently, 21 water bodies are infested with aquatic Invasive species.

Aquatic species currently tracked include: Banded Mystery Snail, Brittle Waternymph, Chinese Mystery Snail, Curly-Leaf Pondweed, Eurasian Water-Milfoil, Fishhook Water flea, Flowering Rush, Freshwater Jellyfish, Grass Carp, Hybrid Eurasian-Northern Water Milfoil, Japanese Mystery Snail, Japanese Knotweed, New Zealand Mudsail, Rainbow Smelt, Red Swamp Crayfish, Round Goby, Rusty Crayfish, Spiny Water fleas, Water Lettuce, Yellow Floating Heart, and Zebra Mussels.

C. GROUNDWATER

Available ground water in much of central Wisconsin is limited to discharge through wells of low yield. Aquifers that yield small amounts of water to wells are associated with fractured crystalline rock formations at or near ground surface in the central and eastern parts of the County, sandstone overlying crystalline rock in the southern and western parts, and glacial till that covers the area north and west of the Marshfield moraine. Many wells in crystalline rock yield less than 2 gallons per minute (gpm). About 90 percent of the wells in sandstone and most wells in glacial till yield 5-20 gpm.

Water for public and industrial supplies is limited in a large part of central Wisconsin. Yields of ground water and natural stream flows during dry seasons are too low to sustain large supplies. In some towns and villages, public water supplies are inadequate; in others, they are barely adequate and cannot sustain the increase in future needs.

The number of high capacity wells for municipal, agriculture and industrial use continues to increase in Marathon County. As a result of increased demand and/or persistent drought conditions some areas of Marathon County are experiencing the impacts of limited groundwater resources. Proposed legislation to manage groundwater quantity in designated management areas did not advance out of legislative committee in 2009. Therefore education about groundwater conservation is the primary tool available to help manage groundwater quality issues. Protection of groundwater quality continues to be an important management issue in Marathon County. Overall progress has been made on groundwater quality; however the communities should continue to be diligent on well head protection. Runoff contamination can be an issue and this past year two private wells were impacted by manure runoff in Marathon County.

Limited groundwater storage potential and rapid surface runoff deprive the area of much water that otherwise would be available (the average annual precipitation at Marshfield is 31.29 inches). Only a small part of the total water yield, excluding surface-water reservoir potential, is available for large public supplies. Soils of low permeability impede downward seepage and

promote rapid surface runoff. Crystalline rock at or near the surface, generally covered by thin deposits of low permeability, limit the groundwater storage potential. The result is a water-poor area in a water-rich State.

D. WATER QUALITY

Water quality concerns take on many forms. Contributions to degradation can either be by point source (industrial discharge pipe or direct discharge from an animal lot) or by the less obvious nonpoint sources. The Central Wisconsin River Basin Plan recognizes cropland runoff and animal waste runoff as the most significant sources of pollutants to the watersheds of Marathon County.

The nonpoint sources associated with the agricultural livestock industry are increasing relative to both scale of runoff event and frequency. Since 2003, the Conservation, Planning and Zoning staff has documented 30 significant discharges in the County associated with agricultural livestock waste, most in the late winter-early spring season. These runoff events are oftentimes characterized as “point sources” and many cases caused either fish kills or well contamination.

Nonpoint sources, including soil erosion, animal waste runoff, pesticide runoff, and urban runoff have been identified as significant sources of pollution that need to be controlled in order to meet State water quality goals. The impact of these pollutants include eutrophication, well contamination, fish kills, algae blooms, beach closings, high bacteria counts, turbidity and loss of aquatic habitat.

Public awareness of wetlands as a valuable resource continues to increase. However as with other counties there is a net loss in wetland acreage in Marathon County. Minimizing the loss of wetland with their buffering capacity is a high priority for the enhancement of water resources in Marathon County. Building wetland function adjacent to cropland is an important element in the reduction of nonpoint runoff and promotion of groundwater recharge, two important resource concerns in Marathon County. Wetland restoration and sediment control are important water quality tools that will be promoted over the next 10 years.

Marathon County encompasses portions of 22 watersheds (Map 8) that comprise a network of rivers, streams and creeks. Several surface waters within these watersheds have been identified as “impaired waters” on the “303 (d) list” of the U.S. Clean Water Act. The EPA list identifies waters that do not meet current water quality standards and merit water quality improvement and protection. A complete list of impaired waters is on the WI DNR web site located the reference section. Water impaired due to low dissolved oxygen and phosphorus associated with agricultural nonpoint runoff includes:

1. Big Eau Pleine (BEP) Reservoir

The Big Eau Pleine River flows into the reservoir (which swells to 6,677 acres when full) and then into Lake DuBay, both flowages of the Upper Wisconsin River Central Sub Basin. The BEP River Watershed drains approximately 363 square miles or 238,000 acres with the following land use distribution: cropland (60%) – 142,800 acres, pastures (15%) 35,700 acres; Woodland (17%) – 40,460 acres; and Miscellaneous (8%) – 19,040.

The BEP watershed includes the following Villages and Cities: Stratford, Colby, Abbotsford, Dorchester, Stetsonville, Fenwood, and Milan. Low dissolved oxygen levels during the spring, as well as high algae concentrations have been associated with the reservoir since its construction in 1937. Fish kills in the spring of the year are a continuous concern for this

watershed and reservoir, especially in years where stream flows are reduced due to drought. In late winter and early spring 2005 and 2008, the reservoir experienced the most recent significant fish kills due to reduced dissolved oxygen levels of water. The causes of the low dissolved oxygen levels were associated with agricultural runoff of winter applied manures and several years of low water flows.

In 2009 and 2010, the Big Eau Pleine Citizens Organization (BEPCO), Department of Natural Resources, Wisconsin Valley Improvement Company (WVIC), and Marathon County combined planning and financial resources to improve the function and capacity of the existing aeration system for the reservoir to minimize the potential for fish kills in spring. The aeration system will continue to be a critical management tool for the water resource.

A link to the complete “case study” of historical conservation activities and resource studies for the Big Eau Pleine River Watershed and Reservoir can be found in the reference section.

2. Big Eau Pleine River Watershed

The Upper Big Eau Pleine (UBEP) was the first priority watershed project in Marathon County selected by the DNR in 1984. It represents a joint project between Marathon, Taylor and Clark Counties. The Upper Big Eau Pleine is located in western Marathon County and covers 224 square miles of mostly agricultural land (primarily dairy).

The streams in this watershed are classified as warm water game fish, warm water forage and marginal variance streams. Because the watershed’s streams are “flashy” (respond quickly to rain events), nutrients, sedimentation, bacteria and turbidity affect the majority of the streams, resulting in fish habitat destruction, algae blooms and diurnal shifts in dissolved oxygen levels. The major concern with this watershed and the surrounding watersheds is the nonpoint pollution that is occurring from agriculture and land development practices.

The Upper Big Eau Pleine River Watershed is ranked through the Nonpoint Source Priority Watershed Selection Criteria. Based on surface and ground water data, the overall ranking was high for potential degradation. In 1987, the first comprehensive nonpoint source control plan was approved for the Upper Big Eau Pleine River Watershed.

The Lower Big Eau Pleine River Watershed is located in southwestern–southcentral Marathon County. There are characterized by high rates of surface run-off due to the silty soils and steeper slope gradients in the area. Water quality concerns include stream sedimentation, turbidity, filamentous algae growths, excessive nutrient enrichment and diurnal shifts in dissolved oxygen levels.

Higher than average soil erosion rates along with manure handling practices within the townships of Bergen, Mosinee, Cassel, and Day warrant conservation assistance. Based on surface and ground water data, the overall ranking is high establishing the Lower Big Eau Pleine River Watershed as a priority for future grant eligibility.

The Department of Natural Resources (Central Wisconsin River Basin Plan) has ranked the 22 watersheds in Marathon County according to water pollution impacts. High-priority watersheds indicate the greatest resource degradation and/or the greatest susceptibility to pollution sources. Various criteria were used to rank streams, lakes and groundwater separately by watershed to determine the need and value of conducting corrective projects. The ranking identifies priority watershed areas where: (1) nonpoint sources of pollution

exist, (2) the nonpoint source pollution impacts water quality, and (3) the problems can be controlled and/or corrected through the implementation of Best Management Practices.

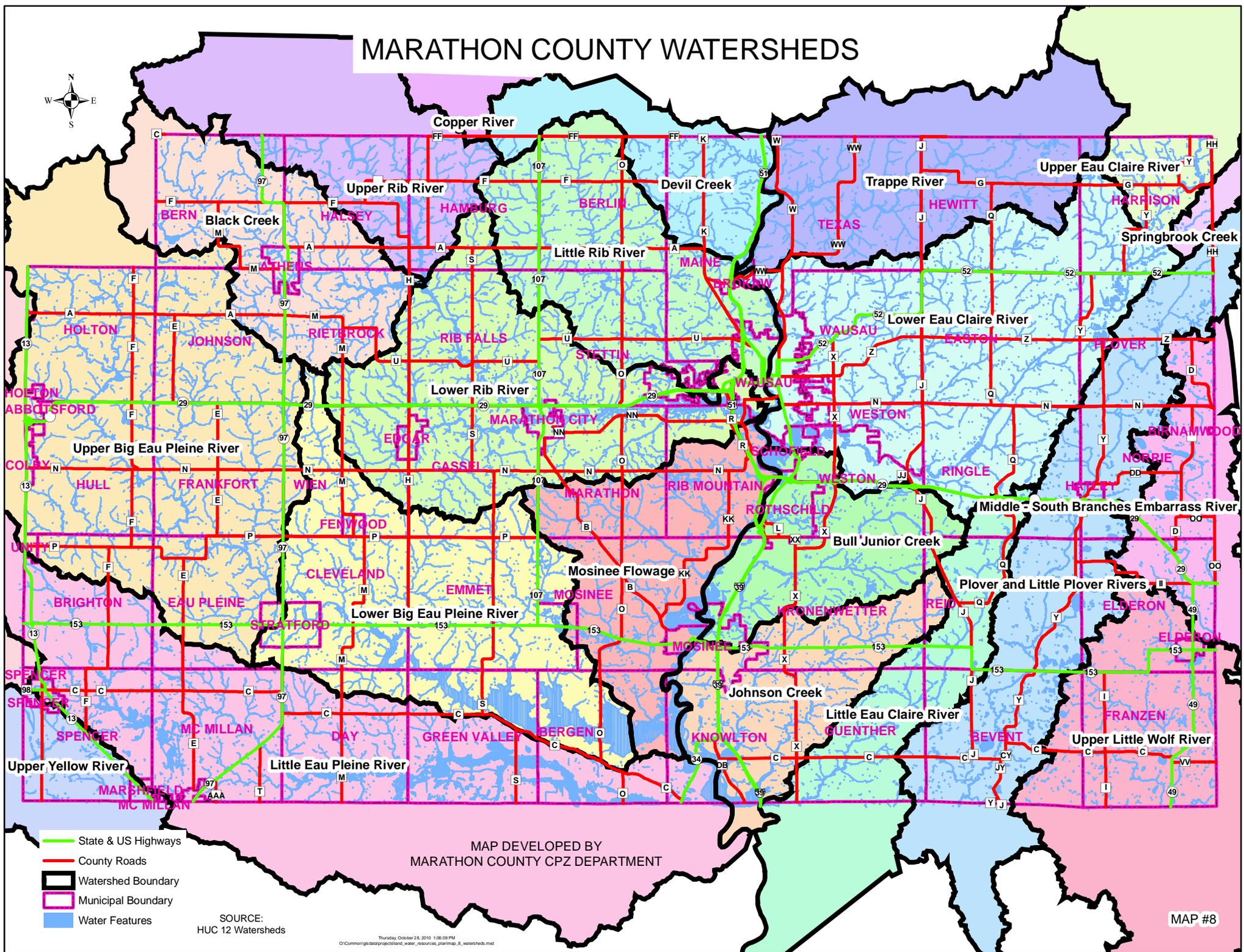
The Lower and Upper Big Eau Pleine River Watersheds rank high because of low dissolved oxygen and high bacteria and phosphorus levels and the Upper Yellow River because of high bacterial levels. The Basin plan indicates that many of the watersheds in the far western one-third of the county are significantly impacted from livestock waste discharges as a non-point source.

Table 3. DNR Nonpoint Source Watershed Scores (August 2009)

Watershed	Overall Rank	Stream Rank	Lake Rank	Groundwater Rank	Status
Springbrook Creek	High	High	Medium	High	
Lower Big Eau Pleine River	High	High	High	High	TMDL* Planning
Lower Rib River	High	High	Low	High	
Upper Big Eau Pleine River	High	High	Low	High	TMDL* Planning
Upper Eau Claire River	High	High	Low	High	
Middle & South Branches Embarrass River	High	Low	NR	Medium	
Black Creek	High	High	Low	High	
Upper Little Wolf River	Medium	Medium	NR	High	
Upper Yellow River	High	High	High	High	
Devil Creek	High	Medium	Low	High	
Lower Eau Claire River	High	Medium	Medium	High	
Mosinee Flowage	High	Medium	Low	High	
Plover and Little Plover River	High	Medium	Medium	High	
Upper Rib River	Low	Low	Low	Low	
Johnson Creek	Medium	Medium	Low	Low	
Bull Junior Creek	High	Medium	Low	High	
Trappe River	Low	Low	Low	Medium	
Little Eau Claire River	Medium	Medium	Low	Low	
Little Eau Pleine River	High	Low	Low	High	
Little Rib River	High	NR	NR	High	

*A total maximum daily load, or TMDL, is a quantitative analysis of the amount of a pollutant that a stream or lake can receive before exceeding water quality standards. A TMDL accounts for both point sources and nonpoint sources.

MARATHON COUNTY WATERSHEDS



- State & US Highways
- County Roads
- Watershed Boundary
- Municipal Boundary
- Water Features

MAP DEVELOPED BY
MARATHON COUNTY CPZ DEPARTMENT

SOURCE:
HUC 12 Watersheds

Thursday, October 23, 2010 1:36:09 PM
O:\Commons\gis\projects\land_water_resources\planmap_8_watersheds.mxd

MAP #8

E. EASTERN LAKES DISTRICTS AND ASSOCIATIONS

There are 202 lakes in Marathon County, covering a surface area of over 28,322 acres. Many lakes lie in kettle holes left by the retreat of the glaciers. Seepage lakes are the most common type of lake in the County. These lakes do not have any surface outflow but depend on underground movement of water through highly permeable glacial soils for drainage. The largest “lakes” in the County have been formed behind river dams, including the Big Eau Pleine Reservoir, Lake Wausau, Half Moon Lake, and Lake Du Bay. Like other water resources, lakes provide flood retention, wildlife habitat, recreational opportunities, and scenic amenities.

Surface waters of the Eastern Lakes Project fall into one of two distinct river basins: The Wisconsin River basin and the Wolf River Basin. These lakes are predominantly located in the eastern third of the county in the towns of Bevent, Elderon, Norrie, and/or Reid. The lakes are kettle lakes in hilly topography and sandy soils that were deposited as a result of glacial till. Surface water in this region is primarily groundwater fed with surface runoff inputs often originating nearby. The lakes include eight seepage lakes, Bass, Big Bass, Lost, Mayflower, Mission, Mud, Norrie, and Wadley Lake, two spring lakes, Lily and Rice Lake, and one drainage lake, Pike Lake.

Over the years, little data have been collected related to water quality conditions, health of fisheries, and the aquatic plant community. The lack of good science based information makes it difficult to develop strategies and to focus resources on the improvement or protection of these lake ecosystems.

The Plover River and Little Plover Rivers Watershed was ranked using the Nonpoint Source Priority Watershed Selection Criteria. Based on available surface and groundwater data, the overall ranking is medium, establishing a moderate priority for future grant eligibility through the State Nonpoint Source Pollution Abatement Program.

The soil erosion control plans for Portage and Marathon Counties indicate that portions of the watershed have high soil erosion rates, particularly in the town of Norrie in Marathon County.

A lake district is a special purpose unit of government established to maintain, protect, and improve the quality of a lake and its watershed. Lake districts can be established as unincorporated associations, qualified or incorporated associations, or public inland lake protection and rehabilitation districts. There are six lake district organizations in Marathon County, including: Big Bass Lake Rehabilitation District, Big Eau Pleine Citizens Organization (BEPCO), DuBay PO Association, Pike Lake Sportsmen Club, Ltd., Lake Wausau Association, and Mayflower Lake Improvement District.

CPZ staff is working with the Eastern Lakes Project to implement a Lake Planning Grant. The Lake Planning Grant will be used to assess the current condition of the lake including water quality, amount of lake sediment and sources of pollution. Recommendation will be made for the protection and enhancement of the lake.

F. FORESTRY RESOURCES

In discussions with UW-Extension and Basin members, the Conservation, Planning and Zoning staff recognized a need to prepare a report to analyze the extent of woodland, current economic trends of business and harvest, ownership type trends, and the needs of current owners (timber harvest, wildlife interests, recreational interests, etc). Furthermore, the impact of the Managed

Forest law – MFL participation, multiple use development and use assessment changes to taxation will need to be explored.

Therefore, this LWRM Plan proposes to collaborate with UW-Extension, the Central Wisconsin River Basin Team, DNR forester, CPZ staff, and County Forestry Department staff to develop a Report of Findings regarding the condition and issues of the county's forest resources along with strategies and suggestions for management.

SUMMARY

Because of the relatively flat to moderate slopes (3-8%) of cropland fields and the presence of hay in the crop rotation, the average soil erosion rate is 1.8 tons per acre per year which is below the tolerable limits prescribed by state performance standards. Approximately 87% of the cropland fields are farmed below the tolerable soil loss rates. Although the soil erosion rates are low, nearly 75% of sediment and phosphorus entering the surface waters originates from unprotected tilled cropland. Therefore, staff will begin to develop strategies and priorities to cropland with the intent to promote residue management and grass farming. The staff will continue to provide general program and conservation planning support to existing programs such as the Farmland Preservation Program (FPP), Managed Intensive Grazing and the Conservation Reserve Enhancement Program (CREP) with the intent of addressing the remaining erosion concerns over five to ten years. Conservation compliance with USDA programming administered by the Farm Service Agency and Natural Resources and Conservation Service will also provide significant program support to the identification and compliance of the excessively eroding fields.

The most significant resource concern within the county remains surface water quality degradation caused by agricultural runoff of manure spread when soils are saturated, frozen and snow-covered and sedimentation from cropland erosion. Many of the environmentally impacted watersheds identified by the Department of Natural Resources are degraded by contributions of livestock waste to surface waters. Although this waste source is problematic to surface and ground waters, it is also a source that can be greatly minimized with proper management of the nutrients and with appropriate structural investments such as waste storage facilities, manure processing systems and feedlot runoff controls.

CHAPTER IV – GOALS, OBJECTIVES, PRIORITY FARM STRATEGY and PROGRAMS

The Conservation, Planning and Zoning Department's mission is to create, advocate and implement strategies to conserve natural and community resources.

The Conservation Division administers programs to implement the Land and Water Resource Management Plan which includes the Farmland Preservation Program, Managed Intensive Grazing, Lake Districts, Wildlife Damage and Abatement, as well as regulatory activities associated with the Waste Storage Facility and Nutrient Management Ordinance and the Livestock Facilities Licensing Ordinance.

Working with the Citizens Advisory Group, WI Department of Natural Resources, Department of Agriculture, Trade and Consumer Protection and USDA Natural Resources Conservation Service, the Marathon County Conservation, Planning and Zoning Department has identified the following soil and water resource protection goals.

A. GOALS AND OBJECTIVES

1. Reduce Agricultural Nonpoint Runoff.

Reduce the discharge of soil sediment, organic materials, pesticides and nutrients into surface and ground waters. This runoff includes specific concerns about soil erosion rates on cropland and the loss of organic matter in the topsoil.

Goals to address this resource concern include:

- a. Reduce non-point runoff leaving the cropland;
- b. Improve nutrient management activities of livestock farms;
- c. Educate landowners about their compliance status with State Agricultural Performance Standards and best management practices, including enforcement strategies;
- d. Minimize bare, unprotected soil during critical soil erosion periods;
- e. Provide adequate program and financial incentives to implement best management practices; and
- f. Promote and educate landowners about new manure management technologies.

Objectives: Promote best management practices that lower the soil erosion rate on cropland. This includes Managed Grazing, residue management, and crop rotation.

- Reduce soil sedimentation delivery rates. Where upland treatment of cropland erosion is not adequate to protect water quality, promote the development of wetlands and sediment basins along field edges to collect sediment and minimize nutrient delivery to waters.
- Increase nutrient management education and implementation efforts. This includes education relative to the profitability associated with best management practices such as Managed Grazing and nutrient management planning.
- Create a Farmer Advisory Group. This group representing diverse interests and program participation would provide suggestions and accountability to program delivery and effectiveness, as well as serve as ambassadors to the program outcomes.
- Develop new local ordinance authority to require winter spreading plans for manure applications in critical areas. The staffs would develop education and criteria for the development of winter spreading plans in critical watersheds where water quality is

compromised by manure applications on frozen and snow-covered ground and spring runoff period.

2. Groundwater.

A growing population and industrial base has led to a growing concern about both the supply and quality of our groundwater resources. Cropland irrigation and large livestock operations are high quantity agricultural water users, but urban centers need to reach farther and farther out into rural areas to access water. Industrial growth is now contingent upon access to outside-sourced water. Wellhead protection and infrastructure proposals to distribute water to rural communities are increasingly important.

Goals to address this resource concern include:

- a. Educate the public and users about groundwater use and challenges;
- b. Maintain the current groundwater levels in our aquifers;
- c. Increase the infiltration of rain and snowmelt to replenish aquifers;
- d. Maintain and improve the functioning of wetlands; and
- e. Protect wellhead recharge areas from pollution.

Objectives:

- Develop education and incentive strategies to increase conservation of water in both urban and rural areas.
- Incorporate groundwater education and well sampling opportunities into farm visits by staffs.
- Review and update Marathon County Groundwater Protection Plan (2001).

3. Forestry.

There are approximately 400,000 acres of forest land use in Marathon County. Much of the management of these lands rests with private landowners. Forests need to be managed and promoted to provide large blocks of habitat and maintain sound watershed management, including maximizing groundwater recharge.

Goals to address this resource concern include:

- a. Reforestation of barren lands and idled cropland;
- b. Maximize participation in Managed Forest Program (MFL);
- c. Keep large tracts of forest land;
- d. Sustainable and healthy private and public forests;
- e. Healthy school forest centers; and
- f. Minimize invasive species.

Objectives:

- Increase education and participation with local 4-H groups and schools to promote tree plantings (urban and rural). Includes promotion of planting projects for groups.
- Educate farmers about forest management and economic opportunities during farm visits.
- Officials and staff need to increase participation in regional and state program development and policy.
- Develop a strategy to identify and target land parcels that could benefit from woodland development. (Examples include fallow cropland and urban-rural transition areas). Promote tree planter use and planning for these landowners.

4. Land Conversion.

Conversion and fragmentation of agricultural cropland and woodlands from productive use is a continuing concern in Wisconsin and Marathon County. The protection of these cropland and woodland land uses are important to maintaining the rural and cultural integrity of our communities, but more importantly assure that the economic benefits of these sectors are realized. Sound land use requires policies that conserve resources and allow for the profitable use of the land.

Goals to address this resource concern include:

- Update Marathon County Comprehensive Plan to address the intent of the Working Lands Initiative and local implementation strategies
- Maintain prime farmland in production
- Minimize fragmentation of cropland by housing developments
- Provide producers with viable opportunities to protect farmland from conversion

Objectives:

- County officials must be actively engaged in regional and statewide groups to provide leadership in this land use effort.
- Provide administrative and educational support to local municipal and Town officials in presenting initiatives through the Working Lands Initiative. Specifically, the County (staff and officials) must be available to discuss zoning ordinances, enterprise areas, and conservation easements.
- Identify a tracking and selection process for location of Agricultural Enterprise Areas and conservation easements to maximize the effectiveness of the program opportunities.

5. Lake and Reservoir Management.

The management of our lake and reservoir resources is growing concern to the shore land residents, users, and local businesses. This resource concern encompasses the areas of wetland management and aquatic invasive species. There is a great participation by local landowners in securing information and resources to better protect our water resources.

Goals to address this resource concern include:

- a. Maintain existing wetlands;
- b. Restore critical drained wetland areas along surface waters;
- c. Keep sediments and nutrients out of wetlands to maintain function; and
- d. Improve awareness of public about the value and importance of wetlands.
- e. Develop a county-wide inventory and status report for aquatic invasive species.

Objectives:

- Develop an Operation and Maintenance Plan for the aerator system at the Big Eau Plaines River Reservoir that assures the long-term operations and effectiveness of the equipment.
- Develop a long-term strategy to minimize the agricultural nonpoint runoff contributions to the Big Eau Plaines River and Reservoir.
- Develop Lake Management Plan for the Eastern Lakes Project utilizing community contributions and assessment data gathered from the Easter Lakes Project.
- Develop Lake Management Plan for Big Eau Plaines River and Reservoir from land use and water quality assessment data gathered by DNR, WVIC, and Marathon County.

- Educate landowners about the health of existing resources and efforts that the community can take to improve the concerns.
- Provide educational and technical support to lake residents and citizen groups in caring for lakes and reservoirs.

B. PRIORITY FARM STRATEGY

The Priority Farm Strategy is developed to direct the available staff to the county's most important resource concerns and to recognize existing program commitments. Furthermore, the priority farm strategy will be informed by the need to implement performance standards and to enforce local and state regulations. The strategy is based upon projected staff, continued and enhanced cost-share funding and current program commitments. The following list represents the list of priority farm operations, sites and activities:

1. **Concentrated Animal Feedlot Operations (CAFO's).** Provide consistent and frequent inspection and monitoring presence on large scale livestock operation to assure compliance with Adm. Code NR 243-WPDES permit, Adm. Code NR 151 – Performance Standards, and local ordinances.
2. **Livestock Operations with 500 animal units.** Provide education, inspection and monitoring presence with livestock operation near or over 500 animal units for compliance with Adm. Code ATCP 51, Adm. Code NR151 and local ordinances. Special education and regulatory efforts will be focused on mid-scale livestock operations (300-1000 animal units) during livestock expansion phases to assure that waste and nutrient management practices are adequate for waste and production assets.
3. **Waste Storage Facility and Nutrient Management Code Permittees.** Develop and monitor conservation plans and Nutrient Management plans for all landowners operating a waste storage facility. Include monitoring efforts to assure that all waste sources, including industrial, municipal, sanitary, and private are accounted for and managed.
4. **Working Lands Initiative Program Participants.** Provide education, technical assistance and administrative support to participants of the FPP relative to compliance with soil and water conservation performance standards.
5. **Farm Operations in the Big Eau Pleine River Watershed.** This watershed is currently being evaluated to determine the pollutant loading for development of a Total Maximum Daily Load (TMDL). Marathon County will work with landowners to understand current practice contributions and improvements. Marathon County BEP River Task Force will develop strategies for small scale sub-watersheds prior to TMDL development to pilot educational and technical outreach initiatives.
6. **Farming operations utilizing Managed Grazing.** Provide technical and educational assistance to assure a successful conversion to this production model.

C. IMPLEMENTATION STRATEGY FOR NR 151 – AGRICULTURAL NONPOINT PERFORMANCE STANDARDS AND PROHIBITIONS

Marathon County is committed to develop programs and plans to successfully implement Wisconsin's agricultural performance standards and prohibitions. The mix of programs and plans in coordination with the Priority Farm Strategy will bring accountability and organization to the nonpoint program efforts. The agricultural nonpoint program relies upon the leadership of the Land Conservation and Zoning Committee and the Conservation, Planning and Zoning Department to implement the standards consistent with State Statute 92.10(6)(a)5 and ATCP 50.12(2)(i) Wis. Adm. Code.

Since 2002, with the adoption of NR 151, local conservation programming has been tied directly to providing technical and financial assistance to landowners required or wanting to comply with state Performance Standards and Prohibitions. Performance standards are measurable goals to be achieved by farm operators for specific production practices. The ten (10) Agricultural Performance Standards and Prohibitions are outlined as follows:

Performance Standards

1. Sheet, rill and wind erosion - All cropland at or below Tolerable soil loss.
2. Waste storage facilities - New construction and significant modifications. Meet STD 313.
3. Waste storage facilities - Closure after 24 months of non-use. Meet STD 360.
4. Waste storage facilities - Existing failing and/or leaking lagoons- upgrade, replace or close.
5. Clean water diversions - Required to divert all clean water runoff away from barnyards and feedlots and from entry into manure storage areas if in a Water Quality Management Area (WQMA).
6. Nutrient Management- NM plans are required for all nutrient applications.
 - a. NM plans required in 2005 for impaired watersheds (303(d), watersheds containing outstanding and exceptional waters and source water protection areas.
 - b. NM plans for all other areas required by 2008.

Prohibitions

7. Prohibition 1: NO overflow of manure storage facility.
8. Prohibition 2: NO unconfined manure storage piles areas adjacent to waters.
9. Prohibition 3: NO direct runoff from feedlot or manure storage into state waters.
10. Prohibition 4: NO unlimited access of livestock to state waters.

Technical standards ensure that practices installed on the land meet uniform design requirements to accomplish stated objectives and are outlined by ATCP 50. A complete listing of Best Management Practices identified in ATCP 50, Subchapter VIII to meet the State agricultural performance standards can be found in Appendix C.

The implementation of the performance standards is a primary focus of the administration, compliance monitoring and enforcement of the Waste Storage Facility and Nutrient Management Ordinance, Livestock Siting Facility Ordinance, and Farmland Preservation Program. These programs provide direct compliance and local enforcement of specific performance standards. Additionally, the Managed Grazing program and educational activities provide extensive outreach and application opportunities for landowners to apply best management practices to meet performance standards.

However, there is a broader and extensive strategy to implement performance standards that may fall outside the exclusive local enforcement scope. The following items outline the intent of Marathon County to deliver a comprehensive implementation of agricultural performance standards:

1. **Conduct Information and Education Activities.** Marathon County will lead along with the DNR and NRCS an effort to assure that landowners and program participants are aware of agricultural performance standards and noncompliance ramifications. A complete listing of education and outreach objectives and activities can be found to Chapter VI of this LWRM Plan. The intent of the educational efforts is to promote the application best management practices necessary to meet performance standards and prohibitions, as well as to establish expectations for compliance and consequences for noncompliance.

- 2. Determine Current Compliance.** Marathon County will develop and maintain a record system to track the compliance of agricultural performance standards, active enforcement activities, on-site evaluations, and landowner notifications.

The records inventory will include program participation, cost-share activity, ordinance participation history and compliance status. Specific information will include parcel data, documentation of best management practice implementation, permits, licenses, and current status of compliance.

Records of onsite evaluations will also be included in the compliance record system. Specific information will include a list of parcels inventoried, methodologies of inventory, landowner contact information, dates of inventory and compliance, and notifications to landowners.

- 3. Notify Landowners of Compliance Status.** Marathon County will utilize compliance records and ongoing status reviews to issue NR 151 status reports to landowners and program participants. Status reports will include current compliance status of individual parcels with each performance standard, identify any corrective actions required to meet compliance, cost-share opportunities, technical assistance opportunities, and potential ramifications of noncompliance. The letter of notification will also provide the landowner the opportunity process to agree or disagree with staff findings and a process to contest findings to local or State officials.

The record of findings and landowner notifications will be made available to subsequent landowners of parcels to assure they are aware of pertinent NR 151 information and compliance status.

- 4. Secure Funding and Technical Assistance to Landowners.** In the event that a landowner is determined to be noncompliant with performance standards, Marathon County will lead local efforts to secure funding and technical assistance for corrective actions. Staff will determine best management practice eligibility for cost-share per ATCP 50 and notify landowners of potential cost-share agreement terms. Staff will determine the appropriate technical assistance alternatives for each corrective action and facilitate arrangement for either private engineer or agency design and planning support.

In the case where a landowner refuses to accept and apply for cost-share assistance or fails to implement required best management practices, Marathon County will issue "Landowner Notification" per NR 151.09(5-9) and 151.095(6-7). The notification will outline the performance standard(s) or prohibition(s) being addressed, compliance status, cost-share eligibility, and an offer to provide administrative and technical support.

- 5. Administer Funding and Technical Assistance.** Marathon County will lead local efforts to administer cost-share funds and technical assistance to landowners seeking to comply with performance standards. Specific activities will include development of cost-share agreements, scheduling implementation activities for corrective actions, oversee and assure delivery of all technical assistance, and certify that corrective actions adequately address and resolve resource concerns. Staff will provide communication to landowners relative to the terms of agreements and compliance requirements as specified in design or management plans. Staff will also provide DNR and DATCP with periodic reports of the status of schedules and cost-share distributions. Marathon County will submit a "Letter of Compliance" at the completion of projects that states compliance with appropriate performance standards.

- 6. Enforcement.** Marathon County will lead enforcement efforts for performance standards compliance where the landowner is subject to requirements of local ordinances and the Farmland Preservation Program. Furthermore, the compliance schedules and commitments identified in cost-share agreements directed to resolve performance standard compliance will be monitored and enforced by local staff. In cases where a landowner does not

voluntarily apply for cost-share funds or install required best management practices, the County will coordinate activities with the DNR to issue a “Notice of Violation” letter and schedule. Staff will participate in enforcement conferences and initiate appropriate enforcement action.

7. **Ongoing Compliance Monitoring.** Marathon County will conduct periodic evaluations to verify program compliance, cost-share agreement compliance, ordinance compliance and the status of complaints relative to noncompliance. Staff will assure that new owners and those securing zoning permits for livestock facilities are aware of NR 151 compliance requirements. Compliance monitoring reports will be included in Annual Reports.
8. **Annual Reporting.** Marathon County will maintain an Annual Report system to convey a record of site evaluations and compliance status of program participants and enforcement projects. The reporting will include details of notifications, cost-share allocations, administrative activities, compliance trends, and estimates of ongoing staff and fiscal resource needs.

D. COORDINATION WITH OTHER RESOURCE MANAGEMENT PLANS

The following represents a list of conservation programs and targeted projects (along with objectives) which will enhance the implementation of the performance standards.

1. Marathon County Comprehensive Plan

In October 1999, Wisconsin’s new “Smart Growth” legislation was enacted which requires all cities, villages, towns, counties and regional planning commissions in the state to adopt a comprehensive plan by January 1, 2010. The Land and Water Resource Management Plan will be integrated into the “Natural Resource Element” requirement within the comprehensive plan. The LWRM will be shared with local municipalities to assist them in implementing their individual plans.

Electronic links to the Comprehensive Plan and a summary the Plan’s goals, objectives and policies for land and water resource management can be found in the reference section of this document.

2. Central Wisconsin River Basin Plan

The Central Wisconsin River Basin Plan was updated in 2010. Findings from the Basin Plan were used to assure that the LWRM Plan addresses those impacted waters and targeted activities of the county with the greatest need. The Basin Plan identifies:

- a. Impacted Watersheds,
- b. Exceptional waters and outstanding waters,
- c. 303(d) waters,
- d. Significant sources of pollutants or activities impacting the waters.

The Conservation, Planning and Zoning Department will coordinate initiatives with appropriate agencies to address the following basin priorities:

- a. Develop monitoring programs with citizens and professionals to evaluate and track the quality of surface and groundwater resources within the county. Special consideration for monitoring shall target the Lower Big Rib River and the Big Eau Pleine River Watersheds, as well as the Eastern Lakes Project.
- b. To encourage conservation measures for land use activities, water consumption and discharge activities to minimize resource impacts and to promote sustainable use.

- c. To evaluate impacts to water quality from non-metallic mining through permit compliance.
- d. Continue to monitor the sources and quantity of sediment delivery into the surface waters. Primary attention will be agricultural sediment sources of soil and manure.
- e. To promote the abandonment of unused wells on agricultural lands and agricultural transition areas.

3. Marathon County Groundwater Plan

The Groundwater plan was first developed in 1988. In April 2001, the plan was updated to reflect the changing programs and policies within the county as well as to acknowledge the increased level of regulation by state agencies to protect the groundwater resources of Marathon County. The plan identifies sources of groundwater in the county as well as consumption trends for the various communities. Environmental protection programs and responsibilities for implementation are identified for all the various State and local departments and agencies. Along with conservation programming, the enforcement of performance standards, zoning, wellhead protection activities and groundwater monitoring will be necessary to help protect the groundwater.

Special considerations are evaluated that recognize that groundwater is a primary source of all water consumption by the residents and businesses of the county. As residential sprawl continues into the rural areas of the county and agricultural activities increasingly threaten the groundwater, the conservation efforts to protect the resource will need to increase. The Groundwater Plan and Central Wisconsin Basin Plan together identify risk concerns relative to type of pollutant sources present in specific watersheds as well as the relative risk of groundwater sources to potential problems.

4. Marathon County Forest Comprehensive Land Use Plan, 2006-2020.

This plan includes recommendations to guide management of forest land in Marathon County in accordance with the Parks, Recreation and Forestry Department's mission to manage and protect the county forest on a sustainable basis for ecological, economic, educational, recreational, and research needs of present and future generations. It provides substantial information on existing forest resources, as well as information regarding the roles of the various agencies and regulatory framework related to forest management.

In the development of the *Marathon County Forest Comprehensive Plan*, there was strong resident support for purchasing more land wherever available for protection, recreation, and timber. One of the major issues identified was woodland fragmentation. The County recognizes that subdividing and parceling off large tracts of land for home construction contributes to the problem of fragmentation. The Plan also suggests that the County should strategically purchase forestland and wetland parcels in order to maintain a countywide network of linked open space/forestland/wildlife corridors. In some areas, particularly the eastern half of the County adjacent to County owned forestland, it is still possible to purchase more land to create larger corridors.

E. CONSERVATION PROGRAMS AND PARTNERSHIPS

1. Managed Grazing Project

Lincoln Land Conservation Department, Marathon County Conservation, Planning and Zoning Department, UW-Extension, and the Natural Resources Conservation Service have joined forces to support the Central Wisconsin River Graziers Network. The Network is an association of grass-based farmers and agricultural-related professionals created in 1994. The Network promotes the feasibility of grazing-based farming as a profitable way of farming

that enhances lifestyles and protects and improves the environment. Environmental benefits include: (1) establishment of riparian buffer areas, (2) soil erosion reduction, (3) decreased organic loading from barnyards, (4) reduced chemical use on pasture and cropland, (5) improved wildlife habitat, and (6) reduced need for manure storage.

Over 266 farmers on 20,617 acres have received planning assistance. Request for grazing assistance is increasing each year. Farmers need quality technical assistance for 2-3 years to design and implement the practices necessary for Managed Grazing. Time is spent educating farmers, agribusiness people, lenders, leaders and educators about Management Intensive Grazing so it is supported by the agriculture infrastructure.

A link to the 10 year administrative review of this partnership's accomplishments can be found in the reference section.

2. Managed Forest Law (MFL) Program

Enrollment into the Managed Forest Law (MFL) program is open to all private owners of forested land. To be eligible for the MFL program, a landowner must have a minimum of 10 acres of contiguous land and at least 80% of that land must be forested. In 2008, approximately 68,711 acres in Marathon County were enrolled in Managed Forest Law. The MFL program provides incentives to protect privately owned woodlands from destructive timber cutting practices and over harvesting and prevents land from becoming developed and/or converted to agricultural land use. Lands are enrolled in the MFL program, these properties are no longer susceptible to further subdivision and continued residential housing sprawl, without penalty and withdrawal.

Local Tree Planting Program – In cooperation from the Department of Natural Resources, the Conservation, Planning and Zoning Department has promoted the planting of trees for forestry, windbreak and wildlife benefits to the private landowners of Marathon County. Specifically, the DNR has provided access to State tree nurseries and ordering assistance to landowners to plant nearly 80,000 trees per year. Marathon County rents two (2) tree planters to landowners with large plantings.

3. Farmland Preservation Program (Working Lands Initiative)

Conversion and fragmentation of agricultural cropland and woodlands from productive use are continuing concerns in Wisconsin and Marathon County. The protection of these cropland and woodland land uses are important to maintaining the rural and cultural integrity of our communities, but more importantly assure that the economic benefits of these sectors is maintained. Sound land use requires policies that conserve resources and allow for the profitable use of the land.

Marathon County adopted its Farmland Preservation Plan in 1982. The goals of the program are twofold, to preserve Wisconsin farmland for production of commodities by means of local land use planning and soil conservation practices and to provide tax relief to landowners. For the landowner to receive tax credits they must be in compliance with current and applicable State Agricultural Performance Standards.

To date, eight towns within Marathon County utilize Exclusive Agricultural Zoned Districts to access benefits to this program via zoning.

In 2010, 497 participants were enrolled in the Farmland Preservation Program (FPP). Specifically, there were 256 participants eligible to receive credit through “Exclusive Agricultural” zoning and 254 participants holding contracts. Approximately, 20% of eligible landowners participate in this program.

The Marathon County CPZ staff is responsible for administering each participant’s soil conservation plan and monitoring compliance with soil and water conservation standards. The CPZ conducts compliance “spot checks” on 25% of the program participants annually. The tax credits are intended as an incentive to keep land in active farming and meet soil conservation standards.

In 2008, the State created the Working Lands Initiative to update and enhance the Farmland Preservation Program. Program benefits will likely increase participation with the program. In 2012, Marathon County will complete an update of their Agricultural Preservation Plan to incorporate the new program opportunities of the Working Land Initiative into local programming.

A link to the Administrative Review of the FPP is included in the reference page.

4. Nutrient Management Program

Nutrient management is defined as managing the amount, form, placement, and timing of applications of plant nutrients. The purpose is to ensure a proper supply of plant nutrients for crop production while minimizing the entry of nutrients to surface water and groundwater.

Marathon County requires nutrient management plans for landowners constructing and operating waste storage facilities. As of 2010, all landowners that apply manure and/or fertilizer to cropland are required to have a nutrient management plan for those activities as outlined in NR 151.07. To date, nearly 400 landowners have nutrient management plans on nearly 140,000 acres of cropland.

Since 2006, Marathon County has worked with the NRCS, UW-Extension, DATCP, North Central Technical College and neighboring counties to train and prepare approximately 110 landowners to develop their own nutrient management plans. This effort has been very successful and will be continued.

CPZ staff will work with DNR staff to implement and enforce the NR 151 requirements by conducting complaint investigations with DNR staff, providing compliance reports, providing administration of grants and tracking implementation. Efforts will also be taken to monitor the landspreading activities of off-farm generated waste sources such as industrial, municipal and septic producers. These landspreading activities must comply with specific State and local regulations and be consistent with agricultural best management practices.

F. STATE AND LOCAL REGULATIONS

1. Waste Storage Facility and Nutrient Management Ordinance

Dairy cattle in the county produce over 4,000,000 gallons of manure per day. To assure that this organic matter and nutrient source is contained and managed with sound practices led to the adoption of a Manure Storage Ordinance in 1985. A major revision in 1995 created the “Marathon County Animal Waste and Manure Management Ordinance” to regulate the location, design, construction, installation, alteration, operation, maintenance, closure of “idled” animal waste storage facilities and the application of waste and manure from animal waste storage structures. A permit is required to construct, install, modify or

close a facility. Nutrient Management Plans are required for all landowners with waste storage facilities to ensure safe application and distribution of the manure.

On average, the county issues 14 permits per year. Since the adoption of the 1985 ordinance, the department has issued nearly 360 permits to constructed waste storage facilities.

The closure of idle or abandoned Waste Storage Facilities is regulated by this ordinance. In the period from 1994 to 2004, the number of County dairy herds decreased by approximately 500. Many of these facilities no longer have any animals on-site. Previously constructed waste storage structures on these farmsteads pose potential environmental, safety and health concerns for the residents of the County.

In 2006, Marathon County initiated a targeted inventory and project to focus technical and financial resources toward the closure of abandoned waste storage facilities. Currently, Marathon County has enforced and assisted in the closure of approximately 90 abandoned facilities with financial assistance received from Soil and Water Resource Management and Targeted Runoff Management grants from DATCP and DNR, respectively.

A link to the Administrative Review of the Safe Water - Waste Storage Facility Closure Project can be found in the reference section.

2. Marathon County Livestock Siting Ordinance

In October of 2006, Marathon County adopted the Livestock Facilities Licensing Ordinance, Chapter 13.01 of the General Code of Ordinances. The intent of the land management policy is to locally regulate cattle, swine, poultry, goat, and sheep operations over 500 animal units according to State Statute 93.9 and Administrative Code ATCP 51. The purpose of the ordinance is to establish the authority, technical standards, performance standards and monitoring protocols necessary to protect public health, safety, and the environmental resources in Marathon County.

Since the ordinance was adopted in October of 2006, the County has reviewed, approved and issued six (6) Livestock Facility Licensing Permits. One new application is under review.

Currently, 11 farms in the county have a WPDES permit with another two (2) pending approval. With the present interest in expansion, Marathon County may have as many as 20 farms under permit in a few years.

The County may be involved in the review of facility and operational permits for an additional 30 farms that are between 500-1000 animal units.

3. Marathon County Zoning Ordinance (Chapter 17): Land Division Regulations

The County regulates the division of land in accordance with Chapter 17 of the Marathon County Code. The County's land division regulations apply in all unincorporated areas of the County. However, where a town has land division regulations that are more restrictive than the County's, the local regulations apply. Chapter 17 includes regulations for minimum lot sizes, access requirements, surface drainage and erosion control.

4. Floodplain and Shoreland Ordinance

Shore land, wetlands, and floodplain regulations are applicable in all unincorporated areas of the County. Wisconsin law mandates counties to adopt and administer a zoning ordinance that regulates land use in shore land/wetland and floodplain areas for the entire

area of the county outside of villages and cities. This ordinance supersedes any town ordinance, unless a town ordinance is more restrictive. In that case the most restrictive portions of both ordinances will apply. The shore land/wetland and floodplain area covered under this zoning is the area that lies within 1,000 feet of a lake and within 300 feet of a navigable stream or to the land ward side of a floodplain, whichever distance is greater. Most of the development regulations are aimed at establishing buffers and minimizing runoff to protect water quality. While the County adopted and enforces shore land regulations within Marathon County, the WDNR maintains oversight responsibilities to ensure compliance with State Statutes.

5. Nonmetallic Mining Ordinance

Marathon County adopted a Nonmetallic Mining Ordinance in 1989. The ordinance was adopted in response to the approximately 400 operating or abandoned excavations of sand, gravel, decomposed granite and stone. The ordinance requires restoration of the site to a purposeful and acceptable landscape appearance and use. Mining activities at 149 active mining sites are administered through the collaboration of DNR and county regulations to prevent sediment delivery to surface waters and to protect groundwater.

6. Construction Site Erosion – WI Administrative Code NR 216

Construction site erosion and uncontrolled storm water runoff from land disturbing activities can have significant adverse impacts upon local water resources. Under subchapter III of NR 216, Wis. Adm. Code, a notice of intent shall be filed with the DNR by any landowner who disturbs one or more acres of land. This disturbance can create a point source discharge of storm water from the construction site to waters of the State and is therefore regulated by the DNR. Agriculture is exempt from this requirement for activities such as planting, growing, cultivating and harvesting crops for human or livestock consumption and pasturing or yarding of livestock, as well as sod farms and tree nurseries.

Agriculture is not exempt from the requirement to submit a notice of intent for one or more acres of land disturbance for the construction of barns, manure storage facilities or barnyard runoff control systems. Furthermore, construction of an agricultural building or facility must follow an erosion and sediment control plan consistent with NR 216.46, Wis. Adm. Code and including meeting the performance standards of s. NR 151.11, Wis. Adm. Code.

An agricultural building or facility is not required to meet the post-construction performance standards of NR 151.12, Wis. Adm. Code.

7. Federal Soil and Water Conservation Programs

The Conservation, Planning and Zoning (CPZ) Department works closely with the United States Department of Agriculture through the Natural Resources Conservation Service (NRCS) and the Farm Service Agency (FSA).

The NRCS, FSA, UW-Extension and CPZ staffs work together in the Local Work Group to identify program and funding priorities for federal and local conservation programs such as the Environmental Quality Incentive Program, Comprehensive Nutrient Management Planning, Conservation Reserve Enhancement Program and grazing initiatives. An important tool in identifying resource concerns and strategic priorities is the Land and Water Resource Management Plan.

Environmental Quality Incentive Program (EQIP): EQIP has provided approximately \$250,000 to \$350,000 annually to Marathon County landowners for conservation programs, including farm planning and technical services. With guidance from the Local Work Group,

the EQIP funds have made significant impact in Implementing Management Intensive Grazing, nutrient management planning, agricultural waste management and conservation tillage. These federal funds and staff assistance provide 20-30 landowners help in resolving resource concerns through best management practice implementation.

The Farm Services Agency (FSA) is lead administrative agency for the Conservation Reserve Enhancement Program (CREP) for Marathon County. CREP is a voluntary program offering financial incentives to help landowners protect and improve water quality through the implementation of various practices such as riparian buffers, wetland restoration and establishment of native grassland areas. Currently, there have been 34 fifteen- year CREP agreements developed in the County representing nearly 705 acres. Total State enhancement payments supplement federal payments.

8. Monitoring Programs

Marathon County has developed strategies to provide water resource monitoring activities for the 303(d) watersheds and the Eastern Lakes Project. Specifically, in 2009 the Eau Pleine Reservoir Watershed is being evaluated by the DNR, Wisconsin Valley Improvement Company (WVIC) and federal agencies to assess the water quality of this watershed and reservoir system. In three years the DNR hopes to have the water assessment study complete. Once completed, the DNR intends to establish a Total Maximum Daily Load (TMDL). In 2010, the County initiated a collaborative assessment project with the DNR, UW-Stevens Point and local lake groups to evaluate the water quality and land use impacts of 9 lakes located within the Plover River watershed. These extensive monitoring efforts will lead to education and program efforts to address area resource concerns.

The Conservation, Planning and Zoning Department staff continues to administer and monitor program and regulatory compliance with individual landowners involved in the Farmland Preservation Program, Livestock Facility Licensing Ordinance, Waste Storage Facility and Nutrient Management Ordinance, and Managed Intensive Grazing. CPZ will continue to develop tracking systems to assure that landowners and agencies are aware of their respective compliance with ordinances and program requirements.

CHAPTER V – WORK PLAN IMPLEMENTATION AND COORDINATION

A. STAFFING RESOURCES

The Conservation Division of the Conservation, Planning and Zoning Department consists of approximately 6.25 Full Time Equivalent (FTE) staff members that are focused on Land and Water Resource Management Plan efforts. The staff will be dedicated to achieving the goals and objectives stated in the LWRM Plan and specifically targeted to the operations identified in the priority farm strategy. The breakdown for staff time and responsibilities is as follows:

1. 2.0 FTE – Marathon County Waste Storage Facility and Nutrient Management Ordinance. Ensures compliance county-wide to Performance Standards, as well as protecting the safety and health concerns associated with proper manure containment and utilization. Staff also monitor and track nutrient management compliance for over 400 landowners on approximately 145,000 cropland acres.
2. 0.5 FTE – Livestock Facility Siting Ordinance. Responsible for the administration of ordinance including education, application review and approval, and annual monitoring.
3. 1.25 FTE – Managed Intensive Grazing initiatives. Provides educational and technical assistance to livestock producers, schools and lenders, as well as administering federal and state cost-share funds to landowners to implement best management practices. Marathon County coordinates activities and staff with Lincoln County in a joint grazing project.
4. 1.0 FTE – Division Administration. Provides oversight and coordination of conservation programs, monitoring of program and regulatory compliance requirements, enforcement activities, preparation of resource management plans, special project studies, and educational activities.
5. 1.5 FTE – Farmland Preservation Plan. Provides administration, compliance and monitoring of the Farmland Preservation Program for participating landowners.

Additional staff time within the CPZ Department is available to provide accounting, Geographical Information System, Comprehensive Planning and regulatory assistance.

Along with the county staff, the Conservation, Planning and Zoning Department rely upon the following agencies to provide the specialized assistance to local conservation program delivery. Where appropriate the coordination of federal, state and county staff responsibilities are identified with the work plan.

1. Department of Natural Resources – Coordination of WPDES permit monitoring and compliance, site evaluations and administration of Targeted Resource Management projects, enforcement inspections and compliance checks of performance standards, and development of water quality monitoring projects.
2. USDA–Natural Resource Conservation Service – Conservation planning, engineering standards review, EQIP grant administration and project selection, CREP administration and education, Grazing Initiative projects and other federal resource enhancement programming.

3. UW-Extension – Information sharing and development of handouts to keep producers and professional groups aware of program and performance standards requirements.
4. USDA-Farm Services Agency – Programming and informational support for Farmland Preservation Program, CREP and the Waste Storage Facility and Nutrient Management Code.
5. Department of Agriculture, Trade and Consumer Protection – Engineering design and plan review services, support of Best Management Practice standards and drawings, grant allocations for staffing and LWRM Plan implementation activities, soil erosion transect support and CPZ staff training and education.

B. FISCAL RESOURCES

To implement the LWRM Plan the County will access grants from county, state and federal sources. In 2010, Marathon County will receive funding from local levy, Department of Agriculture, Trade and Consumer Protection, Department of Natural Resources to support staffing expenditures and to fund grants to landowners to implement Best Management Practices.

The following ten (10) year work plan identifies goals, objectives and actions to be undertaken by the Conservation, Planning and Zoning Department in cooperation with our partners for the program years 2010 through 2020. County staff needs and costs are estimated on a per-year basis. Dollar amounts for staff can be estimated by multiplying the hours by \$50.00. The program funding for staff and practice cost-sharing will come from a combination of federal, state and county sources.

GOAL 1: Agricultural Nonpoint Runoff.

OBJECTIVES	ACTIVITIES	WHO	WHEN	ANNUAL STAFF NEEDS	COST OTHER THAN STAFF	OUTCOME
Reduce soil sedimentation delivery rates to surface waters	Prepare or revise "conservation plans" (25)	CPZ NRCS	2010-20	700 (\$35,00)		Landowners understand compliance requirements of programs and develop a Schedule of Compliance
	Monitor conservation compliance of Farmland Preservation Program participants: includes self certification and on-farm evaluations (400)	CPZ	2010-20	1000 (\$50,000)		Landowners, DOR, and DATCP will know conservation compliance status for Working Lands Initiative All acres enrolled in FPP program will meet State Agricultural Performance Standards
	Provide technical design and installation assistance to landowners			500 (\$25,000)	\$60,000	Landowners implement BMP's to reduce nonpoint runoff
Increase Management Intensive grazing	Develop conservation and grazing plans for transitioning farms. (20)	CPZ NRCS	2010-20	500 (\$25,000)		Landowners will understand the management and technical best management practices of grazing
	Provide plan implementation assistance	CPZ NRCS	2010-20	500 (\$25,000)	\$100,000	Landowners will successfully transition or adopt practices of grazing to be meet State Performance Standards and improve profits
Implementation of Nutrient Management Plans	Prepare or revise Conservation Plans (25)	CPZ NRCS	2010-20	400 (\$20,000)		Landowners understand soil erosion compliance requirements of SNAP+ planning model
	Provide grant and technical support to NM plan writers for spreading restriction maps, planning status and compliance schedules.	CPZ DATCP DNR	2010-20	500 (\$25,000)	\$25,000	Agronomists and landowners will have understanding of local ordinances, technical standards, and BMP's required for NM plan development
	Maintain NM Plan database for all parcel and participating acres (400)	CPZ	2010-20	600 (\$30,000)		Landowners, CPZ staff and agency partners will know status of program and Performance Standards compliance
	Review NM Plans technical standard compliance	CPZ DNR	2010-20	300 (\$15,000)		Landowners, agronomists, and agency partners will know the quality of compliance documentation

OBJECTIVES	ACTIVITIES	WHO	WHEN	ANNUAL STAFF NEEDS	COST OTHER THAN STAFF	OUTCOME
	Develop local ordinance authority to require winter spreading plans for manure applications in critical areas	CPZ	2010-2012	200 (\$10,000)		Land Conservation & Zoning Committee will understand the value and policy implications of enhanced regulatory requirements
Administer County Waste Storage Facility and NM Ordinance	Review and approve design plans for Waste Storage Facilities (10)	CPZ NRCS DATCP	2010-20	400 (\$20,000)	\$155,000	Landowners and designers understand the local ordinance requirements for design plans and permits Design plans and best management practices are implemented according to standards
	Provide technical assistance and site assessments for landowners and engineers (10)	CPZ DATCP DNR	2010-20	400 (\$20,000)		Surface and ground water quality is projected from animal waste discharges
	Provide administrative and technical assistance to Waste Storage Closure Project (15)	CPZ	2010-20	400 (\$25,000)	\$100,000	Landowners with abandoned waste storage facilities understand regulatory requirements to close facilities Closure of facilities safeguards environmental and health concerns of direct waste discharges
	Monitor compliance with ordinance (365)	CPZ	2010-20	200 (\$10,000)		CPZ staff and agency partners understand the status of compliance with local ordinances and State Performance Standards
Administer Livestock Siting Ordinance	Application Assistance, review and approval of license applications (2)	CPZ	2010-20	600 (\$40,000)		Landowners, consultants, engineers and local officials understand the standards and compliance requirements of license applications
	Monitoring and inspection of Licensees (6)	CPZ	2010-20	300 (\$15,000)		All licensees are in compliance with local ordinances and State Rules

GOAL 2: Groundwater Protection

OBJECTIVES	ACTIVITIES	WHO	WHEN	STAFF NEEDS	COST, OTHER THAN STAFF	OUTCOME
Develop education and incentive strategies to increase conservation of water in both urban and rural areas.	Educate the public and users about groundwater use and need to protect.	CPZ	2010-20	200 (\$5,000)	\$5,000	Residents will understand where we get our water for residential and industrial use and the importance of protecting
	Incorporate groundwater education and well sampling opportunities into farm vests by staffs.	CPZ	2010-20	200 (\$10,000)	\$50,000	Farm producers will understand their groundwater quality and best management practices available for protection. Marathon County will have a data base of groundwater quality tests to determine trends
Maintain the current groundwater levels in our aquifers]Increase the infiltration of rain and snowmelt to replenish aquifers	Review and update Marathon County Groundwater Protection Plan (2001).	CPZ	2010-20	300 (\$15,000)		Rural and urban residents understand educational and regulatory strategies intended to protect the groundwater resources from overuse and contamination.
Maintain and improve the functioning of wetlands	Promote and develop technical and planning assistance to landowners for implementation of wetlands and sediment basins	CPZ NRCS	2010-20	1000 (\$50,000)	\$250,000 EQIP	Landowners understand the function and value of wetlands to reduce sediment and nutrient delivery to surface waters and to moderate water flows.

GOAL 3: Forestry

OBJECTIVES	ACTIONS	WHO	WHEN	STAFF NEEDS	COST, OTHER THAN STAFF	OUTCOME
County officials will be actively engaged in regional and statewide groups to provide leadership in this land use effort.	<p>Educate farmers about forest management and economic opportunities during farm visits.</p> <p>Officials will be active in associations to advocate and promote forest practices and land use program participation</p>	CPZ, UW-EX, DNR DATCP	2010-15	300 (\$15,000)		Environmental and governmental associations, committees, and Boards will understand the importance of forest land in protecting soil and water resources
Officials and staff need to increase participation in regional and state program development to reduce barriers for programs such complexity of participation and plan development.	Staff and officials will work with associations and committees to simply and broaden the participation in land use programs	CPZ DATCP	2010-15	200 (\$10,000)		Landowners will increase participation in best management practices and programs that preserve and improve forest land use
Develop a strategy to identify and target land parcels that could benefit from woodland development.	<p>Develop a ranking and prioritization of lands where forest development would benefit the community</p> <p>Identify barren, fallow cropland and urban-rural transition areas</p> <p>Promote tree planter use and planning for these landowners.</p>	UWEX CPZ	2010-15	200 (\$10,000) 200 (\$10,000)		Landowners and municipalities will understand where critical acres are for tree planting and management

GOAL 4: Land Use Conversion

OBJECTIVES	ACTIONS	WHO	WHEN	STAFF NEEDS	COST, OTHER THAN STAFF	OUTCOME
Minimize the permanent conversion of farmland to nonfarm land uses	Educate Tax preparers of WLI rules and benefits Develop and promote local ordinances for WLI	CPZ, UW-EX, DNR DATCP	2010-20	300 (\$15,000)		Prime farmland stays in productive state and farmers improve economic situation
County officials are actively engaged in regional and statewide groups to provide leadership in this land use effort.	Specifically, the County (staff and officials) must be available to discuss zoning ordinances, enterprise areas, and conservation easements. Provide Comprehensive Plan implementation seminars	LC&ZC	2010-20	200 (\$10,000) 300 (\$15,000)		Local municipal and Town officials understand the administrative and policy aspects of the WLI program. Local officials with understand how to develop policies and plans for the implementation of land use initiatives
Maximize conservation compliance with program participants	Conduct status reviews for landowners evaluating PS&P (100) Provide planning and technical assistance to comply (30)	CPZ		1,000 (\$50,000) 1000 (\$50,000)		Landowners meet state performance standards and remain eligible for benefits
Maximize participation of landowners in Agricultural Enterprise Areas and conservation easements to maximize the effectiveness of the program opportunities.	Rural economic development to promote agricultural enterprises that will maintain farms and rural landscape	UWEX CPZ	2010-20	400 (\$20,000)		Farmers improve their economic status without converting lands
	Develop criteria for Ag enterprise Areas and Pace participants	UW-EX CPZ, DNR	2010-20	400 (\$20,000)		Marathon County maximizes the participation in program

GOAL 5: Lake and Reservoir Management

OBJECTIVES	ACTIONS	WHO	WHEN	ESTIMATED STAFF NEEDS (hours and dollars)	ESTIMATED COST, OTHER THAN STAFF (dollars and source)	OUTCOME
Develop an Operation and Maintenance Plan for the aerator system at the Big Eau Pleine River Reservoir	Develop Lake management Plan Develop a partnership contract for aeration system	CPZ UW-EX DNR DATCP UWSP	2010-15	300 (\$12,000)		Assure the long-term operations and effectiveness of the equipment.
Develop a long-term strategy to minimize the agricultural nonpoint runoff contributions to the Big Eau Pleine River and Reservoir.	Develop TMDL plan Secure resource grants from local, state, and federal	CPZ DATCP DNR	2010-15	400 (\$8,000)		Landowners, industries, recreationists, and farmers understand the water quality standards and best management practices
Develop Lake Management Plan for the Eastern Lakes Project utilizing community contributions and assessment data gathered from the Easter Lakes Project.	Develop resource assessments	UWEX CPZ UWSP DNR	2010-15	300 (\$15,000)		Landowners and local officials will understand the water quality status and challenges of the lakes
	Develop Education Plan for residents and lake users	UW-EX CPZ DNR UWSP	2010-15	300 (\$15,000)		Landowners and local officials will understand policy and planning needs to protect and improve their waters

Education

OBJECTIVES	ACTIONS	WHO	WHEN	STAFF NEEDS	COST, OTHER THAN STAFF	OUTCOME
<p>Provide accurate and timely information to the public regarding resource programs.</p>	<p>Respond to all inquiries about the Farmland Preservation Program (applications, relinquishments, transfers and compliance)</p> <p>Educate landowners about the health of existing resources and efforts that the community can take to improve the concerns.</p>	<p>CPZ DATCP</p>	<p>2010-20</p>	<p>600 (\$20,000)</p>		<p>Landowners will understand Soil and Water Conservation Standards and performance standards of program.</p>
<p>Create a Farmer Advisory Group</p>	<p>Provide soil information and interpretation and other conservation-related information to customers</p>	<p>CPZ NRCS</p>	<p>2010-20</p>	<p>200 (\$10,000)</p>		<p>Staff and program participants will understand program effectiveness and ways to improve services</p>
<p>Provide opportunities for youth to learn about conservation</p>	<p>Sponsor Environmental Speaking & Poster Contest</p> <p>Presentations at Area School Forest and classrooms</p>	<p>CPZ CPZ</p>	<p>2010-20 2010-20</p>	<p>100 (\$2,500) 100 (\$5,000)</p>		<p>The association will promote and share conversation efforts through North Central WLWCA speaking and Poster Contest</p> <p>Students will understand the importance of soil and water conservation</p>
<p>Educate farmers and agricultural professionals about the benefits of Management Grazing</p>	<p>Conduct pastures walks, winter meetings and conferences.</p> <p>Provide educational and technical support to lake residents and citizen groups in caring for lakes and reservoirs.</p>	<p>CPZ UWEX NRCS</p>	<p>2010-20</p>	<p>600 (\$20,000)</p>		<p>Landowners, nutritionist, lenders and educators will understand the viability and economics of grazing management</p>

WORKLOAD ANALYSIS 2010-2020

GOAL	LAND CONSERVATION OPERATIONS	TOTAL HOURS AVAILABLE	TOTAL HOURS NEEDED	UNMET NEED (hours)
1	Agriculture Nonpoint Runoff	7,500	7,500	Monitoring and reporting
2	Groundwater	200	1,700	Monitoring and assessments
3	Forestry	200	900	Landowner support and assessment
4	Land Conversion	2,800	3,600	Landowner assistance and compliance
5	Lake and Reservoir Management	500	1,300	Planning and assessments
*	Education	500	1,600	Outreach
	Subtotal	11,700	16,600	

CHAPTER VI – INFORMATION AND EDUCATION ACTIVITIES

ROLE OF EDUCATION

Throughout the Citizens Advisory Group (CAG) discussion, the need for Marathon County and its state and federal partners to provide educational outreach was identified. The local conservation delivery system must provide both urban and rural landowners, farmers, public utilities, lake and reservoir residents and schools with information about wise, sustainable resource use. The County must also share with the citizens and officials the current natural resource challenges facing our community. The education message must go beyond program requirements and mandates to teach the community citizens about the importance of conserving water, minimizing contaminated runoff from cropland and urban areas, and promoting land protection policies. Local officials must become advocates for initiatives that represent a regional benefit. The Land Conservation and Zoning Committee members must also be engaged in regional committees and boards to increase awareness and to build support for funding and coordination of initiatives. A focused recommitment to sharing the conservation message to schools was a universal recommendation.

Specific recommendations for Marathon County to consider include:

Activities:

- School Outreach (presentations on resource concerns)
- Community Outreach (newsletters, presentations, etc)
- Governmental Outcomes Reports
- Citizens Advisory Committees (implementation accountability)
- Farmer Advisory Groups
- Lake Residents

Monitoring of Resource Conditions:

- Share water quality monitoring results
- Eastern Lakes Project
- Big Eau Pleine River Project - Total Maximum Loading Limit (TMDL)
- Basin Reports
- Annual Reports (Newsletter, United Way, etc)
- Regulatory and/or program compliance status
- Soil organic matter tracking initiative

Financial Performance

- Resource Outcomes per Investment
- Ability to leverage state and federal funding

Interagency Cooperation

- Program participation
- Collaboration

The information sharing activities of the County along with its many federal, state and local partners will be a primary emphasis over the life of the Land and Water Resource Management Plan. Since the passage of NR 151 in October of 2002, the relationship between agriculture, environment and community has been redefined through the accountability of performance standards. With the advent of county-wide Comprehensive Planning and the revisions of major environmental regulations for agriculture, the production landscape has been transformed. As the new

environmental and social obligations will redefine the management activities of farming, the activities of the conservation agencies will change to service the agricultural community.

The development of informational tools and strategies for Marathon County will need to be consistent with state initiatives. Conservation, Planning and Zoning staff will coordinate with UW-Extension, Central Wisconsin River Basin Team, Department of Natural Resources, Department of Agriculture, Trade and Consumer Protection, USDA-Farm Service Agency and Natural Resources Conservation Service to develop a comprehensive informational effort to assure that our producers and the communities in which they operate know the requirements of performance standards, prohibitions, local and state ordinances, and Best Management Practices.

Marathon County will develop relationships with various media and information outlets to get the information to producers. Additionally, we recognize that the private sector comprised of livestock nutritionists, agronomists, contractors, engineers, lenders, and other service professionals will be called upon to assist in both information sharing and on-farm technical planning. To succeed many people and disciplines will need to be engaged.

The following list represents the specific I & E topics and audiences that staff will develop and use to assist us in implementing and monitoring environmental compliance and assistance needs:

A. PERFORMANCE STANDARDS AND PROHIBITIONS

1. General County-wide Strategies: Inform all producers of performance standards and to promote voluntary compliance.
2. Targeted Informational Activities: Outreach to target “priority farms” such a Farmland Preservation Program participants and cost-share grant recipients where compliance is immediately required.
3. Priority Farm Activities. Develop informational handouts and educational seminars for large scale livestock operations to share compliance and monitoring activities, as well as new technologies to better manage waste.

B WASTE FACILITY STORAGE AND NUTRIENT MANAGEMENT CODE

1. Waste Storage Facility – Develop handouts and newsletters to inform livestock producers about new construction or significant alterations requirements, as well as pertinent construction standards.
2. Waste Storage Facility Closure – Develop handouts to inform landowners about regulations and programming addressing closure specifications and permit responsibilities.
3. Mismanagement of Waste Storage Facilities and Overflow Activities – Develop handouts to provide information to landowners about mismanaged facilities relative to regulatory codes and performance standards.
4. Nutrient Management Planning – Provide handouts and training materials to producers and agronomists that explain Standard 590 requirements and compliance reporting.

C. GRAZING INITIATIVES AND PERFORMANCE STANDARDS.

1. Update fact sheet explaining performance standards and prohibitions concern for grazing operations
2. Initiate best management practice considerations for unconfined manure pack management as an out-wintering practice.
3. Inform livestock operators of best management practices concerning dilute wastewater management for waste originating from milking parlors, holding areas and feed storage areas.

D. NUTRIENT MANAGEMENT AND CONSERVATION PLANNING ACTIVITIES.

1. Update a fact sheet to describe agronomist role, preparation of spreading restriction maps and annual compliance procedures.
2. Collaborate with North central Technical College and agency partners to train and educate landowners and students to prepare and implement nutrient management and conservation plans.
3. Provide educational and technical support to agronomists that develop nutrient management plans about SNAP+ model updates, regulatory and reporting requirements and agency communication.

E. LIVESTOCK FACILITY SITING ORDINANCE

1. Develop a fact sheet for livestock producer with greater than 300 animal units to describe livestock siting regulatory requirements, application details, and monitoring requirements.
2. Develop training and educational material for large scale livestock producers for Nutrient Management Planning that explains Standard 590 requirements, compliance reporting and list of potential planners.

CHAPTER VII – COMPLIANCE NOTIFICATION, COMPLIANCE MONITORING AND RESOURCE EVALUATION

Measuring progress is essential to determine if the goals of the plan are being accomplished. Several methods will be used to measure progress. Marathon County has developed a parcel based tracking and monitoring system for conservation activities and monitoring. Furthermore, the conservation plan will function as the primary document to record decisions made by landowners and conservation staff for BMP activities and planned compliance. The proposed tracking system will document the following information on a specific land parcel:

1. Landowner/Address
2. Compliance Status relative to NR 151, pertinent local ordinances and codes, and compliance status.
3. Program Participation Status: Federal programs as well as Farmland Preservation, Grazing, Priority Watershed, CREP, etc.
4. Existing and Planned Conservation Best Management Practices.
5. Maps and Field Delineations.

Refer to the link in the reference section for an example of the on-farm performance standards inventory form. This form along with a letter of findings and schedule of compliance are used to compliance status and consequences of noncompliance with performance standards. Specific tracking of activities include the following:

A. SOIL EROSION

The County will continue its soil erosion transect survey every other year in the spring. The survey shows land use and cropping trends and evaluates the rate of application of conservation practices.

Program status reviews and ordinance monitoring activities are conducted by CPZ and NRCS staff to ensure landowners and operators are in compliance with their conservation plans, permits and licenses.

Reductions in sediment delivery will be calculated for projects in the targeted watershed areas. Staff will continue to develop a report to assess the trends in organic matter content of topsoil utilizing soil testing data in nutrient management plans.

Acreages of farm plans prepared and revised will continue to be recorded. All conservation plans will be developed to assure that the NR 151 cropland performance standards are met. Once landowners are determined to meet erosion standards, a certification letter is sent to them.

B. WATER QUALITY

The calculated amounts of phosphorus runoff reduction will be totaled for barnyard practices and reductions in winter spread manure due to construction of waste storage structures. All practices installed under the Marathon County Waste Storage Facility and Nutrient Management code will be properly permitted by the CPZ-Regulatory Division and certification letters sent to landowners upon BMP completion verifying satisfaction with performance standards and ordinances.

C. SPOT CHECKS, AUDITS AND ANNUAL REPORTS

The DATCP and NRCS will conduct annual engineering and conservation planning spot checks on work performed by Conservation Division staff. These checks ensure financial and quality control of landowner cost-share grants, staffing grants, administration responsibilities and technical design work.

DNR performs similar program and financial audits on projects funded by Targeted Runoff Management or Notice of Discharge grants. The county also conducts financial audits each year. Those audits ensure quality control from an administrative perspective.

Items in the Goals section (Chapter IV) will be reported by the units or numbers as they appear. The CPZ will complete and submit an Annual Report of progress to DNR and DATCP that relates information concerning Best Management Practice installations, status of informational activities initiated, acres of Conservation Plans developed compliance status of NR 151 by watershed and staff hours spent on the various program efforts. Furthermore, reports will include progress on compliance efforts and status specific to “priority farms.”

The CPZ staff will continue to develop and implement a parcel based tracking and monitoring system to be able to efficiently determine program and regulatory compliance of landowners.

D. OUTCOME MEASUREMENT

Marathon County is currently developing a method of evaluating program activities. Specifically, the county is utilizing a “Logic Model” approach that identifies resource inputs, such as grants, staff, equipment and partnerships, activities, and both short term and long term outcomes of our efforts relative to conservation programming. A link to the “outcome measurement” for the CPZ Department can be found in the reference section. Ultimately, the County wishes to develop conservation plans and nutrient management plans for all land parcels within the County. Staff will utilize this format to evaluate inputs and to track progress on proposed outcomes.

E. RESOURCE EVALUATION AND MONITORING

In consultation with the Central Wisconsin River Basin and DNR staff, Marathon County will advance efforts to monitor water quality improvements and status of the County’s water resources in the Freeman Creek watershed, Fenwood Creek Watershed, the Eastern Lakes Project, and the Big Eau Pleine River Watershed. By utilizing both professional and volunteer monitoring programs, Marathon County hopes to advance the information sharing required to communicate the resource problems that impact communities. Furthermore, monitoring information is needed to determine if goals and outcomes are being realized by the staff and financial inputs.

CHAPTER VIII – CONCLUSION

Marathon County is unique in many ways. Its land area of 1,009,041 acres makes it Wisconsin's largest county by land mass. The Water Quality Management Area comprises nearly 300,841 acres. The County continues to have nearly 790 dairies which contribute to the community's rural character and economic potential.

The staff is well trained to respond to the diversity and complexity of the resource challenges. However, the need to educate and align with community and agency partners is the message offered in the LWRM plan. As the priority watershed projects and land use programs of the 1980's are ended, there is a new conservation program challenge ahead for local leadership. More must be done in the areas of groundwater protection as the quantity of water to meet our needs is now questioned. The conversion of farmland and woodland to other uses creates challenges in the way of local food security and jobs. The economic viability of farmers is also a concern.

In the 2010 "Life in Marathon County" Report produced by the United Way, Marathon County residents stated clearly that they value clean water in lakes, rivers and streams, pure groundwater, functional wetlands and agricultural culture.

Land use issues and soil and water resource management are critically linked. The intensity with which we use and enjoy our natural resources demands that we monitor the quality as well as the quantity of these resources. Several Marathon County departments including Conservation, Planning and Zoning, Solid Waste, UW-Extension, Forestry, Parks, Highway, and Environmental Health, along with state and federal resource management agencies, must all be coordinated and dedicated to deliver programs that conserve and sustain the natural resources of Marathon County.

Marathon County will be proactive and make the investment in conserving and enhancing these natural resources for present and future generations. Economic viability, community pride, health and aesthetic quality are all enhanced by sound resource management.

REFERENCES

All documents listed in the reference page can be located on the Marathon County web page under the Conservation, Planning and Zoning Department at <http://www.co.marathon.wi.us>

1. Citizens Advisory Group Executive Summary and Membership
2. Notice of Public Hearing and Documentation
3. WI Demographic Service Center, 2010
4. Wisconsin Agricultural Statistics Survey, 2008 (WASS)
5. Big Eau Pleine River Watershed and Reservoir Case Study - 2009
6. Related Resource Management Plans
 - a. Central Wisconsin River Basin Plan – WI Department of Natural Resources
 - b. Marathon County Groundwater Management Plan
 - c. Marathon County Farmland Preservation Plan
 - d. Marathon County Comprehensive Plan
 - e. Marathon County Forest Year Comprehensive Land Use Plan, 2006-2020
 - f. Summary of Comprehensive Plan Goals, Objectives and Policies for Land and Water Resource Management
7. Marathon County Conservation, Planning and Zoning department Annual Work Plan
8. Marathon County Waste Storage Facility and Nutrient Management Ordinance
9. Marathon County Livestock Facility Siting Ordinance
10. Conservation, Planning and Zoning Department Outcome Logic Model
11. Marathon County Soil and Water Conservation Standards for Farmland Preservation Program
12. WI State Agricultural Performance Standards and Prohibitions: Inventory and Evaluation Checklist and Inventory Form
13. Soil Erosion Transect Survey Map and Summary
14. Administrative Program Reviews
 - a. 1998-2008 Marathon and Lincoln County Management Intensive Grazing Project Report
 - b. 1982-2008 Farmland Preservation Program Review
 - c. 2006-2009 Livestock Facility Siting Program Review
 - d. 2000-2010 Waste Storage Closure Project Review

APPENDIX A

Land and Water Resource Management Plan Glossary and List of Acronyms

1. **AFO – Animal Feeding Operation:** feedlot or facility, other than pasture, where animals have been, are or will be fed, confined, maintained or stabled for a total of 45 days or more in any 12 month period. Administrative Code NR 243.
2. **A.U. – Animal Units:** a unit of measure used to determine the total number of single animal types or combination of animal types which are fed, confined, maintained or stabled in an animal feedlot operation. Administrative Code NR 243, local ordinances (Zoning, Livestock Facility License, and Waste Storage Facility/Nutrient Management).
3. **AWO – Waste Storage Facility and Nutrient Management Ordinance:** Chapter 11.02 of General Code of Ordinances.
4. **BMP – Best Management Practices:** means structural and non-structural measures, practices and techniques or devices employed to avoid or minimize soil, sediment, or pollutants carried in runoff to waters of the state.
5. **CAFO – Confined Animal Feeding Operation (>1000 A.U):** means an animal feeding operation which feeds, confines, maintains or stables 1,000 animal units or more.
6. **CNMP – Comprehensive Nutrient Management Program:** conservation plans unique to livestock operations. These plans document practices and strategies adopted by livestock operations to address natural resource concerns related to soil erosion, livestock manure and disposal of organic by-products.
7. **CPZ – Department of Conservation, Planning and Zoning (Marathon County):** the Department mission is to create, advocate and implement strategies to conserve natural and community resources.
8. **CREP – Conservation Reserve Enhancement Program:** a partnership between the USDA Farm Service Agency, Wisconsin Department of Agriculture, Trade and Consumer Protection, USDA, Natural Resources Conservation Service, the Wisconsin Department of Natural Resources, and participating county land conservation departments throughout the state. It is an opportunity for Wisconsin landowners to enroll agricultural lands into various practices such riparian buffers, wetland restoration and establishment of native grassland areas, among others.

9. **CRP – Conservation Reserve Program:** a program that reduces soil erosion, protects the Nation's ability to produce food and fiber, reduces sedimentation in streams and lakes, improves water quality, establishes wildlife habitat, and enhances forest and wetland resources. It encourages farmers to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover, such as tame or native grasses, wildlife plantings, trees, filter strips, or riparian buffers. Farmers receive an annual rental payment for the term of the multi-year contract. Cost sharing is provided to establish the vegetative cover practices. The program is administered through the Farm Service Agency (FSA). Natural Resources Conservation Service works with landowners to develop their application, and to plan, design and install the conservation practices on the land. County Land Conservation Departments and the Wisconsin Dept of Natural Resources also provide technical support for the Conservation Reserve Program.
10. **CSP – Conservation Security Program:** a voluntary program that provides financial and technical assistance for the conservation, protection, and improvement of soil, water, air, energy, plant and animal life, and other conservation purposes on Tribal and private lands. The program provides payments for producers who practice good stewardship on their agricultural lands and incentives for those who want to do more. The program is designed to reward the best conservation stewards of the most environmentally sensitive areas in targeted watersheds.
11. **DATCP – Department of Agriculture, Trade and Consumer Protection:** State agency responsible for food safety, animal and plant health, protecting water and soil and monitoring fair and safe business practices. The Soil and Water Resource Management Grant Program supports locally led conservation efforts. Each year DATCP awards grants primarily to counties to pay for conservation staff and provide landowner cost sharing to implement Land and Water Resource Management plans.
12. **DFP - Discovery Farms Program:** takes a real-world approach to finding the most economical solutions to overcoming the challenges environmental regulations place on farmers. The Discovery Farms Program will develop on-farm and related research to determine the economic and environmental effects of Best Management Practices on a diverse group of Wisconsin farms; and educate and improve communications among the agricultural community, consumers, researchers, and policy-makers to better identify and implement effective environmental management practices that are compatible with profitable agriculture.

13. **DOC - Dissolved Organic Carbon:** a measure of a wide range of plant and animal-derived organic compounds that have sufficiently broken down to become dissolved in lake water. Some DOC compounds affect lake water pH, while others stain the water a tea-like color. DOC is strongly influenced by the surrounding landscape of the water body.
14. **EQIP – Environmental Quality Incentive Program:** a voluntary conservation program. It supports production 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 financial assistance to help off-set the costs of eligible conservation practices. Incentive 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.
15. **EWR – Exceptional Water Resources:** a lake, stream, or flowage exhibiting the same high quality resource values as outstanding waters, but may be affected by point source pollution or have the potential for future discharge from a small sewer community.
16. **FCL – Forest Crop Law:** was a landowner incentive program that encouraged long-term, sustainable management of private woodlands by reducing and deferring property taxes. The FCL program was enacted in 1927 and enrollment was closed on January 1, 1986.
17. **FEMA – Federal Emergency Management Agency:** On March 1, 2003, FEMA became part of the U.S. Department of Homeland Security (DHS). The primary mission of the Federal Emergency Management Agency is to reduce the loss of life and property and protect the Nation from all hazards, including natural disasters, acts of terrorism, and other man-made disasters, by leading and supporting the Nation in a risk-based, comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation.
18. **FIRM – Flood Insurance Rate Map:** the official map of a community on which FEMA has delineated both the special hazard areas and the risk premium zones applicable to the community.
19. **FOTG – Field Office Technical Guide:** the primary technical reference tool used in accomplishing the Natural Resources Conservation Service (NRCS) mission. WI-FOTG contains technical reference material to be used when planning, designing, applying, and maintaining conservation practices.

20. **FPP – Farmland Preservation Program:** The Wisconsin Farmland Preservation Program was created in 1977 to preserve agricultural resources by supporting local government efforts to manage growth. Eligible farmland owners receive a state income tax credit. To participate in the program, the county must have an agricultural preservation plan that meets the standards of Chapter 91, Wisconsin Statutes, and has been certified by the state Land and Water Conservation Board (LWCB). The program assists in preserving Wisconsin's valuable farmland by supporting counties in creating county agricultural preservation plans. These lay the groundwork for towns, municipalities and the county to develop exclusive agriculture zoning districts. Farmers also can participate by signing an individual, long-term agreement. The farmland preservation program provides state income tax credits to farmers who meet the program's requirements; to meet soil and water conservation standards; and to use the land for agriculture only.
21. **GIS – Geographical Information System:** captures, stores, analyzes, manages, and presents data that is linked to location. It includes mapping software and its application with remote sensing, land surveying, aerial photography, mathematics, photogrammetry, geography, and tools that can be implemented with GIS software.
22. **GLCI – Grazing Lands Conservation Initiative:** a partnership between USDA Natural Resources Conservation Service, the Wisconsin Department of Agriculture, Trade, and Consumer Protection, and private sector agricultural and conservation groups, working together to promote best management practices on Wisconsin private grazing lands. GLCI focuses on providing technical assistance to help new graziers begin using rotational grazing methods. Trained grazing specialists work one-on-one with farmers, developing grazing plans, including seeding recommendations, fencing and watering plans.
23. **GPR – General Purpose Revenue**
24. **LWCB – Land and Water Conservation Board:** connects local and state governments on conservation and farmland preservation issues. The board certifies agricultural preservation plans for the farmland preservation program and exclusive agricultural zoning ordinances for counties and towns; reviews and makes recommendations on county land and water plans; and recommends how funds are to be allocated to Wisconsin counties to put conservation plans into action. The LWCB is composed of three members of county land conservation committees, three state agency leaders, one Governor-appointed member that serves a two-year term, and four Governor-appointed members representing urban, rural, river management, and natural resource preservation areas.

25. **LWRM – Land and Water Resource Management Planning Program:** Through 1997 Act 27 and 1999 Act 9, the Wisconsin legislature established the land and water resource management (LWRM) planning program, (Wis. stats. Ch. 92). This program is the primary statewide vehicle for implementing conservation practices as identified in Department of Agriculture, Trade and Consumer Protection Administrative Rules (ATCP 50). Under this program, counties are required to develop land and water resource management plans for the purpose of conserving soil and water resources. Every 5 years, counties must revise these plans and are scheduled to present these revisions to the Wisconsin Land and Water Conservation Board (LWCB). The LWCB is responsible for recommending the plans for approval by the Department of Agriculture, Trade and Consumer Protection (DATCP). Only counties with DATCP-approved land and water resource management plans are eligible to receive annual funding through the soil and water resource management grant program.
26. **MIG – Management Intensive Grazing:** a best management practice for livestock production where permanent pasture is divided into smaller areas or paddocks, often using portable fencing. One paddock is grazed for a short time, while the remaining paddocks rest and recover.
27. **MFL – Managed Forest Law:** a landowner incentive program that encourages sustainable forestry on private woodlands by reducing and deferring property taxes. It was enacted in 1985 and replaced the Woodland Tax Law and the Forest Crop Law. It is the only forest tax law that is open to enrollment. Land enrolled in the MFL program must be managed according to a plan agreed to by the landowner.
28. **NOD – Notice of Discharge:** is issued by the Department of Natural Resources under Chapter NR 243 (Animal Feeding Operations) to small and medium animal feeding operations that pose environmental threats to state water resources.
29. **OWR – Outstanding Water Resources:** means a lake, stream or flowage having excellent water quality, high recreational and aesthetic value and high quality fishing. ORW waters are free from point source or nonpoint source pollution.
30. **“P” – WI Phosphorus Index:** is a runoff phosphorus loss risk assessment tool for cropland management planning. It uses information that is readily available to farmers and agricultural consultants to evaluate the potential for phosphorus in runoff from a specific field entering a nearby stream. The P Index currently has two types of uses: 1. nutrient

management planning and 2. water quality improvement planning to identify where the major sources of phosphorus (P) are on the landscape. It also shows why these areas are problems. Field P Index values are calculated using the SNAP-Plus nutrient management and soil loss assessment software program.

31. **POWTS – Private On-Ste Waste Treatment Systems:** a sewage treatment and disposal system serving a single structure with a septic tank and soil absorption field located on the same parcel as the structure. This term also means an alternative sewage system approved by the department including a substitute for the septic tank or soil absorption field, a holding tank, a system serving more than one structure or a system located on a different parcel than the structure. A private sewage system may be owned by the property owner or by a special purpose district.
32. **PS&P – Agricultural Performance Standards and Prohibitions:** All cropland and livestock operations in Wisconsin, regardless of size, must abide by the agricultural performance standards and manure management prohibitions.
 - a. Agricultural performance standards include:
 - Control cropland erosion to meet tolerable rates.
 - Build, modify or abandon manure storage facilities to accepted standards.
 - Divert clean runoff away from livestock and manure storage areas located near streams, rivers, lakes or areas susceptible groundwater contamination.
 - Apply manure and other fertilizers according to an approved nutrient management plan.
 - b. Manure management prohibitions include:
 - No overflow of manure storage facilities.
 - No unconfined manure piles near water bodies.
 - No direct runoff from feedlots or stored manure into state waters.
 - No trampled stream banks or shorelines from livestock.
33. **RC&D – Resource Conservation and Development:** Wisconsin has seven RC&D areas, covering all Wisconsin counties. RC&D works to stir up new opportunities, link people together, and help promote economic develop while protecting the natural resources. RC&D is a USDA program administered by the Natural Resources Conservation Service.
34. **SEG – Segregated Funding**
35. **SNAP+ - Soil Nutrient Application Program:** is a Microsoft Windows® based Nutrient Management Planning software program designed for the preparation of nutrient management plans in accordance with Wisconsin’s Nutrient Management Standard Code 590.

36. **SSA – Sewer Service Area:** The State's Areawide Water Quality Management Planning code (Wisconsin Administrative Code, NR 121) establishes Sewer Service Area (SSA) Planning. The WDNR is responsible for working with regional planning commissions, county governments, municipalities, townships and the public to develop SSA plans that guide publicly sewerred growth and which protect water quality.
37. **SWRM – Soil and Water Resource Management:** The Soil and Water Resource Management Grant Program supports locally-led conservation efforts. Each year DATCP awards grants primarily to counties to pay for conservation staff and provide landowner cost-sharing to implement Land and Water Resource Management plans.
38. **“T” – Tolerable annual soil erosion rate:** represents the tolerable soil loss for any specific soil. The term signifies the point at which new soil is naturally produced in greater or equal amounts to that which is lost to erosion. T values range from one to five tons per acre per year, depending on the soil type.
39. **TMDL – Total Maximum Daily Load:** the amount of pollutant that a water body can tolerate before it exceeds water quality standards. A TMDL is required for each state impaired water body to address each pollutant or impairment.
40. **TSS – Total Suspended Solids:** the amount of organic and inorganic particles suspended in the water column. TSS measures the weight of the particles and high values can have implications on light penetration, recreational value, and habitat value.
41. **TRM – Targeted Runoff Management:** A DNR administered program that provide grants to local communities to control polluted runoff from both urban and rural sites. The grants are targeted at high-priority resource problems. Projects funded by TRM grants are site-specific and serve areas generally smaller in size than a sub watershed. The grant period is 2 years, with a possible 1-year extension. The maximum cost-share rate available to TRM grant recipients is 70 percent of eligible costs, with the total of state funding not to exceed \$150,000.
42. **USDA-FSA – Farm Services Agency:** administers and manages farm commodity, credit, conservation, disaster, and loan programs as laid out by Congress through a network of federal, state and county offices. These programs are designed to improve the economic stability of the agricultural industry and to help farmers adjust production to meet demand.
43. **USDA-NRCS – Natural Resources and Conservation Services:** The Natural Resources Conservation Service is the federal agency that works with landowners on private lands to conserve natural resources. NRCS is part of the U.S. Department of Agriculture. Three-

fourths of the technical assistance provided by the agency goes to helping farmers and ranchers develop conservation systems uniquely suited to their land and individual ways of doing business.

44. **UWEX – University of Wisconsin Extension Service:** offers Wisconsin people access to university resources to engage in lifelong learning, wherever they live and work.
45. **WBI – Wisconsin Buffer Initiative:** was a collaborative effort between a diverse group of Wisconsin citizens and UW-Madison scientists to develop recommendations for the Wisconsin DNR on how riparian buffers can be part of a larger conservation system to address agricultural nonpoint source pollution. Instead of a fixed standard that would be uniformly applied across the diversity of Wisconsin's agricultural landscapes, the collaboration developed an innovative approach that identified site-specific areas where buffers, as part of a larger conservation system, would have the greatest likelihood of reducing pollution in waters that would benefit the most from this reduction.
46. **WCA – Wisconsin Counties Association:** a governmental association representing the interests of counties at both the state and federal level.
47. **WisDNR – Wisconsin Department of Natural Resources:** The State agency dedicated to the preservation, protection, effective management, and maintenance of Wisconsin's natural resources. It is responsible for implementing the laws of the state and, where applicable, the laws of the federal government that protect and enhance the natural resources of our state.
48. **WLI – Working Lands Initiative:** included as part of the 2009 – 2011 state budget signed into law by Governor Doyle on June 29, 2009. Three main components in the budget include updates to the state's current Farmland Preservation Program, the ability for farmers and local governments to establish voluntary Agricultural Enterprise Areas, and a state grant program to help with the purchase of Agricultural Conservation Easements.
49. **WLWCA – Wisconsin Land and Water Conservation Association:** a 501(c)(3) nonprofit organization representing Wisconsin's County Board Land Conservation Committees and Departments.
50. **WPDES – Wisconsin Pollution Discharge Elimination System:** Through the Wisconsin Pollutant Discharge Elimination System (WPDES) permit program, the DNR regulates municipal, industrial, and animal waste operations discharging water to surface or ground waters. Because of the potential water quality impacts from CAFOs, animal feeding operations with 1,000 animal units or more are required to have a Wisconsin Pollutant

Discharge Elimination System (WPDES) Concentrated Animal Feeding Operation permit. These permits are designed to ensure that operations choosing to expand to 1,000 animal units or more use proper planning, construction, and manure management to protect water quality from adverse impacts.

51. **WTA – Wisconsin Towns Association:** a statewide, voluntary, non-profit and non-partisan association of member town and village governments in the State of Wisconsin controlled by its Board of Directors. WTA's twin purposes are to (1) support local control of government and to (2) protect the interest of towns.
52. **WVIC – Wisconsin Valley Improvement Company:** a private corporation that operates 21 water storage reservoirs to regulate a uniform flow in the Wisconsin River. WVIC coordinates the operation of the 25 hydroelectric plants on the Wisconsin River that are owned and operated by ten utilities or paper companies.
53. **303 (d) “impaired” water resources:** identifies surface waters that do not meet water quality standards expressed in Chapters NR 102-105 of the Wisconsin Administrative Code. The Impaired Waters List is submitted every two years to the United States Environmental Protection Agency (USEPA) as required under Section 303(d) of the federal Clean Water Act.

LAND USE REGULATIONS

General Code of Ordinances for Marathon County includes several sections that specifically address land use and various development activities. Some of these include:

- Chapter 11 (Waste Storage Facility and Nutrient Management-November 2008) includes regulations to prevent animal waste material from entering water bodies through issuance of construction permits for new and modified manure storage facilities. The ordinance also regulates the closure of abandoned manure storage facilities, mismanaged manure storage facilities and the application of manure onto cropland.
- Chapter 13 (Livestock Facilities Licensing-October 2006) establishes environmental management standards and monitoring requirements for new and expanding livestock facilities over 500 animal units.
- Chapter 17 (Zoning Code-February 2007) includes development restrictions in shoreland and wetland areas and a wellhead protection overlay district that encompasses recharge areas for municipal water supply wells. Local communities in Marathon County may adopt their own zoning code, adopt the County zoning code, or choose to have no zoning.
- Chapter 18 (Land Division-January 2006) The County's land division regulations apply in all unincorporated areas of the County. However, where a town has land division regulations that are more restrictive than the County's, the local regulations apply. Chapter 18 includes regulations for minimum lot sizes, street design and access requirements, land dedication, surface drainage and erosion control.
- Chapter 21 (Non-metallic Mining) includes requirements for reclamation that minimize impacts on groundwater quantity and quality. Adopted in 1989, the ordinance requires reclamation of these sites to a purposeful and acceptable landscape appearance and use. The program includes incentives to reclaim abandoned excavations.

APPENDIX B

LAND USE COVER CLASSIFICATIONS

The following is a description of the major types of land cover that dominate the overall County landscape and a discussion of the pattern of change.

1. Barren – Unused open land in wooded areas, along streams and roadsides
2. Commercial – Retail stores, taverns, restaurants, truck stops, gas stations, farm coops, farm implement dealerships, automobile dealerships, business offices, motels/hotels, telephone/gas companies, medical services, waste disposal
3. Cropland – Tilled agriculture and prime farmland
4. Forest land
5. Industrial – Saw/paper/lumber mills, industrial parks, trucking operations, and distribution centers
6. Multi-family residential – Multiple family structures with three or more households, condos, duplexes, and apartments
7. Other agriculture – Fallow, pasture and undetermined agriculture
8. Public/quasi-public – Schools, churches, cemeteries, town halls, fire departments, National Guard
9. Quarry – Mining operations, sand and gravel pits
10. Recreational – Ball fields, golf courses, playgrounds, parks, trails, camp grounds, shooting ranges
11. Single family residential – One family structures, farm residences, mobile homes
12. Specialty crop – Ginseng, orchards, vineyards, nurseries, groves
13. Transportation – Airports, highways, road right-of-ways, railroads, logging roads
14. Water – Open water such as lakes, ponds, streams, rivers, creeks, and reservoirs
15. Wetlands

APPENDIX C

BEST MANAGEMENT PRACTICES FOR COST-SHARING

The following table lists all conservation practices currently listed in ch. ATCP 50 and indicates whether bonding funds may be used for the installation of the practice or activity.

PRACTICE or ACTIVITY	ATCP 50 Reference	Funding Source	Units of Measurement
Land taken out of agricultural production (list on cost-share contract the practice to be installed or the eligible existing practice)	50.08(3)	Bonding	Acres
Riparian land taken out of agricultural production (list on cost-share contract the practice to be installed or the eligible existing practice)	50.08(4), 50.42(1)	Bonding	Acres
Manure storage systems	50.62	Bonding	#
Manure storage closure	50.63	Bonding	#
Barnyard runoff control systems (specify components)	50.64	Bonding	#
Access road or cattle crossing	50.65	Bonding	Linear Ft.
Animal trails and walkways	50.66	Bonding	Linear Ft.
Contour farming	50.67	GPR	Acres
Cover and green manure crop	50.68	GPR	Acres
Critical area stabilization	50.69	Bonding	#
Diversions	50.70	Bonding	Linear Ft.
Field windbreaks	50.71	Bonding	Linear Ft.
Filter strips	50.72	Bonding	Acres
Grade stabilization structures	50.73	Bonding	#
Heavy use area protection	50.74	Bonding	Acres
Livestock fencing	50.75	Bonding	Linear Ft.
Livestock watering facilities	50.76	Bonding	#
Milking center waste control systems	50.77	Bonding	#
Nutrient management	50.78	GPR	Acres
Pesticide management	50.79	GPR	#
Prescribed grazing	50.80		
a. management plan		GPR	#
b. fencing (not permanent)		GPR	Linear Ft.
c. fencing (permanent)		Bonding	Linear Ft.
d. establish permanent pasture (seeding)		Bonding	Acres
Relocating or abandoning animal feeding operations	50.81	Bonding	#

Residue management	50.82	GPR	Acres
Riparian buffers	50.83		
a. installation (including land out of production)		Bonding	Acres
b. maintenance		GPR	Acres
Roofs	50.84	Bonding	#
Roof runoff systems	50.85	Bonding	#
Sediment basins	50.86	Bonding	#
Sinkhole treatment	50.87	Bonding	#
Streambank and shoreline protection	50.88	Bonding	Linear Ft.
Strip-cropping	50.89	GPR	Acres
Subsurface drains	50.90	Bonding	#
Terrace systems	50.91	Bonding	Linear Ft.
Underground outlet	50.92	Bonding	#
Waste transfer systems	50.93	Bonding	#
Wastewater treatment strips	50.94	Bonding	Linear Ft.
Water and sediment control basins	50.95	Bonding	#
Waterway systems	50.96	Bonding	Acres
Well decommissioning	50.97	Bonding	#
Wetland restoration	50.98	Bonding	Acres
Engineering services provided in connection with a completed cost-share practice for which bond revenue may be used (also refer to 50.40(7)).	50.34(4)	Bonding	
Other cost-effective practices with DATCP's written approval	50.40(3)(a)	GPR ¹	

¹Note: Counties may request that the department seek bond counsel permission to use bond funds for practices not listed above.