

# *Land & Water Resource Management Plan*



Rock County Land Conservation Department

July 2009

## ACKNOWLEDGEMENTS

The development of Rock 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 the plans development and will continue to be important for achieving the goals of this Plan.

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## **Plan Summary**

The Rock County Land and Water Resource Management (LWRM) Plan is a state-mandated long range planning document intended to guide the activities of the Land Conservation Department (LCD) in its efforts to protect and improve the natural resources in Rock County. This third-generation LWRM plan is an update to the original plan adopted by the County Board in 1999. It has been prepared following the requirements of state administrative rules ATCP 50 and NR 151, as adopted in 2002.

### **Planning Process**

LWRM plan is intended to function as a local planning process that assesses natural resource conditions and needs, guides decisions on how to meet water quality goals and conservation objectives, measures progress towards meeting those goals, and makes efficient use of local, state, and federal resources. In this spirit, the process for developing this plan began with the formation of an advisory committee. The advisory committee met three times providing input on natural resource conditions and needs of the county. Also, the Land Conservation Committee (LCC) reviewed and provided comments on draft document. The LCC held a public informational meeting on July 1, 2009. The Rock County Board of Supervisors held a public hearing on July 9, 2009.

### **Plan Goals**

The advisory committee generated a citizen survey of natural resource concerns facing Rock County. The survey played a key role in the development of the LWRM plan by identifying and prioritizing local resource issues of concern. During the initial stages of plan preparation, the citizen survey identified a total of 8 resource issues they felt should be addressed by the LCD. To help set priorities for this plan, these issues were grouped into five general goals. The following list resulted from this process:

1. Protect the quality and quantity of groundwater.
2. Protection of farmlands.
3. Protect the quality of surface water.
4. Improve and protect soil quality for long-term production.
5. Protect and enhance habitat quality.

The LCD used the above goals as a foundation for the development of this plan. Objectives for each goal were primarily developed from issues of concern generated by the agency advisory committee. Chapter 7 contains a list of more specific LCD activities planned over the next five years (2009-2013) to meet each objective.

### **Nonpoint Pollution Control**

Nonpoint source water pollution is the number one reason why the water quality suffers in most Surface waters and groundwater in the state of Wisconsin and Rock County. This type of pollution washes off the urban and rural landscapes during rainfall or snowmelt periods and is carried directly to local water resources, usually with no treatment. Wisconsin has been a national leader in addressing this type of pollution since 1979. In 2002, by legislative mandate, the State's nonpoint program was significantly redesigned and the new administrative rules went into effect. In NR 151 the Department of Natural Resources (DNR) identified statewide nonpoint

performance standards and prohibitions intended to protect and improve local water quality. In ATCP 50, the Department of Agricultural Trade and Consumer Protection (DATCP) identifies conservation practices rural landowners must follow to meet the DNR Standards and created the LWRM planning process and grant requirements. One of the requirements for county LWRM plans is to describe procedures that will be used to implement the nonpoint pollution performance standards and prohibitions under NR 151. Counties are named as the primary responsible party to implement the new standards, especially in the rural areas.

State nonpoint standards for rural areas focus on controlling agricultural runoff pollution from crop fields, animal feedlots, manure storage structures, and livestock pastures. The LWRM plan describes a systematic approach that will be used, including an information and education program, file records inventory, landowner contacts, compliance checks, landowner notification, technical assistance, cost sharing, site reevaluation (if necessary), final compliance status notification to landowner and referring non-complying sites to DNR for enforcement.

Urban performance standards focus on controlling erosion from construction sites, managing runoff from streets, roads and other impervious areas, maintaining protective cover between impervious surfaces and lakes, streams and wetlands, infiltrating rainfall and snow melt and managing fertilizer use on large turf areas. The process by which these performance standards are implemented typically relies upon local storm water and erosion control ordinances for new development projects. This is combined with an on-going information and education campaign that targets specific messages to a variety of audiences including engineers, developers, local units of government, and the general public. Implementation of the non-agricultural performance standards represents the portion of the annual workload for the LCD, as shown in Chapter 7.

## **Conclusion**

Measuring the progress of implementing this plan will take place annually as reports are prepared and submitted to various agencies as part of program requirements. In addition, ongoing developments in the county's Land Information System and other database related tracking systems will continue to be refined as the activity items are completed and new workload assignments made for future years. Perhaps a more important standard by which one will be able to judge the success of this plan in future years will be the formation of partnerships related to resource protection. The vision is to implement effective, efficient and dynamic programs designed to protect and improve the natural resources of Rock County for the benefit of all who live and work here, now and in the future.

# CHAPTER 1

## Plan Development and Participation

### Introduction

Locally led natural resource management is an important concept in Wisconsin. State and federal agencies support the concept that local county agencies may be the best suited to identify and assist with the solutions for natural resource issues within a county. As a result, Chapter 92 of the Wisconsin State Statutes was amended in 1997 to require counties to develop and implement a Land and Water Resource Management (LWRM) plan. Chapter 92 can be found on-line at <http://www.legis.state.wi.us/statutes/Stat0092.pdf>.

### What is a LWRM Plan?

The LWRM Plan serves as a long-term strategic conservation plan for the Land Conservation Department (LCD) and county residents. The plan provides guidance to the LCD for collaborating efforts with state and federal agencies on natural resource conservation issues and provides guidance for annual work plans for the LCD. It supports applications for conservation grant funds including annual state grants for county staff and support costs. At a minimum, a LWRM plan must describe:

- Water quality and soil erosion conditions throughout the County, Agriculture, Trade and Consumer Protection (ATCP) 50.12(2)(a);
- State and local regulations that the County will use to implement the plan, ATCP 50.12(2)(b);
- Water quality objectives for each water basin, ATCP 50.12(2)(c);
- Key water quality and soil erosion problems areas, ATCP 50.12(2)(d);
- Conservation practices needed to address key water quality and soil erosion problems, ATCP 50.12(2)(e);
- Plan to identify priority farms, ATCP 50.12(2)(f);
- County strategy to encourage voluntary implementation, ATCP 50.12(2)(g);
- Compliance procedures, ATCP 50.12(2)(h);
- Multi year work plan, ATCP 50.12(2)(i);
- Monitoring of progress, ATCP 50.12(2)(j);
- Information and education efforts, ATCP 50.12(2)(k); and,
- Coordination with other conservation agencies, ATCP 50.12(2)(l).

The LCD has elected to go beyond the basic requirements as identified above, as resource conservation spans many disciplines. The LCD believes this plan will best serve the citizens, through a full disclosure of conservation programming as included in the LCD mission.

### Rock County Land & Water Resource Management Plans, 1998 and 2004

Rock County's first LWRM plan was approved in 1999 and implemented from its inception through 2004. This plan was developed prior to the full implementation of the new conservation standards identified in the current WI Administrative Code NR 151. The 1999 Plan described the basic soil and water resource management issues within Rock County and listed associated objectives. It replaced an earlier document entitled the Soil Erosion Control Plan (SECP) for

Rock County. The SECP was published in 1986 and primarily addressed soil erosion control issues.

In 2008, the Rock County Land Conservation Committee (LCC) appointed an Advisory Committee (AC) (refer to acknowledgements) to assist the LCD with the task of updating the LWRM Plan. New information on natural resource conditions was made available from various sources since the initial plan was published. This information is integrated into the 2009 LWRM Plan. As a result, new priorities were identified. Additionally this document incorporates earlier conservation objectives set by the Advisory Committee.

The overall goal in the 2004 LWRM plan was to commence with the arduous task of implementing NR 151. The objectives were to begin the implementation of the Agricultural Performance Standards and Manure Management Prohibitions; develop a water quality monitoring program; develop a Memorandum of Understanding with the DNR for the implementation of NR 151; continue with the establishment of conservation buffers through CRP and CREP; and finally develop a tracking system for NR 151 compliance. Implementation strategies included targeting the plan's efforts within the Bass Creek watershed, specifically the Stevens and Markum Creek sub-watersheds.

### **Progress in Implementation**

The LCD believes significant progress was made from 1998 through 2008 in accomplishing the specific goals and primary objectives in the plan. This belief comes from the actual number of conservation practices put on the land to address resource issues and concerns identified in the plan. The installation of conservation practices and other LCD accomplishments are reported annually to the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) and Wisconsin Department of Natural Resources (DNR).

Field observations and modeling, through the transect survey; indicate that soil erosion has not been reduced to tolerable soil loss rates on all crop fields within the County. However, the erosion modeling data suggests that the overall average rates of erosion decreased substantially. Data on soil erosion will be updated during the 2009 program year.

### **Procedures & Processes for a New LWRM Plan**

The implementation period of the 2004 plan will end in 2009. It is evident that the goals and objectives in the plan were not completely accomplished and will need to be carried forward. New resource issues and concerns emerged and become new priorities within the county, i.e. invasive species. For these reasons, the LCD has chosen to update the existing plan with the new programs that the LCD is responsible for administrating within Rock County. Additionally, guidance for future programming has been included in this document.

### **Review of Relevant Information**

Rock County LCD staff began of updating the LWRM plan in the fall of 2008. Staff began collecting and reviewing all existing documents, data, resource inventories and management plans on the natural resources of Rock County and statistics on land use trends. This information came from a wide variety of sources including local, state and federal agencies.

### **Involvement of DNR Basin Team**

In November 2008, a letter was sent from the LCD to the DNR Basin Team Leaders of the two DNR basins that are within the County (see Appendix A to view a sample letter). The LCD requested a meeting with the Basin Team Leaders and their staff and invited them to participate in meetings of an Advisory Committee (AC) for this Plan. Many of the concerns and issues listed in the DNR Basin reports, were incorporated into the 2009 LWRM plan.

### **Involvement of Wisconsin DATCP Plan Coordinator**

The LCD staff met with the DATCP Plan Coordinator in August 2008 to discuss the content of the plan and the process to be used in its development. The plan coordinator was contacted several times during plan development to report on the stages of progress.

### **Involvement of Advisory Committee**

Before finalizing the goals, objectives and activities of the plan, an AC was formed to review the concerns and tools and to give further input on concerns and tools that may have been missed. The AC was comprised of local and regional staff from DNR, LCD, Natural Resources Conservation Service (NRCS), UWEX, Public Health, Farm Services Agency (FSA), DATCP, and Rock County Planning and Development. The AC members met three times during the plan development process. Members were also contacted individually. See Appendix A for the AC meeting notes and list of participants. The LCD staff incorporated many of the concerns and tools from these meetings into the goals, objectives, and activities portion of this plan.

### **Agency & Public Review of Plan Drafts**

The first draft of the Rock County Land and Water Resource Management Plan 2009 was completed and sent to DNR, DATCP, and AC members for review. Comments were sent back to the LCD and incorporated into a second draft of the plan. Copies of the second draft were made available to county residents. Copies were also available for review at the LCD website. Availability of the copies was announced in the official county newspaper, the Beloit Daily News. The second draft was presented to and reviewed by interested Rock County residents at a noticed public informational meeting on July 1, 2009. Public comments from the hearing were incorporated, when possible, into the final draft.

### **Approval of Plan**

The final draft LWRM plan was approved by DATCP and approved by the Wisconsin Land and Water Board at their August 4, 2009 meeting.

Final approval by the Rock County Board occurred on August 13, 2009.

## **CHAPTER 2**

### **Existing Resource Conditions**

#### **BACKGROUND INFORMATION**

Understanding the state of the natural resources of Rock County is important for long term conservation planning. The natural physical conditions or geography of the county play an important role in regards to surface water and groundwater quality. Human activity on the landscape, such as agricultural production and land development play a critical role in water quality. This section provides a brief description of the natural setting of the county, its natural resources, and the impacts on these resources.

#### **Population Trends**

Rock County continues to urbanize at a fast pace. From 1980 to 1990, the population increased by 90 people from 139,420 to 139,510. By contrast, from 1990 to 2000, the population grew to 152,307 (US Census Bureau). The 2008 estimated population was 160,477. Most of the county's population resides in the cities of Beloit, Edgerton, Evansville, Janesville, and Milton and incorporated villages of Clinton, Footville, and Orfordville.

#### **Land Use**

Rock County is 72 square miles (461,440 acres). The primary land use in the county is agriculture. Since 1997, 25,817 farm acres were lost of which 22,021 acres were dedicated for crops and livestock (USDA-NASS Census of Agriculture). In 2007, approximately 75% of county land (344,361 acres) was in farms with 276,846 acres for crops and 3,333 acres for grazing. Urban land makes up 49,915 acres (Rock County Planning Department, 2008). Developed and undeveloped woodlands claim 58,551 acres. Wetlands account for approximately 19,612 acres. Surface waters cover 3,549 acres. As the population of the County continues to grow, more emphasis will need to be placed on protecting natural resources. Land use is still predominantly agriculture, however, urban development continues to encroach into rural Rock County.

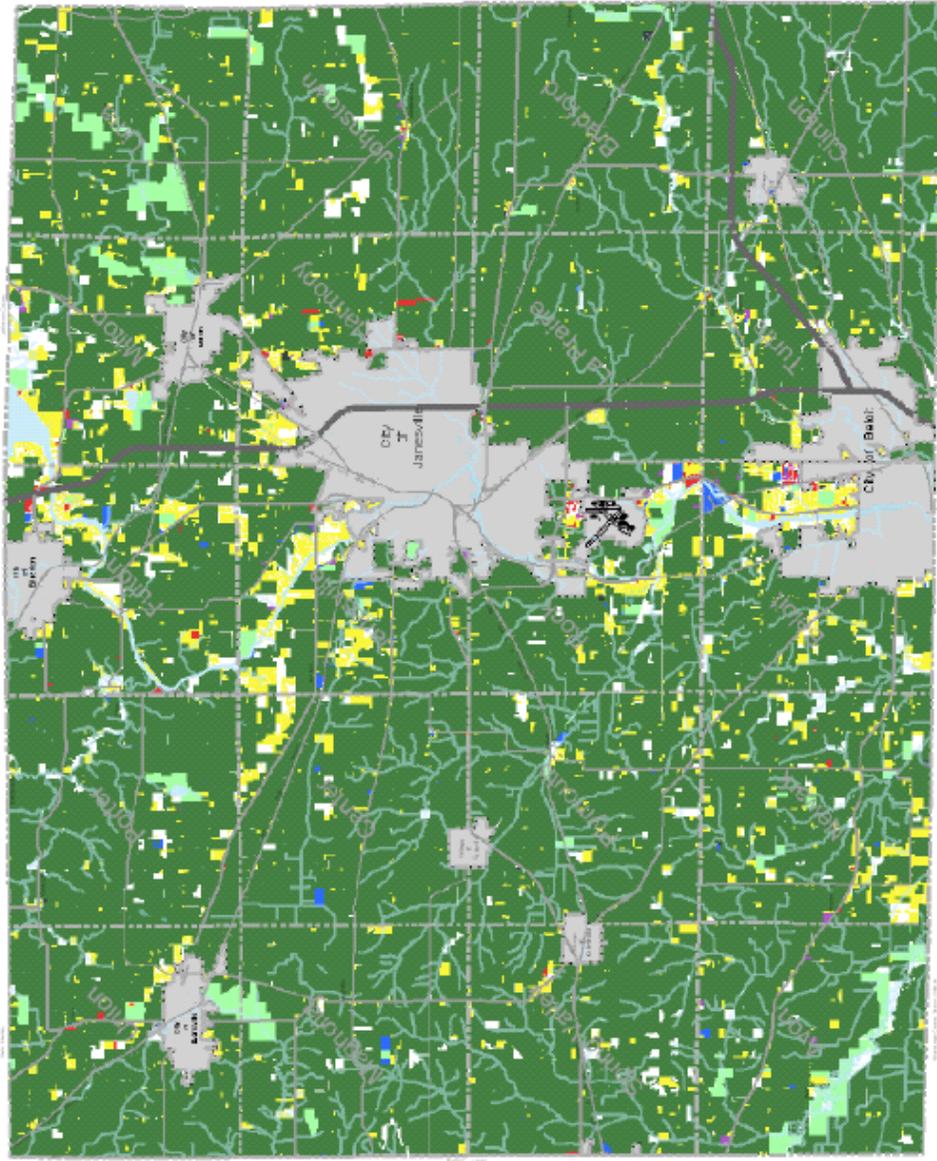
#### **PHYSIOGRAPHY**

Rock County can be divided into four physiographic regions all shaped at various times in the last 30,000 years by continental glaciers; the Moraine High Relief, the Outwash Plains, the Moraine Low Relief, and the Western Uplands. Each region is described below.

#### **Moraine High Relief**

The landscape of the northern one-third of the county features the Johnstown End Moraine north of County Road A and recessional moraines north to the county line that mark the edge of the most recent glacial event, the Wisconsin Glacial Episode, that ended about 10,000 years ago. This region is characterized by uneven terrain; short steep slopes, an abundance of kettles (closed depressions), extensive wetlands, and few streams mostly first order. Nearly all of the notable impounded or kettle lakes in the county are in this region. The Kidder and St. Charles soil association dominate this region. These soils are generally sandy clay silt loam-to-silty clay loam underlain by glacial till or stratified sand and gravel.

MAP 2-1: Land use in Rock County

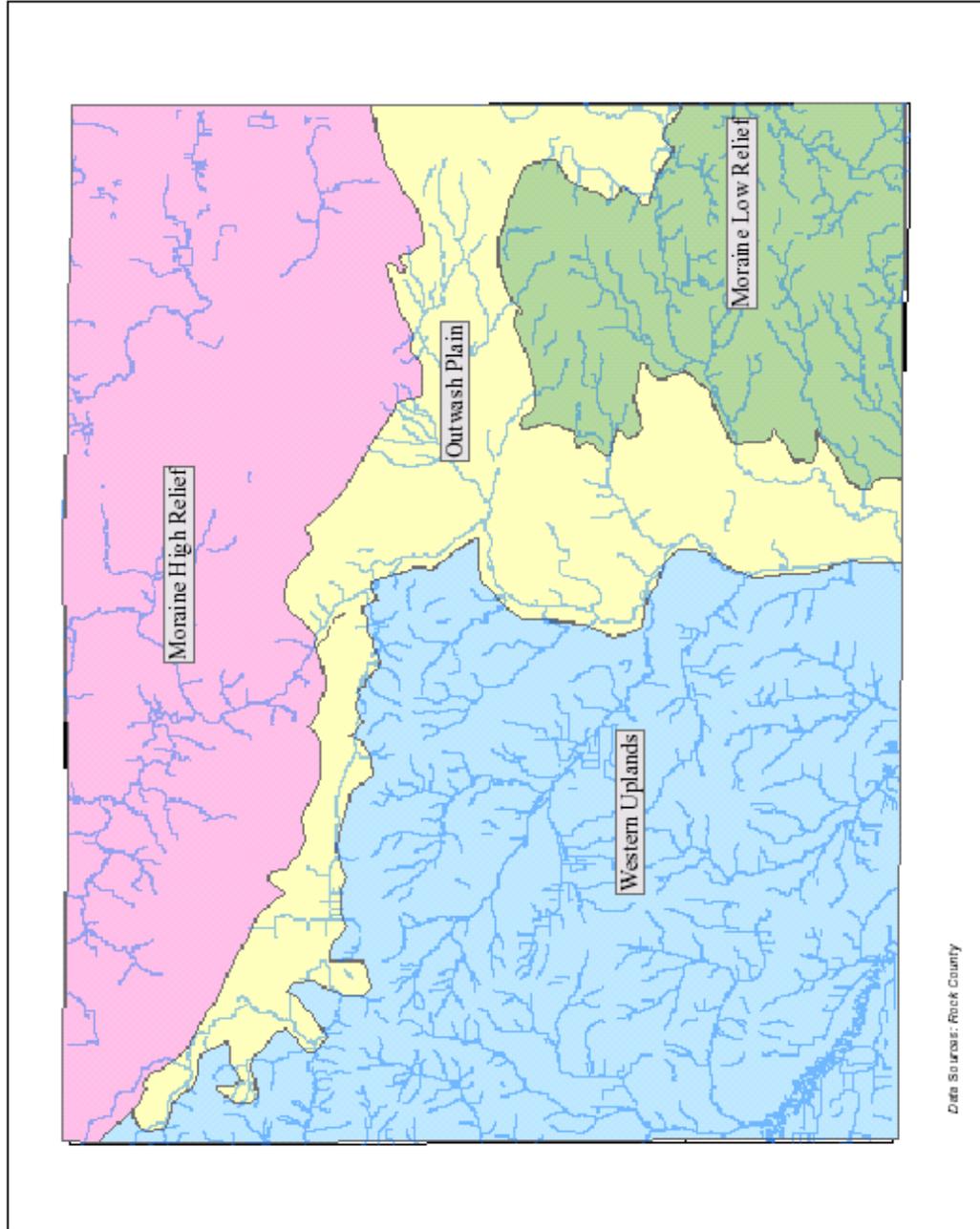


- Land Use (2000)**
- Residential activities
  - Shopping, business, or trade activities
  - Industrial, manufacturing, and waste-related
  - Social, institutional, or infrastructure
  - Travel or movement activities
  - Mass assembly of people
  - Leisure activities
  - Natural, non-recreational activities
  - Natural, recreational activity
  - NO DATA
- Township Boundaries**
- Cities and Villages**
- Streams and Rivers**
- Rivers, Ponds and Lakes**
- Railroad**
- Roads**
- County Trunk
  - Highway
  - Interstate



Rock County Geographic Information System GIS

MAP 2-2 Physiographic Regions of Rock County



Data Source: Rock County



**Legend**

— Rivers and Streams

**Physiographic Regions**

- Moraine High Relief
- Moraine Low Relief
- Outwash Plain
- Western Uplands



### **Outwash Plains**

Immediately south of the Moraine High Relief region are wide flat plains. These plains were created when water loaded with silt, sand, and gravel ran off the melting ice sheet behind the Johnstown End Moraine. This outwash plain extends the full length of the county's midsection from east to west and dips south following the Rock River corridor. West of the Rock River and hills of Janesville, the wet plain has been extensively drained with tile and ditches that contribute to Marsh Creek (first order stream). The plain east of the Rock River locally referred to as the Rock Prairie, is well-drained, deep prairie soils over sand and gravel and known as the most highly productive agricultural area of the county. The eastern plain is notable for its lack of surface water. One intermittent stream, Blackhawk Creek, flows from this area and there are no lakes and very few if any natural ponds. The Plano-Warsaw-Dresden soil association dominates the eastern plain. The Sebewa-Kane soil association is also found in the region but to a lesser extent. The soils in this area are primarily silt loam-to-loam, underlain by glacial till or stratified sand and gravel.

### **Moraine Low Relief**

This area is located in the southeastern part of the county and is distinguished by low relief ground moraines from earlier glacial epochs. The terrain is controlled not only by glacial deposits, but also by bedrock. Large contiguous areas of low rolling hills have long uniform slopes while other large areas are low, flat, and poorly drained though still farmable. Several headwater streams originate in this region and flow either into Turtle Creek or to the Rock River. The Pecatonica-Ogle-Durand soil association dominates this area. The soils in this region are primarily sandy loams underlain by bedrock.

### **Western Uplands**

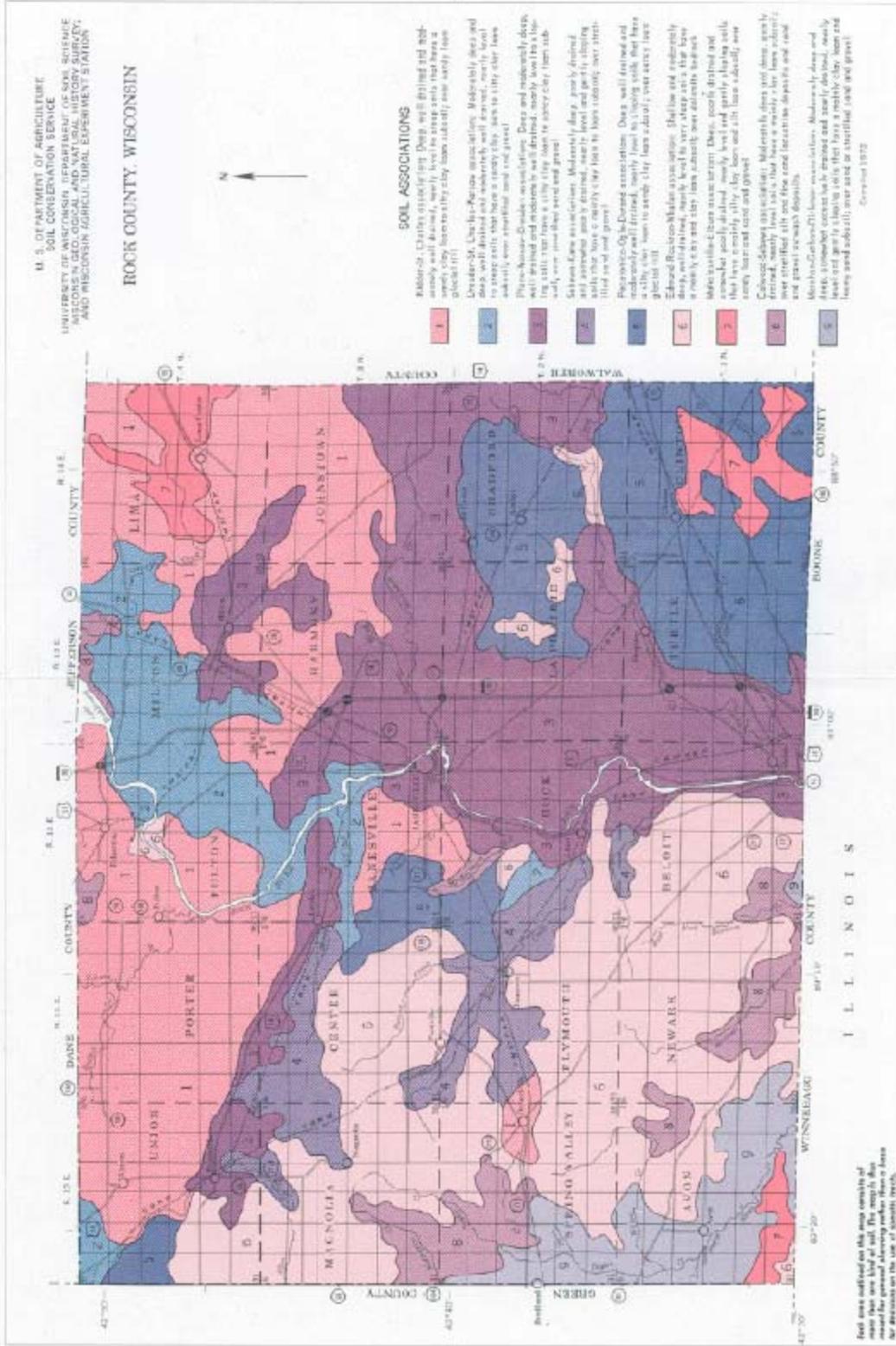
The Western Uplands in the southwestern part of the county is the oldest landscape in Rock County, formed by the early Pleistocene glacial ice sheet more than 30,000 years before present and by differential erosion of bedrock. Deep valleys cut into the underlying sandstone and dolomite bedrock formations, extensive ridges, numerous headwater streams, and the wide wet floodplain of the Sugar River characterize this area. The fragile Edmond-Rockton-Whalan soil association dominates the uplands of this region. The soils in this region are primarily sandy loams underlain by shallow bedrock.

### **SOILS**

Soil tends to be the most overlooked and misunderstood natural resource found in the county. Soil resources are critical to the environment as well as to food and fiber production. Soil provides minerals and water to plants. Soil absorbs rainwater and releases it later thus preventing floods and drought. Soil filters the water as it percolates to form the aquifer. To understand soil, one must understand how it formed and that it is an ecosystem. **Parent material, time, climate, native vegetation, organisms, and landscape position** all influence soil formation. Each of these forces interacts with the other major factors to produce a soil's present morphology.

Most soils in Rock County were directly or indirectly a result of glaciation (*Soil Survey of Rock County, Wisconsin*). Glacial till is the most common **parent material** for soil development within the county. Glacial outwash is the second most common parent material. Residuum from weathered dolomite and sandstone is also common. The remainder of the parent material is composed of laustrine deposits commonly found in extinct glacial lakes; alluvial deposits

MAP 2-3 General Soils Map for Rock County



associated with sediment transported by water; and colluvial deposits transported by gravity and generally located at the base of slopes.

Native **vegetation** plays an important role in soil formation. Tall grass prairies and open oak forest covered Rock County in the millennia since the glaciers retreated. Soils formed under prairie have a thick, fertile surface layer formed by dense, deep-rooted grasses and forbs. Forested soils tend to have thinner, lighter colored, surface layer. Plants hold onto, protect, and shape soil with fine rootlets that search for water and nutrients. In turn, plants give back organic matter in dead roots and leaves, which feed organisms. Tunnels from old roots aid infiltration and water holding capacity.

Soil is habitat for millions of **organisms**, large and small from microbes to fungi to worms and ants. The countless living things in the soil are constantly converting and cycling nutrients and organic matter into products used by other soil inhabitants and plants. As with roots, tunnels and surfaces made by organisms aerate soil and increase infiltration and water holding capacity.

**Landscape position** influences soil formation. Wind and water especially in the local climate erode and consolidate soil particles on various scales from small loess deposits to massive sand and gravel outwash plains. For instance, the soils found on the ridge tops in the southwestern section of the county formed in a thin layer of fine windblown loess and the underlying parent material of weathered of Paleozoic rock. On hills and ridges, soil particles are moved down slope by water or blow away. Soils formed on slopes are thinner due mostly to the movement of rainwater as runoff. Displaced material from mass wasting, sheet erosion, and run-off settles at the bases of slopes forming deep soils or is washed into stream channels, basins, or floodplains. Stable soils in poorly drained, saturated settings become hydric; they are often under existing or former wetlands. The fluctuating water table leaches nutrients from the lower horizons of hydric soils. Because saturation limits oxygen available for decomposition, hydric soils are comprised in varying fractions of partially decomposed organic material. Hydric soils may include eroded mineral soils either from adjacent shores or settled out from floodwater and run-off.

The seasonal continental **climate** of the Upper Midwest transitions from frozen winters to hot, relatively dry summers. Each season is about three months long. Spring is the wettest season with snowmelt followed by frequent rains. Fall weather is cool and mostly dry with brief periods of rain. The duration of the present climate is reflected in the tall prairies, savannas, and woodlands that once dominated the region most of which were lush yet adapted to ground burns. The shaggy bark of hickories and the thick corky bark of bur oaks are common examples of fire protection in savannas.

**Time** accounts for the amount of physical and chemical development, weathering, and movement of soil. The youngest soils in Rock County are found north of the Johnstown End Moraine, followed by the soils located in the Outwash Plains then by the soils of the Moraine Low Relief and finally the soils of the Western Uplands, the oldest in the county.

Together, all these factors over many thousands of years have created soils with unique chemical and physical properties that can be destroyed if not treated with care. Perhaps the most altered forming factor is the change in vegetation from perennial deep-rooted prairie and woodlands to annual crops and the frequency of disturbance. For example, with less root mass adding

organic matter, tillage every fall and/or spring, and little protection from spring rains, exposed soils can lose structure and fertility. Soil with no structure cannot hold as much water as soil with structure and pore spaces. Degraded soils quickly disintegrate, wash away, and form surface films that further inhibit infiltration and add to the volume of runoff. Careful management is essential to enable these soils to maintain productivity for the long-term.

For more information on the relationship of soil types to the landscape and one another and management recommendations, consult the Soil Survey of Rock County, Wisconsin (1974).

## **SURFACE WATER RESOURCES**

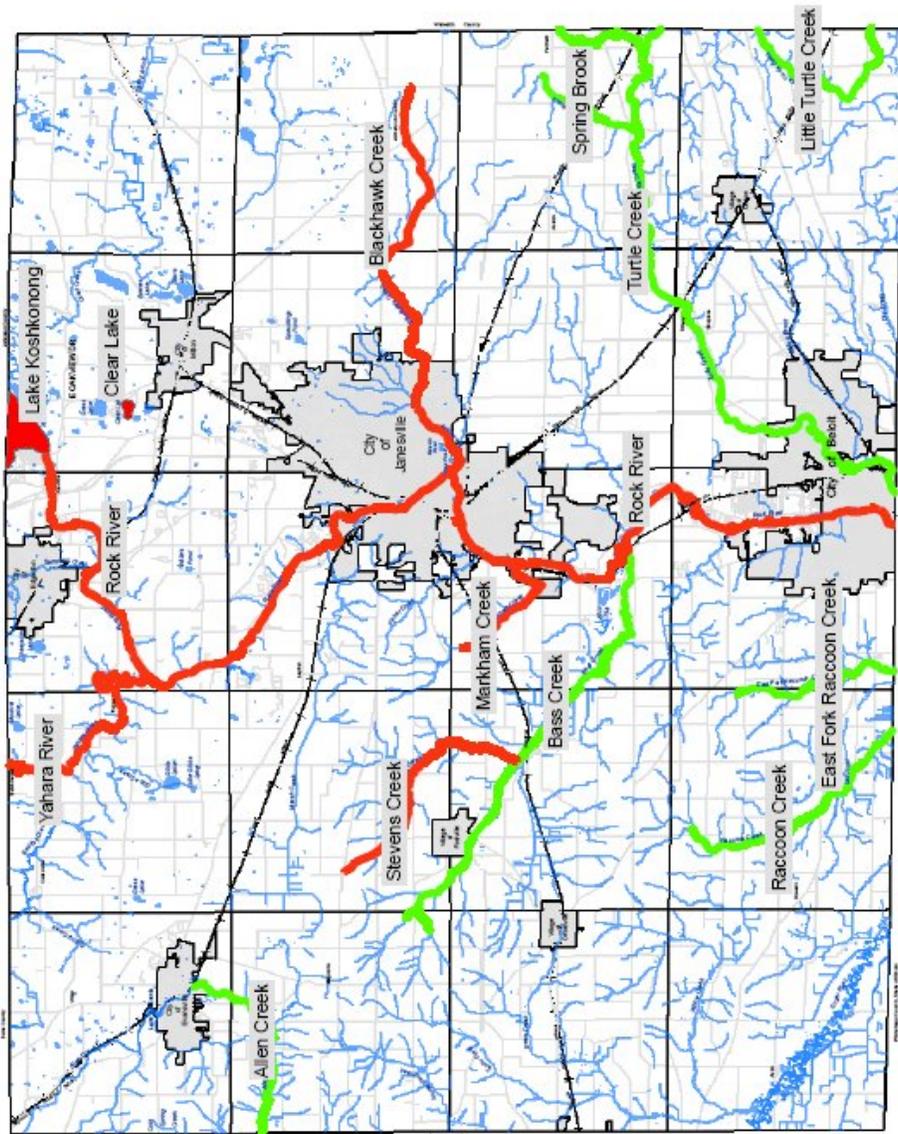
Rock County contains part or all of 12 watersheds that are part of two different basins; the Lower Rock River Basin and the Grant-Platte-Sugar-Pecatonica River Basin (referred hereafter as the Sugar-Pecatonica Basin). The county has 3,549 acres of surface waters or 1% of its total area (Wisconsin DNR). Rock County is home to all or part of three rivers and fifty streams extending a total of 308 miles. The rivers are the Rock, Sugar and Yahara. The a few major named are Turtle Creek, Allen Creek, Badfish Creek, Bass Creek, Marsh Creek, Taylor Creek, and Raccoon Creek. Two popular lakes are the impoundments of Lake Koshkonong (Rock River) and Leota Lake (Allen Creek); Smaller impoundments have been restored to streams with the removal of dams in the last few decades on Turtle Creek (Shopiere), the Yahara River (Stebbinsville and Fulton), and Bass Creek above Afton. In 2008-2009, Leota Lake was dredged. A very small shallow millpond was retained with the dam restoration on the East Fork of Raccoon Creek. The Rock River has dams at Indianford, Janesville (two), and Beloit.

Stream patterns east of the Rock River tend to have low gradients and deranged drainage pattern and are commonly associated with wetland complexes. They are slow flowing streams and are usually adjoined by wetlands. Sand, silt, and muck are the most common substrate or stream bottom. Conversely, west of the Rock River, streams tend to have high gradients and dendritic drainage patterns. The most common substrate composition is gravel or rubble. Streams of this type lend themselves to cold-water communities due to high levels of dissolved oxygen and substrata conditions.

In 1970, the Wisconsin Department of Natural Resources identified seventy-two natural or impounded lakes and ponds, of which only ten exceed twenty acres. All naturally occurring lakes and ponds found in Rock County are located in the northern half of the county in the Moraine High Relief area. Kettle or “seepage” lakes formed in the depressions left by the glaciers. Water levels in seepage lakes are controlled predominantly by groundwater, an outlet if one exists, and surface water runoff to a lesser extent. Seepage lakes can easily become pollution sinks when sediment, nutrients, and other pollutants settle and accumulate in the basin. Well-known seepage lakes are Clear Lake (no outlet), Storrs Lake (Otter Creek), Gibbs Lake (Gibbs Creek), Grass Lake (no outlet), and Bowers Lake (Otter Creek).

According to Wisconsin Administration Code NR 102, “Water Quality Standards for Wisconsin Surface Waters”, Rock County’s waters have a number of different classifications (or designations) based on the health of the water body. **MAP 2-4** shows the location of the exceptional water resources as well as the impaired waters, as listed by DNR. According to the

MAP 2-4: Exceptional Resource Waters (ERW) and Impaired (303d Listed) Waters



Data Sources: Rock County Land Conservation and WDNR



**Legend**

- Rivers and Streams
- ERW\_WATERS
- Impaired Waters 303d



DNR, an Exceptional Resource Water (ERW) is a stream that exhibits the same high quality resource values as Outstanding Waters, but may be impacted by point source pollution or may receive future discharges. These waters may host cold-water communities, commonly known as trout waters or very diversified warm water sport or forage fisheries. Impaired waters are on a list maintained by the DNR according to Section 303(d) of the federal Clean Water Act. This list includes Wisconsin surface waters for which beneficial uses of the water (i.e. drinking, recreation, aquatic habitat, and industrial use) are impaired by pollutants.

**Table 2-5: 2006 Impaired Waters (303d) for Rock County**

<b>Waterbody Name</b>	<b>Current Use</b>	<b>Designated Use</b>	<b>Pollutant</b>	<b>Impairment</b>
Blackhawk Ck.	LAL	WWSF	sed.	dhab; turb
Markum Ck.	WWFF	WWSF	sed.	dhab
Rock River	-	WWSF	pcb; phos; sed.	DO; FCA; sed
Stevens Ck.	WWFF	WWSF	sed.	dhab.
Yahara River	-	WWSF	phos; sed.	dhab; DO
Abbreviations: LAL – Limited Aquatic Life WWFF – Warm Water Forage Fishery WWSF – Warm Water Sport Fishery Dhab. – degraded habitat DO – low dissolved oxygen FCA – fish consumption advisory pcb. – polychlorobiphenyls phos. – phosphorus sed. - sediment turb. – turbidity				

## **WETLANDS**

Wetlands support unique flora and fauna. According to the 2003 inventory conducted by DNR, wetlands comprised a total of 19,612 acres or 4.3% of the county. Once viewed as wasteland, useful only when drained for agriculture or filled for development, wetlands are now understood to provide substantial and irreplaceable benefits for people and the environment. By filtering pollutants, nutrients, and sediments, wetlands help protect water quality in our lakes, rivers, streams, and wells. By slowly releasing runoff from heavy rains and snowmelts, wetlands reduce flood damage. Wetlands provide essential food and shelter for fish, frogs, turtles, waterfowl among a variety of other animals from the immediate area to regional and continental migrants. Acre for acre, wetlands usually support a greater variety and number of animals than any other biotic community in the area. Acting as a shoreline buffer, wetlands protect against erosion from waves and currents. By providing natural, diverse, and seasonal open spaces, wetlands enhance quality of life, property values, and tourism.

## GROUNDWATER

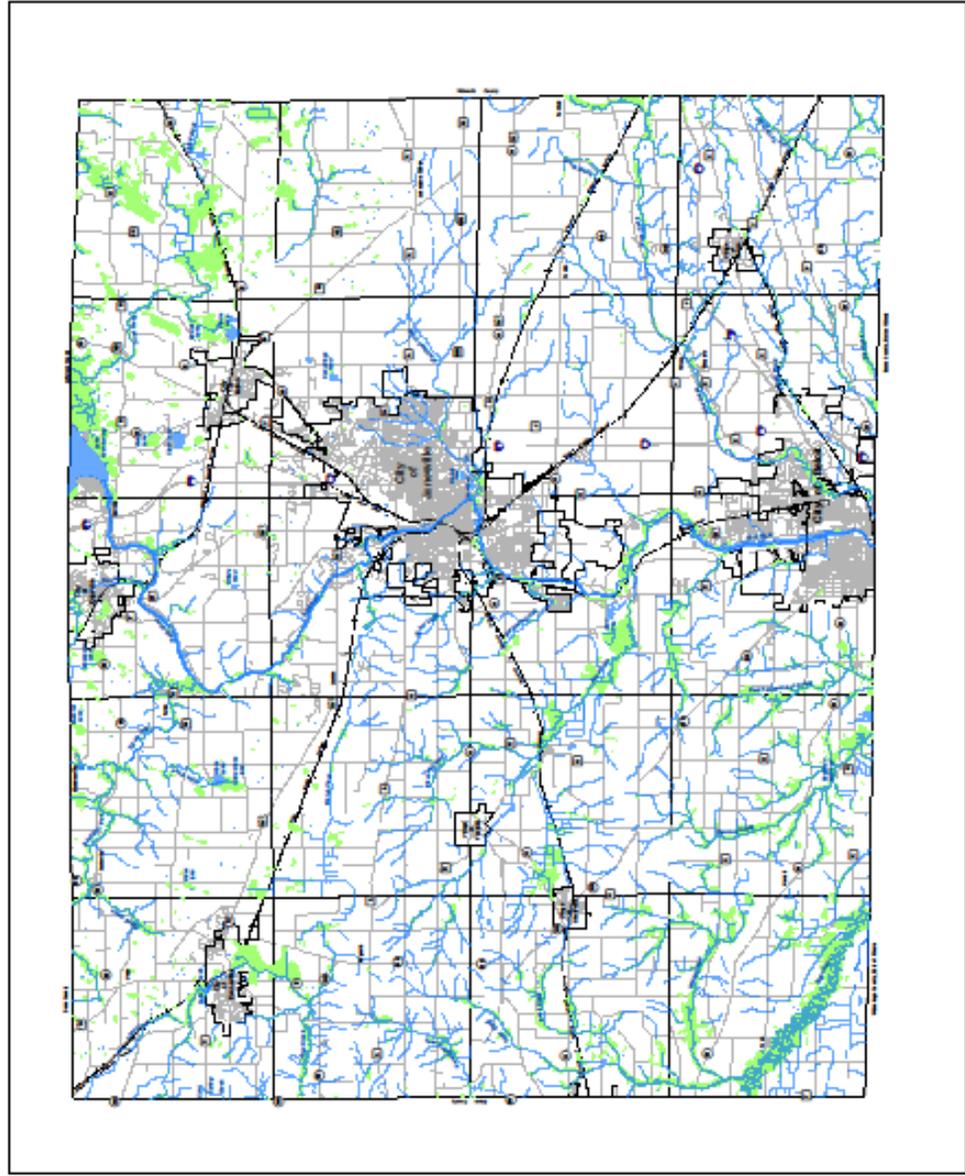
Groundwater is a very important resource in Rock County that must be used wisely for the long-term benefit of county residents, businesses, and visitors. Rock County obtains all of its potable water from private or municipal wells. In addition, numerous high capacity wells exist in the County to serve agricultural and industrial uses. It is estimated Rock County uses 20 million gallons of groundwater a day. This rate of groundwater use is the third largest in the state; Dane County uses 48 million gallons and Waukesha County uses 27 million gallons a day (USGS statistics estimates).

As reported in *Groundwater Protection Principles and Alternatives for Rock County* (Zaporozec, 1985), the County's aquifers are close to the land surface and limited natural protection makes them vulnerable to pollution. The morphology of soils plays a vital role in the attenuation of pollutants before they reach an aquifer. The most significant soil factors determining the rate of aquifer recharge are slope, depth, texture, and permeability. The textures of most of the county's soils are medium to moderately coarse, which allows water to move through them easily. However, the soils tend to be relatively deep, 3-5 feet, enabling longer contact time with soil particles. Once through the soil layer, pollutants remain relatively unchanged in the aquifer. A soil's natural defense for aquifer protection is compromised when a potential pollutant is water-soluble, such as nitrate-nitrogen. **Map 2-7** illustrates Soil Attenuation Potentials for Rock County.

Over one-fourth of private wells tested in Rock County exceed the health enforcement level of 10 mg/L for nitrate-nitrogen. Nitrates are present naturally in groundwater at low levels (less than 2 mg/L), but are elevated due to leaching of agricultural fertilizers, lawn fertilizers or septic systems. Areas with elevated groundwater (less than 3 feet to surface), shallow soils (less than 40 inches), or shallow soils overlying fractured dolomite bedrock are particularly susceptible to groundwater contamination (**Map 2-8**). Wells with high nitrates need costly treatment systems or new deeper wells costing thousands of dollars each. Options available to reduce nitrate impacts on the soil surface include nutrient management plans for agricultural lands and land preservation. In cases of areas already identified as having high nitrate in the well water, the designation of "special well casement areas" would assist in ensuring that new wells are constructed in a manner as to avoid penetration of high levels of nitrates.

The second leading cause of unsafe wells in Rock County is bacterial contamination. Of the tests performed every year by the Rock County Health Department for private wells in Rock County, 15% to 30% are positive for bacteria. In most cases, the contamination is related to poor well construction issues, especially the existence of well caps that are not vermin proof. In most cases, bacteria problems are localized to an individual well; however, in some situations, local geology and land use can have a broader impact on bacteria contamination of wells. Annual testing can identify this problem and areas with chronic problems. Designating "special well casement areas" can promote the safe construction of new wells in impacted areas.

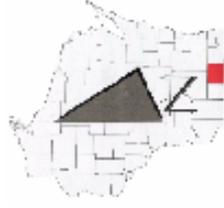
**MAP 2.-6: Wetlands in Rock County**



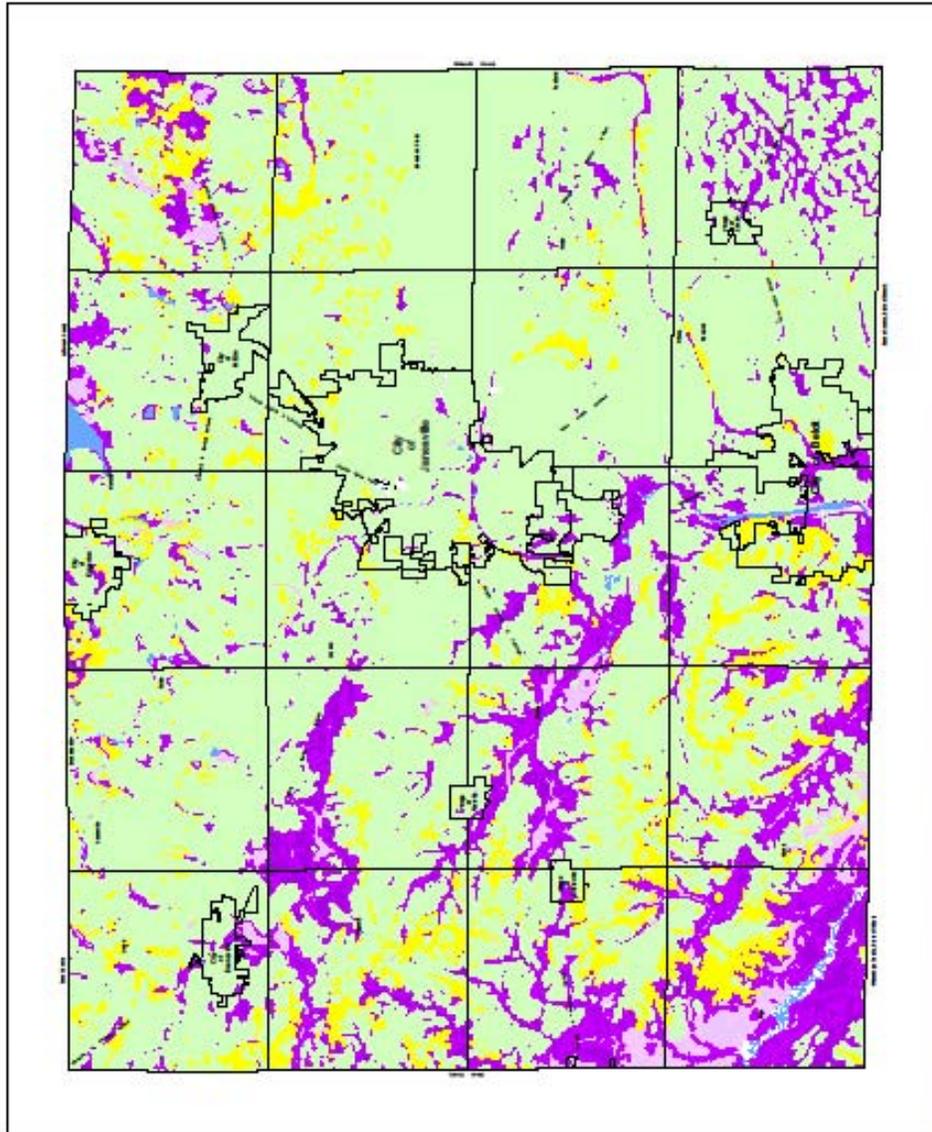
Data Source: WDNR

**Legend**

- Rivers and Streams
- WDNR Wetlands



**MAP 2-7: Soil Attenuation Potential in Rock County**



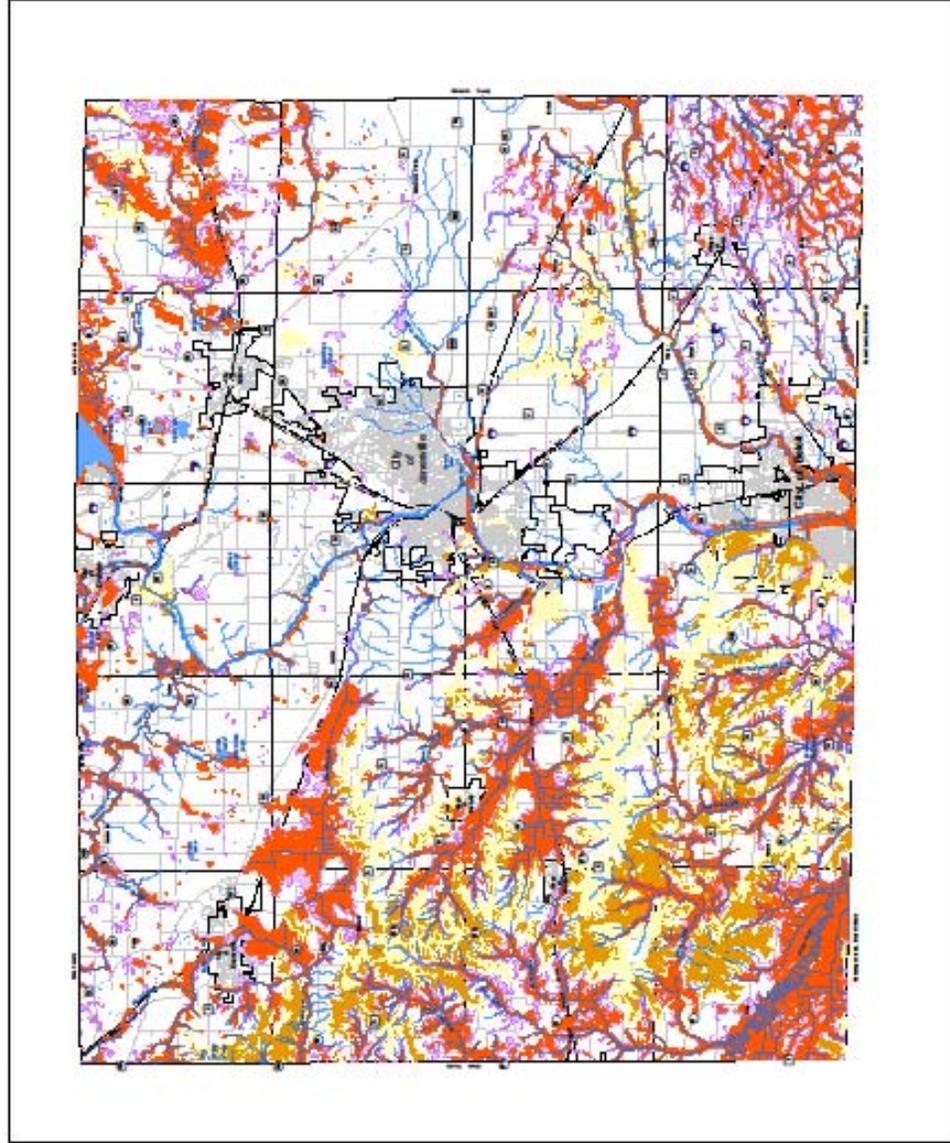
Data Source: Groundwater Protection Principals and Alternatives compiled by Rock County Land Conservation Department

Other known sources of groundwater contamination include underground storage tanks, pesticide applications, salvage yards, solid waste disposal sites, pharmaceutical wastes, spills of hazardous substances, and improperly abandoned wells. Programs such as residential and agricultural Clean Sweeps and pharmaceutical drug collection programs assist the community in reducing the potential for contamination of the waters of Rock County.

It is estimated that there may be over 500 wells in Rock County that are no longer in use but have not been properly abandoned (LCD, 1995). Each of these wells is a direct conduit for contamination into groundwater. Rock County Health Department and LCD will implement a county well abandonment ordinance along with cost sharing for proper abandonment of these wells. Educating the public about groundwater concerns is essential in reducing negative impacts to the groundwater of Rock County. Well testing programs and interagency coordination of community awareness are needed to prevent further degradation of groundwater.

In 2002, the USGS created a groundwater simulation model that identified zones of contribution for each municipal well in Rock County (Gaffield, 2002). Zones of contribution are land areas for infiltration and recharge to a particular well. Recognizing that it is much easier and less expensive to protect groundwater supplies than remove pollutants, land use controls and land preservation provide an opportunity to protect these identified groundwater contribution areas at low cost and without interruption of service. Further information on the zones of contribution and well locations within the County can be obtained by contacting the Rock County Health Department.

MAP 2-8: Depth to Groundwater and Bedrock in Rock County



DATA SOURCE: ROCK COUNTY SOIL SURVEY

## ASSESSMENT OF SOIL AND WATER RESOURCE CONDITIONS

This section provides a review of the current soil and water resource conditions within Rock County. Soil erosion and sediment delivery will be reviewed first followed by water quality conditions.

### Soil Erosion, Sediment Delivery, and Agriculture Trends

Management of soils is a major concern in Rock County. Soil erosion and deposition degrade water quality and long-term soil productivity. Erosion and deposition can occur within the boundaries of a field and not have impacts on the surface water resources. If the sediment is released to a surface water resource, it can have far reaching negative economic and environmental effects. Flood capacity in road and drainage ditches is reduced by sediment and need to be cleared out. Fertile topsoil and other less visible inputs to cropland like fertilizers are washed away. Gullies need to be repaired. Habitat for fish and prey insects is buried or washed away.

In soil conservation planning for farms, the soil loss tolerance (“T”) is the maximum soil loss allowed per year for a soil to sustain long-term fertility and is expressed tons/acre/year. It is associated with loss of soil via sheet flow from slopes within a field. “T” has been calculated over the years using a progression of recognized models from USLE then RUSLE, and most recently RUSLE 2. In 1986, Rock County conducted an inventory of soil erosion associated with agricultural land use and produced the *Rock County Erosion Control Plan* (1986) as a guide for the LCD to prioritize erosion and sediment control efforts. The inventory data set was updated in 1999 as part of the DATCP-sponsored transect survey to review progress of the “T by 2000” initiative (see <http://transect.soils.wisc.edu/> for methods). The 1999 survey showed that progress had been made in reducing in-field soil erosion (Table 2-8). The next generation of transect survey requires three years of data sets to be statistically viable, the LCD has committed to the development of this data set.

**TABLE 2-9:**

Watershed Name - (DNR ID #)	1986 Survey Results (USLE; soil loss in tons/acre/year)	1999 Transect Survey Results (RUSLE; soil loss in tons/acre/year)
<b>Lower Rock River Basin</b>		
LR01: Turtle Creek	6.4	3.2
LR02: Blackhawk Creek	4.1	2.4
LR03: Bass Creek	7.5	3.0
LR04: Rock River/Milton	6.2	2.3
LR05: Marsh Creek	4.1	3.3
LR06: Yahara River/Lake Kegonsa	6.0	3.3
LR07: Badfish Creek	9.0	3.2
LR11: Lower Koshkonong	7.8	2.4
LR14: Whitewater Creek	7.6	2.7
<b>Sugar-Pecatonica Rivers Basin</b>		
SP11: Lower Sugar River	6.0	2.5
SP12: Lower Middle Sugar	5.6	2.3
SP13: Allen Creek and Middle Sugar	6.3	1.9

In the past two decades, farming in Rock County has changed. Fewer acres are in hay, canning crops, and tobacco which all tend to be grown in clean tilled conditions; most farms are cash grain operations. Moldboard plows were replaced with chisel plows that with the establishment of Round-up Ready technology are being traded in for no-till or strip-till planters to reduce fuel costs among other reasons. More landowners are renting their land, which forces operators renting several farms to further economize to save per acre costs and time during a limited planting season. In 2007, approximately 60% of the 943 farms in FPP (35 or more acres) were rented. Of producers renting FPP farms, 19 producers each rented five to nine farms and nine producers each rented over 10 farms. This often means larger equipment, fewer trips, and consolidating fields, among other measures. However, as more acres are replaced with minimum tillage and no-till systems, soil erosion rates on these acres will decrease. Soil erosion data will be updated with a transect survey in 2009.

### **COORDINATION WITH WATER QUALITY MANAGEMENT PLANS**

Two basins are located in Rock County: Lower Rock River Basin and the Sugar Pecatonica River Basin (Map 2-9). The DNR's water quality management plans identify areas of water quality concern and proposed management objectives for the water resources of each basin. The plans focus on issues that require a comprehensive and collaborative management approach from DNR, other public agencies, and private citizens. They include background information and management objectives that were identified for each stream, river, lake, and groundwater. Specific objectives were identified for each watershed within the basin and were considered in the development of the LWRM work plan. Refer to Chapter 7 for more detail in regards to the work plan.

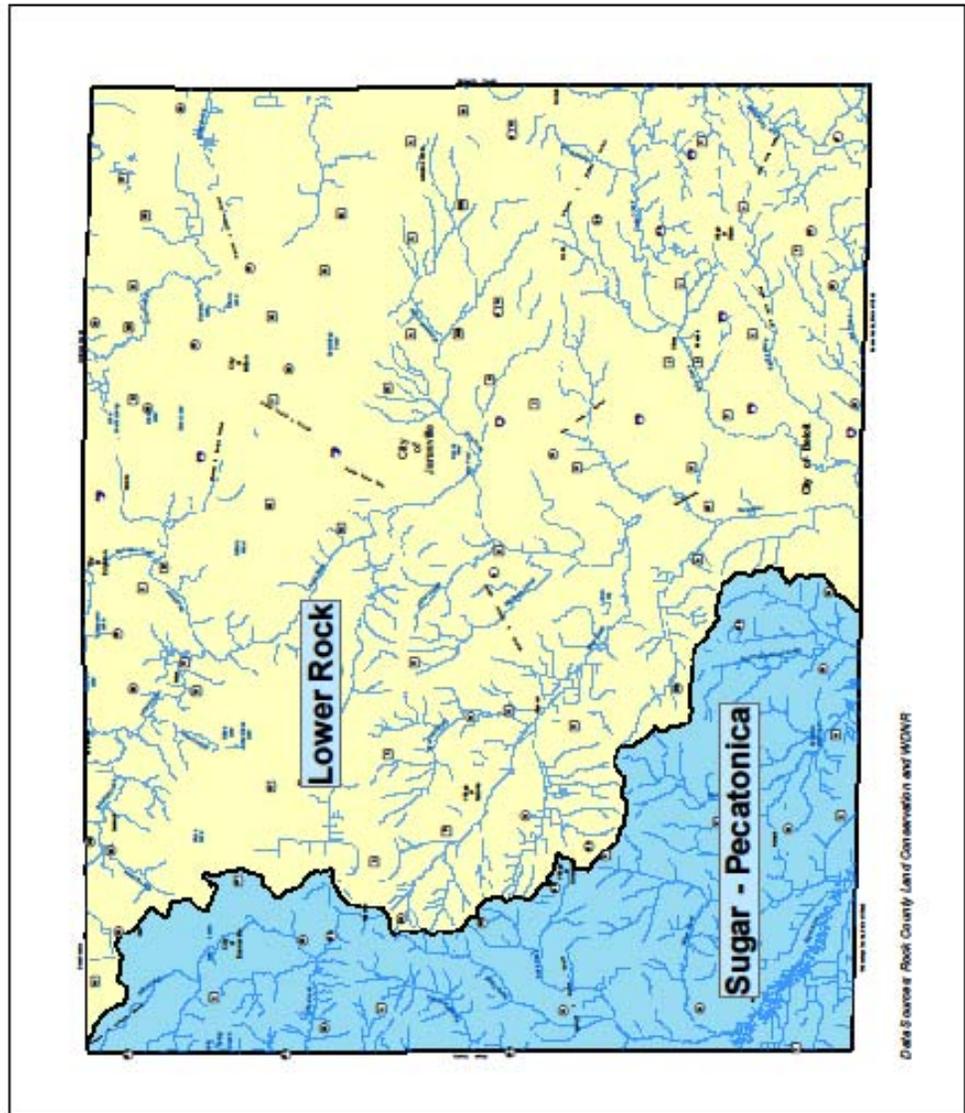
#### **Lower Rock River Basin Overview**

The Lower Rock River is one of two basins in Rock County. Agriculture is the predominant land use in the basin; however, urbanization is increasing. The agricultural land in this watershed has been determined to be some of the most productive agricultural land in the State of Wisconsin. Activities associated with increasing field productivity and increasing the productive land base have created many water quality problems. Stream channelization and draining and/or altering of wetlands increased the volume of runoff and decreased the time to move runoff from fields. The high volume of storm water carrying soil particles, nutrients, and pesticides rapidly enters streams causing excessive bank erosion, sedimentation in slack areas, and flooding downstream as outlets are overwhelmed. .

The source of all of the potable water or drinking water, for this basin is derived from the underlying aquifer. Groundwater quality is reduced by non-point source pollution such as excessive use of nitrogen for crop production, improper lawn fertilization, abandoned wells, and improperly functioning septic systems. This basin has two prohibition areas for the application of Atrazine based on the detectable levels in water samples (> 3ppb) (**Map 2-10**). The groundwater susceptibility modeling by DNR is based on five physical resource characteristics: depth to bedrock, bedrock type, soil characteristics, surface deposits, and depth to water table.

NOTE: The soil erosion rates cited in the following summaries are based on a watershed model used by DNR, not on the field-based models used by the LCD for farm scale planning.

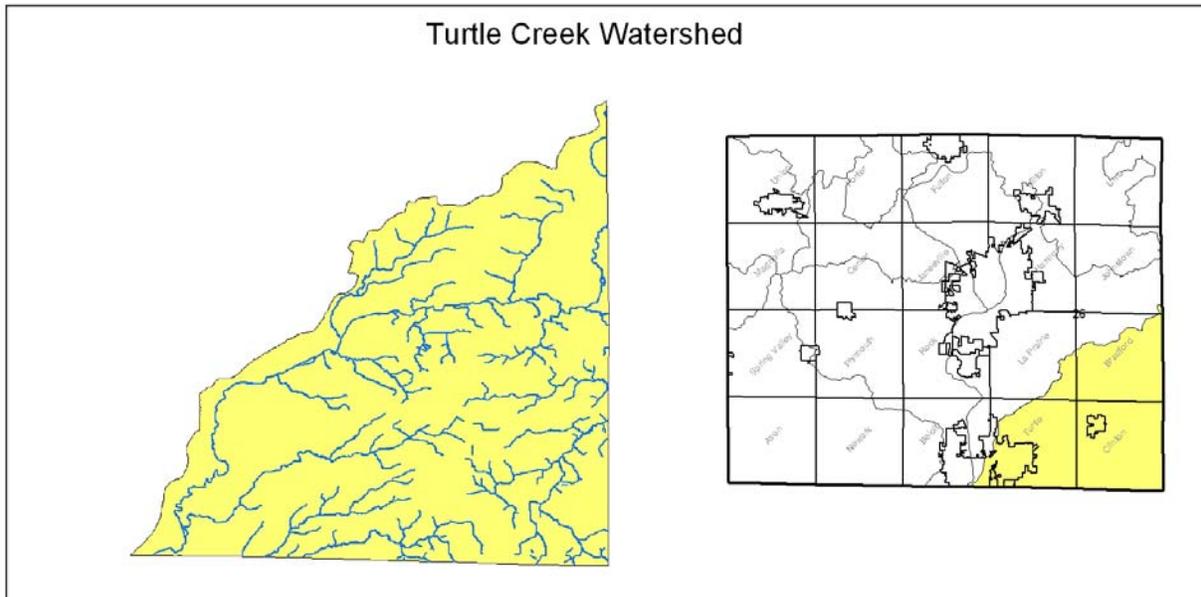
MAP 2-10: River Basins in Rock County



### **LR01: Turtle Creek Watershed**

The Turtle Creek Watershed is located in the southeastern section of Rock County and is approximately 231 square miles. The lower 38% of this watershed is in Rock County. The majority of the watershed (62%) is in Walworth County to the east. Cash grain agriculture is the primary land use. The main channel of this stream flows through Beloit prior to the confluence with the Rock River. This watershed was selected as a priority watershed project under the Wisconsin Nonpoint Source Pollution Abatement Program in 1982. The project was closed in 1994.

### **Map 2-11**



#### *Surface Water Resources*

Portions of three streams found in this watershed (Turtle Creek, Little Turtle Creek, and Spring Brook) have been designated Exceptional Resource Waters (ERW) due to various biological factors. The fishery supported in this watershed is one of the most diverse in the county. Most of the Little Turtle Creek has been ditched or straightened. Concerns in Turtle Creek Watershed include, but are not limited to habitat deterioration, increased water temperatures, sediment loading, bacteria, nutrient loading, and low dissolved oxygen levels. This watershed has a mid to high rating for phosphorus loading (0.617-0.923 lbs/acre/year) and a medium rating for sediment delivery (0.09 – 0.13 tons/acre/year). There are no lakes in this watershed. For a more complete water quality profile, refer to the Lower Rock River Water Quality Management Plan Appendix.

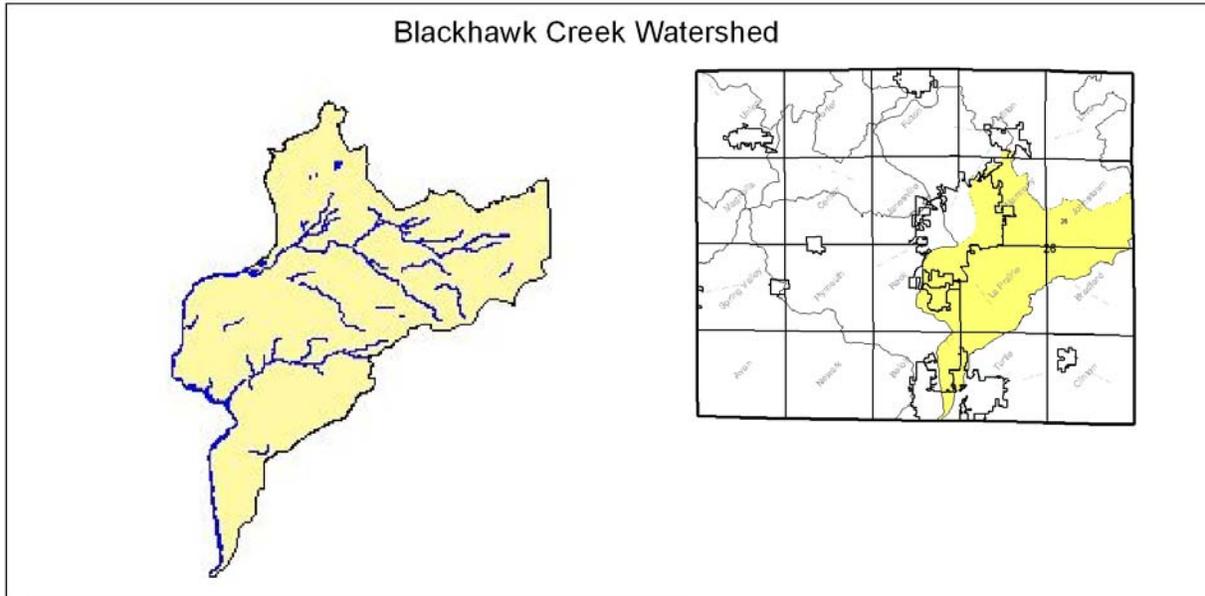
#### *Groundwater Resources*

DNR has rated this watershed as having a high-medium susceptibility for groundwater contamination. Protection of the groundwater is limited. A high rating is due to the depth to groundwater and the soil characteristics present. An important issue is of the presence of the City of Beloit Wellhead Zone of Contribution in this unincorporated area of the watershed.

**LR02: Blackhawk Creek Watershed**

This watershed is located in the eastern midsection of the County and is approximately 106 square miles. Nearly all (99%) of this watershed is located in Rock County. Agricultural production of cash grain crops is the predominant land use in this watershed. Urbanization around the cities of Janesville and Beloit is occurring at a very rapid rate. Sedimentation and urban runoff are the major threats to this watershed.

**MAP 2-12**



*Surface Water Resources*

This watershed drains what is known as the Rock Prairie. This watershed has a mid rating for phosphorus loading (0.398-0.617 lbs/acre/year) and a medium rating for sediment delivery (0.09 – 0.13 tons/acre/year). The main channel of the stream is highly susceptible to running dry, only conveying winter and spring runoff. During wet years the channel runs year round.

This watershed is also home to four small lakes; Janesville Gravel Pit, Lions Park, Sheepskin Lake, and Spaulding Pond. Janesville Gravel Pit and the Lions Park are former quarries in the City of Janesville. Sheepskin Lake, and Spaulding Pond are very shallow and need further studies to identify impacts.

*Groundwater Resources*

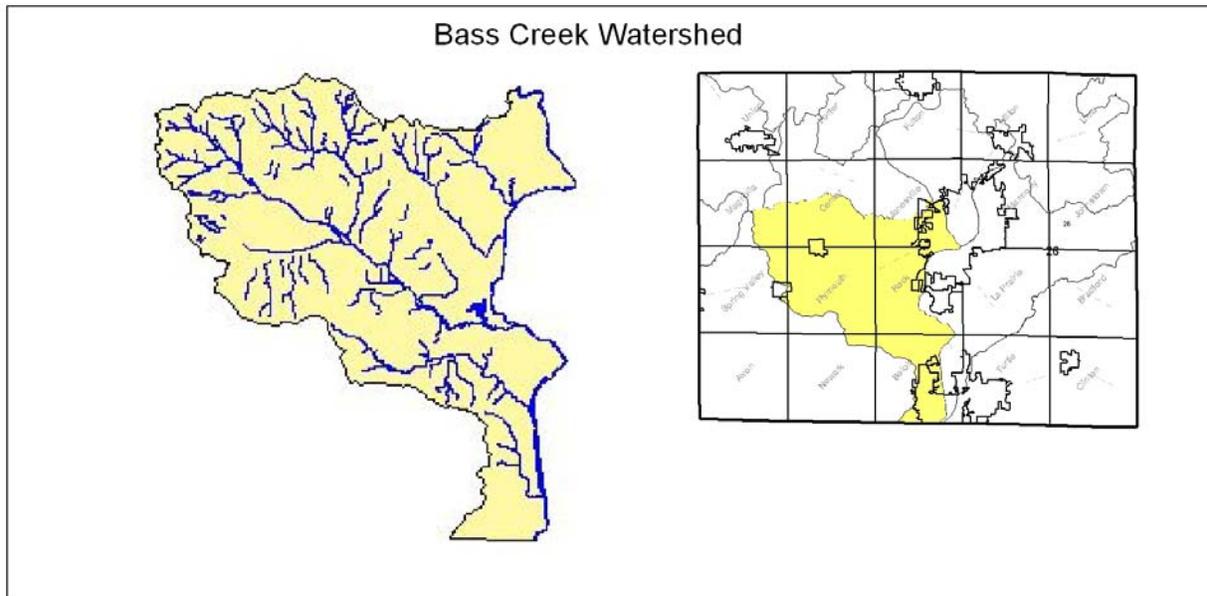
This watershed has a medium susceptibility for groundwater contamination based on the DNR groundwater susceptibility modeling. An important issue is the presence of one Wellhead Zone of Contribution for the City of Janesville in this unincorporated area of the watershed, which has the highest frequency of well tests with high nitrate-nitrate (>10ppm). Also, numerous well tests have a high frequency of coliform bacteria present.

**LR03: Bass Creek Watershed**

This watershed is located in the western midsection of the County and is approximately 109 square miles. The predominant land use is agriculture, with urban areas of Janesville and Beloit.

The land use is primarily agricultural, however portions of the watershed flow through the urbanized areas of Beloit and Janesville.

### MAP 2-13



#### *Surface Water Resources*

Bass Creek Watershed was designated a priority area for USDA-Environmental Quality Incentive Program (EQIP) and the state's Priority Watershed Program. Both programs have since closed. USDA provided funding to landowners interested in the implementation of water quality projects, such as barnyard and streambank improvements. According to the Lower Rock River Water Quality Management Plan, sections of the main branch of Bass Creek are listed as an Exceptional Water Resource. Currently, Stevens Creek and Markham Creek subwatersheds are listed on the impaired waters of the state (303d) list. DNR conducted a preliminary TMDL survey and draft report on both watersheds in 2002-2004. Both streams have been designated priority areas for the Land and Water Resource Management Plan activities. Fisher Creek is the only other named stream in this watershed. The mid and upper sections of Bass Creek are in a drainage district. Bass Creek watershed has a mid rating for phosphorus loading (0.398-0.617 lbs/acre/year) and a medium rating for sediment delivery (0.09 – 0.13 tons/acre/year). Only one lake, Afton Gravel Pit, exists in this watershed and is manmade. The lake supports a fishery of bass, pike, and pan fish. For a more complete water quality profile, refer to the Lower Rock River Water Quality Management Plan Appendix.

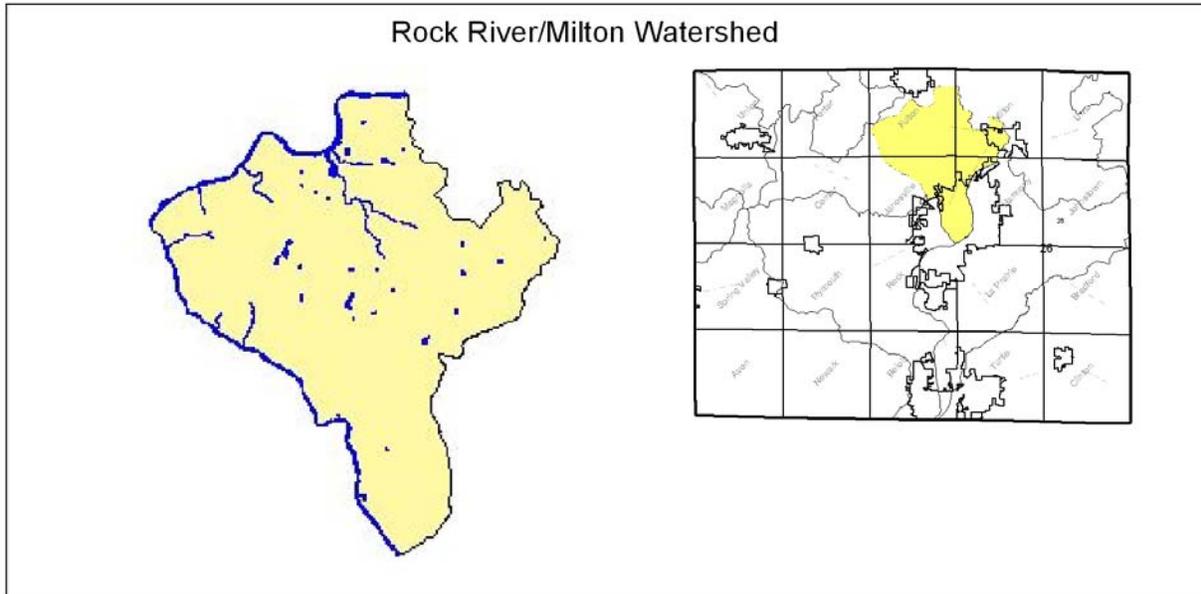
#### *Groundwater Resources*

This watershed has a high susceptibility for groundwater contamination based on the DNR groundwater susceptibility modeling. Protection of the groundwater is limited. The high rating is due to the depth to groundwater (< 3feet), the soil characteristics, bedrock type (fractured dolomite) and surficial deposits present. An important issue is presence of one Wellhead Zone of Contribution for the City of Janesville in this unincorporated area of the watershed. This watershed has the highest frequency of well tests with high nitrate-nitrate (>10ppm) and coliform bacteria. One Atrazine prohibition area exists in this watershed.

**LR04: Rock River/Milton Watershed**

This watershed is located in the northeastern midsection of the county and is approximately 55 square miles. There are no named streams in this watershed; however, a few unnamed tributaries to the Rock River are present along the west section of the watershed. Much of this watershed is internally drained due to its uneven topography and location in the Moraine High Relief area. This watershed has extensive conversion of rural land use, primarily agriculture to urban land uses in the recent past.

**MAP 2-14**



*Surface Water Resources*

Soil erosion and gully controls along Rock River should be the main area of focus in this watershed. For a more complete water quality profile, refer to the Lower Rock River Water Quality Management Plan Appendix

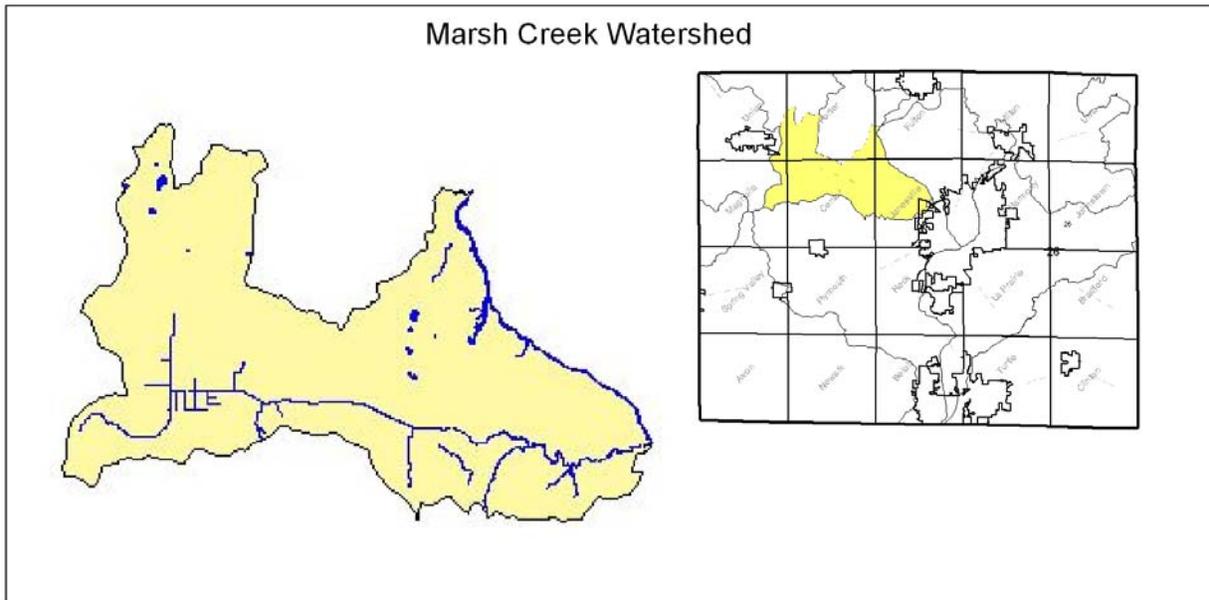
*Groundwater Resources*

This watershed has a high-medium susceptibility for groundwater contamination based on the DNR groundwater susceptibility modeling. Protection of the groundwater is limited due to the depth to groundwater and surficial deposits present. An important issue is the presence of one Wellhead Zone of Contribution for the City of Janesville in this unincorporated area of the watershed. One Atrazine prohibition area exists in this watershed.

**LR05: Marsh Creek Watershed**

This watershed is located in the northwestern midsection (Outwash Plain) of the County, and is approximately 44 square miles. The predominant land use is agriculture with urbanization of Janesville slowly spreading into this watershed. This area was selected along with Bass Creek as an EQIP priority area.

## MAP 2-15



### *Surface Water Resources*

Straightening of the stream channels and ditching of wetlands have altered much of this watershed. Siltation of the main channel is a significant problem. Erosion control and water quality practices like streambank stabilization and filter strips have been installed through EQIP, CRP, and WRP. The mid and upper sections of this watershed are in a drainage district. This watershed has a mid rating for phosphorus loading (0.398-0.617 lbs/acre/year) and a medium rating for sediment delivery (0.09 – 0.13 tons/acre/year). For a more complete water quality profile, refer to the *Lower Rock River Water Quality Management Plan Appendix*.

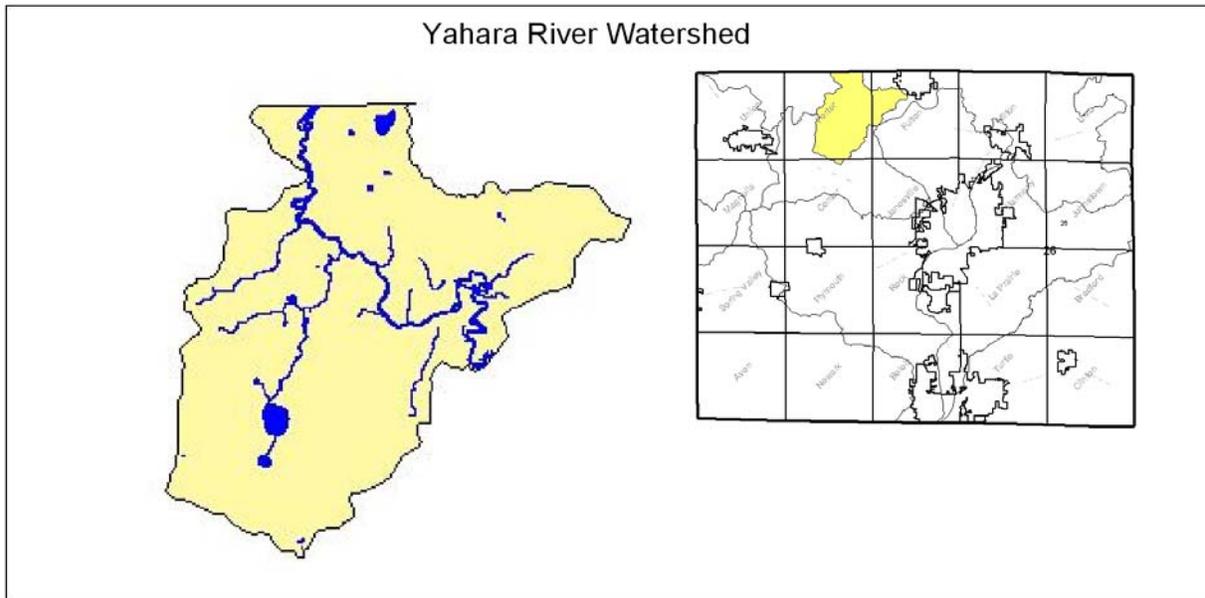
### *Groundwater Resources*

This watershed has a high-medium susceptibility for groundwater contamination based on the DNR groundwater susceptibility modeling. Protection of the groundwater is limited; the high-medium rating is due to the depth to groundwater, soil characteristics, and surficial deposits present.

### **LR06: Yahara River/Lake Kegonsa Watershed**

The lower portion of this watershed, approximately 21 square miles of 126 square miles total, is located in Rock County in the northwestern midsection (Moraine High Relief) (**Map 2-16**). Agriculture plays a dominant role in the water quality of this area. Siltation in the stream channel is a problem causing loss of fish habitat. Rough fish populations are a problem. The dam at Fulton was removed and the dam at Stebbinsville failed and will be removed. There are two lakes within the Rock County portion of the Yahara/Lake Kegonsa Watershed, Gibbs and Little Gibbs Lakes.

## MAP 2-16



### *Surface Water Resources*

The Yahara River and Gibbs Creek are present in this watershed. The Yahara River flows from Dane County into Rock County and is listed on the 303d water list. Gibbs Creek flows in a northeast direction to the confluence with the Yahara River at Fulton. Gibbs Creek is a small natural outlet for Little Gibbs Lake and Gibbs Lake, both seepage lakes. Gibbs Lake and Little Gibbs Lake are the only two lakes that exist in Rock County's section of this watershed and are impacted by nonpoint source pollution. Efforts to control soil erosion in this watershed should be made a priority. This watershed has a mid rating for phosphorus loading (0.398-0.617 lbs/acre/year) and a medium rating for sediment delivery (0.04 – 0.09 tons/acre/year). For a more complete water quality profile, refer to the *Lower Rock River Water Quality Management Plan Appendix*.

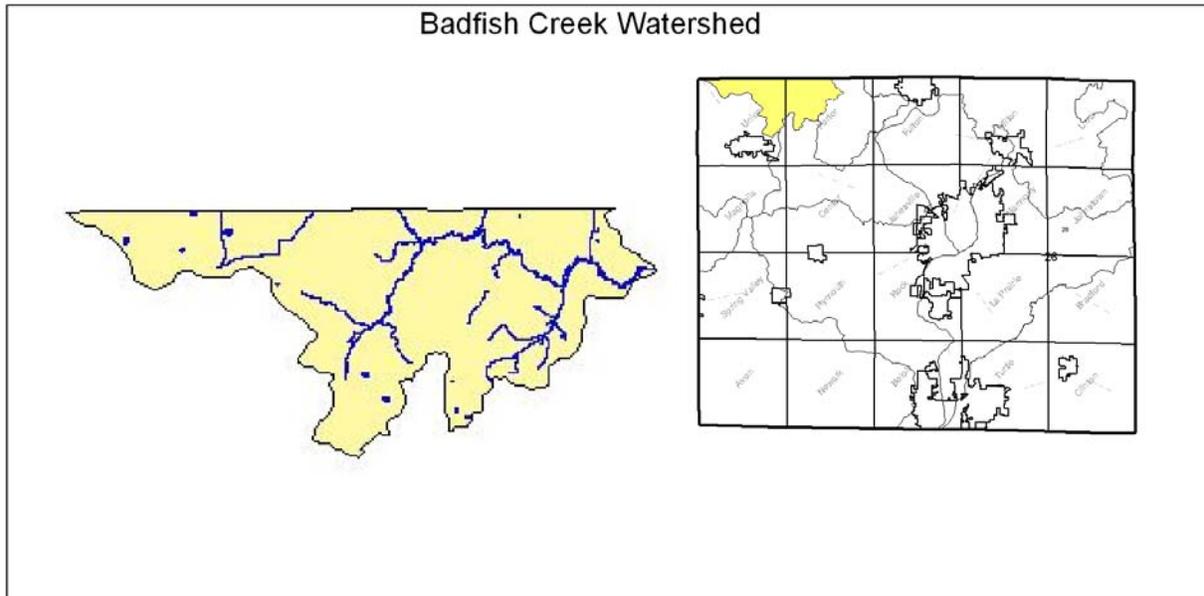
### *Groundwater Resources*

This watershed has a medium susceptibility for groundwater contamination based on the DNR groundwater susceptibility modeling. Protection of the groundwater is limited, hence a medium rating. Depth to groundwater is greater than 3 feet, soil characteristics have high attenuation properties, and surficial deposits tend to be deep and unsorted. It should be noted that this watershed has a very low frequency of high nitrate-nitrite well tests.

### **LR07: Badfish Creek Watershed**

This watershed is approximately 85.5 square miles in size and is located in the northwestern corner of Rock County (Moraine High Relief). Only the lower 19 square miles of this watershed is in the County. Soil erosion control and animal management practices should be the focus of this watershed.

## MAP 2-17



### *Surface Water Resources*

Most of the Badfish Creek Watershed is in Dane County. Spring Creek, a small tributary to the Badfish Creek, was made a small scale Nonpoint Source Priority Watershed Project in 1993. The project closed in 2004. However, this creek has the distinction of being one of a few that the DNR has submitted for removal from the USEPA's 303d list. The rating has changed since Spring Creek now supports a self-sustaining trout population. This watershed has a mid rating for phosphorus loading (0.235-0.398 lbs/acre/year) and a medium rating for sediment delivery (0.04 – 0.09 tons/acre/year). Only one lake, Grass Lake, exists in Rock County's portion of this watershed. The lake is 16 acres and has a maximum depth of six feet. For a more complete water quality profile, refer to the Lower Rock River Water Quality Management Plan Appendix.

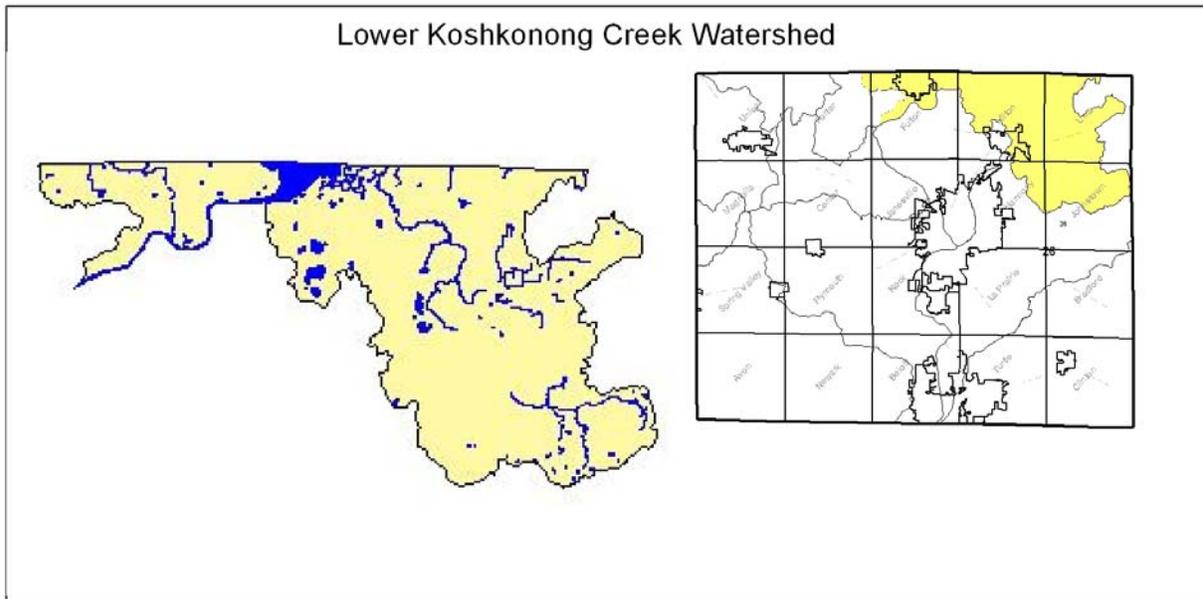
### *Groundwater Resources*

This watershed has a high-medium susceptibility for groundwater contamination based on the DNR groundwater susceptibility modeling. Protection of the groundwater is limited and hence a medium rating. Depth to groundwater is greater than 3 feet, soil characteristics have high attenuation properties, and surficial deposits tend to be deep and unsorted. It should be noted that this watershed has a very low frequency of high nitrate-nitrite well tests.

### **LR11: Lower Koshkonong Creek Watershed**

This watershed is located in the northeastern corner of the county and is approximately 220 square miles. Less than a quarter of this large watershed, approximately 82 square miles, is within Rock County. The watershed is located in the Moraine High Relief physiographic region. The predominant land use in this watershed is agriculture. Many wetland areas have been altered to provide more crop production lands; this is evident within the headwaters of Otter Creek, the only named creek in Rock County's portion of the watershed.

## MAP 2-18



### *Surface Water Resources*

Otter Creek is a low gradient stream that meanders through moraines before emptying into Lake Koshkonong. Most of the headwaters and midsection of this stream have been straightened. This stream has been known to carry heavy sediment loads at times; however, the stream's main channel flows through large wetland complexes. Much of its corridor has been spared from development by steep, uneven, or very wet ground. Not including smaller pothole lakes, there are five lakes within the County portion of this watershed. This includes the southern tip of Lake Koshkonong, a shallow impoundment of the Rock River. Siltation and shoreline erosion are major problems in Lake Koshkonong. Clear Lake is a 62-acre seepage lake that is listed as an impaired (USEPA 303d) water resource. Impacts to Clear Lake are associated with the lake's phosphorus sensitivity. Storrs Lake is a 40-acre drainage lake with little to no information available. Grass Lake is a 70-acre shallow seepage lake with little to no information available. This watershed has a low rating for phosphorus loading (0.083 – 0.235 lbs/acre/year) and a low rating for sediment delivery (0 – 0.04 tons/acre/year). For a more complete water quality profile, refer to the Lower Rock River Water Quality Management Plan Appendix.

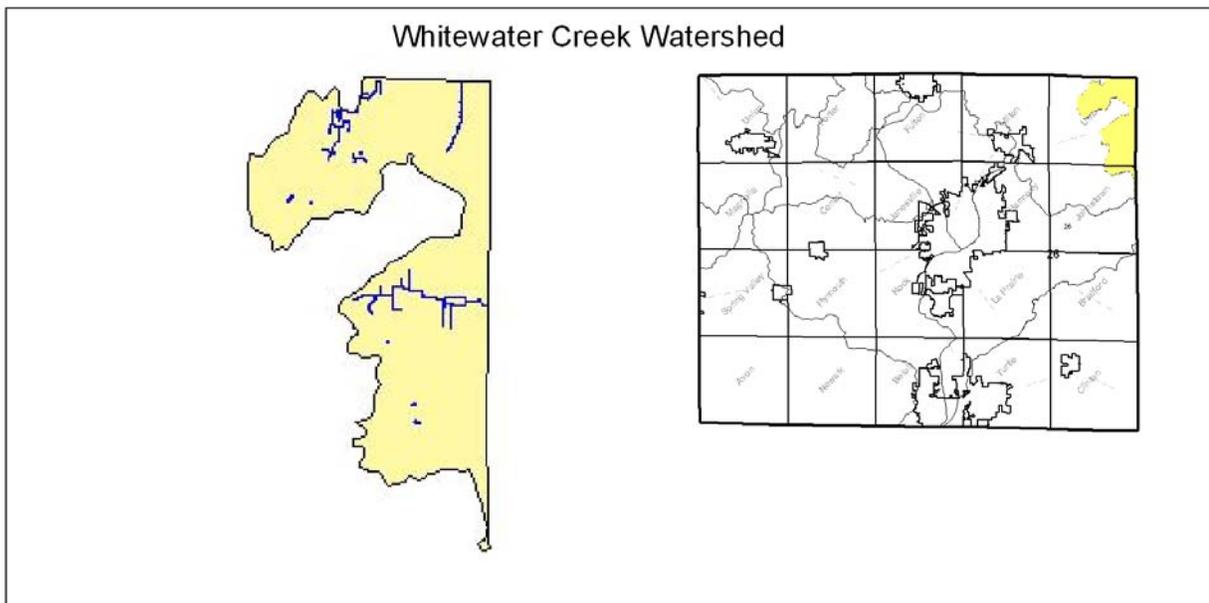
### *Groundwater Resources*

This watershed has a medium susceptibility for groundwater contamination based on the DNR groundwater susceptibility modeling. Protection of the groundwater is limited, hence a medium rating. Depth to groundwater is greater than 3 feet, soil characteristics have high attenuation properties, and surficial deposits tend to be deep and unsorted. It should be noted that this watershed has a very low frequency of high nitrate-nitrite well tests

### **LR14: Whitewater Creek Watershed**

This watershed is 71 square miles. Approximately 15 square miles of the upper portion of the watershed is in Rock County. The land use is primarily agricultural. Soil erosion control should continue to be encouraged in the Whitewater Creek Watershed.

## MAP 2-19



### *Surface Water Resources*

This watershed has two named creeks in Rock County; Spring and Galloway Creeks. Very little is known of the condition of either. Galloway Creek originates in the Lima Marsh. The predominant land use is agriculture. This watershed has a middle low rating for phosphorus loading (0.235-0.398 lbs/acre/year) and a low rating for sediment delivery (0.00 – 0.09 tons/acre/year). For a more complete water quality profile, refer to the *Lower Rock River Water Quality Management Plan Appendix*.

### *Groundwater Resources*

This watershed has a medium susceptibility for groundwater contamination based on the DNR groundwater susceptibility modeling. Protection of the groundwater is limited, hence a medium rating. Depth to groundwater is greater than 3 feet, soil characteristics have high attenuation properties, and surficial deposits tend to be deep and unsorted. It should be noted that this watershed has a very low frequency of high nitrate-nitrite well tests.

### **Sugar-Pecatonica Rivers Basin Overview**

One of two basins in Rock County, the Sugar-Pecatonica is in the western one-third of the County. Most of the basin is in Green, Iowa, Lafayette, and Dane Counties. Like the Lower Rock River, agriculture is the dominant land use in this basin and is the primary source of nonpoint source pollution leading to water quality degradation. Orfordville, Brodhead, and Evansville are the only three incorporated urban areas in the Rock County portion of the basin.

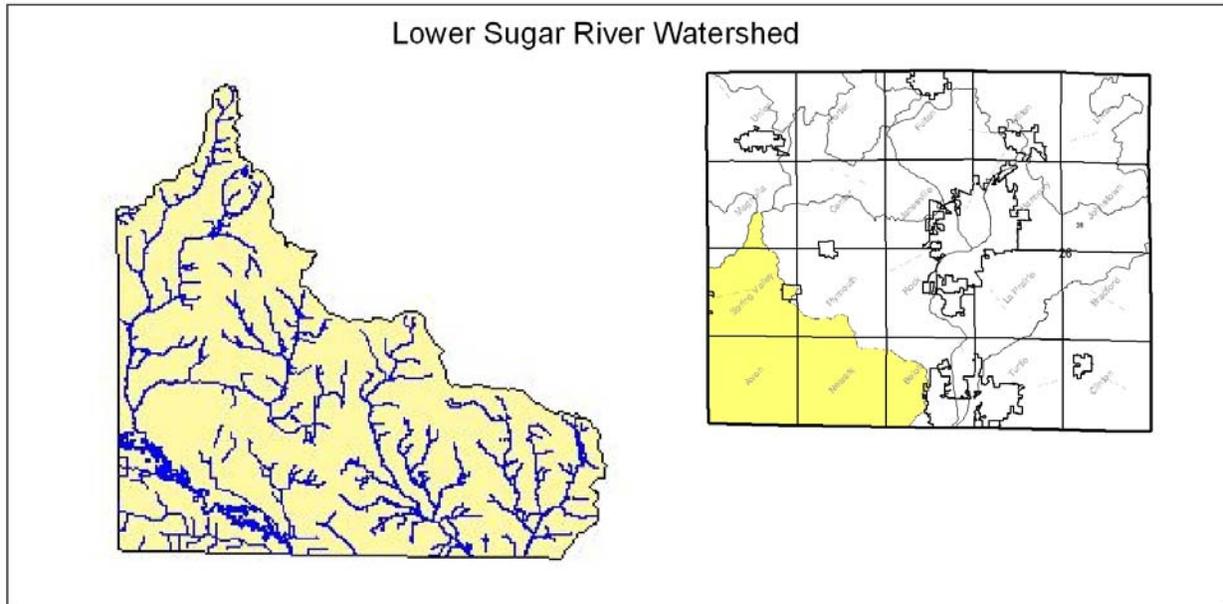
**Resource Concerns and Assessment:** Water in the basin is listed as fair to good according to the Sugar-Pecatonica Water Quality Management Plan. About 260 miles of streams are classified as cold-water fisheries and another 517 miles are classified as warm water fisheries. This makes the basin a valuable recreational fishing area. Over 700 miles of streams in the basin are not yet classified. Much of the nonpoint source pollution problems are the same as in the Lower Rock

River Basin. Rock County's portion of this basin has three streams that are listed as Exceptional Resource Waters (ERWs) (**MAP 2-4**).

**SP11: Lower Sugar River Watershed**

This watershed is approximately 218 square miles from the dam at Albany in Green County to the Wisconsin-Illinois state line with 121 square miles in Rock County. Agriculture is the dominant land use in this watershed.

**MAP 2-20**



*Surface Water Resources*

Most streams in this watershed are listed as warm water sport fisheries and are home to several species of threatened and endangered fish. Raccoon Creek and the East Fork of Raccoon Creek are the only two remaining streams in the Sugar River basin that support significant numbers of redbreast dace and support the least darter. Each stream is considered an Exceptional Resource Water (ERW). The corridors of both streams are buffered with extensive high quality wetlands. In addition, the East Fork of Raccoon Creek is a cold stream stocked with brook trout fingerlings by the DNR. Surveys conducted since 2002 show good carryover of brook trout populations as well as a diversity of forage fish.

The Raccoon Creek watershed received a high priority rating for selection as a small-scale state Nonpoint Priority Watershed Project that has since closed. For that project, Rock County LCD was awarded a grant under the Wisconsin River Planning Grant Program to assemble a citizens advisory committee, identify resource concerns, and implement an information and education campaign to address water quality concerns. The installation of agricultural erosion control practices promoted by the NRCS and LCD has resulted in a general decrease in the sediment delivered to surface waters in this watershed. The Raccoon Creek subwatershed will continue to be a priority for the implementation of the Land and Water Resource Management Program.

Swan Creek is a warm water stream that originates near Orfordville and flows southwest where it empties into Taylor Creek. The lower five miles of stream currently support a warm water sport fishery. Agricultural non-point source pollution and channelization have impacted the fishery habitat in the stream. The stream receives effluent from the Orfordville sewerage treatment plant. The plant was upgraded in 1981 which improved the water quality of the stream (Marshall, 1988). by default The DNR Fishery Manager has determined the lower five miles could potentially be a Class II trout stream. This observation is based on a 1997 survey that showed populations of naturally occurring fingerlings in this stream section (Don Bush, DNR, pers. comm.). The upper two miles of stream are classified as limited forage fishery. Based on surveys conducted in 2002, the DNR has proposed reclassifying the portion of the stream above Potter Road as a limited forage fishery due to low flow and from Potter Road downstream to Dickey Road as a warm water forage fishery because of the diverse forage community found there. The stream was sampled at various sites in 2004 and at Keeseey Road in 2006. The stream contained a variety of forage fish and trout, however, creek chubs and white suckers dominated the sampling.

Taylor Creek is a 13-mile stream that flows southwest and empties into the Sugar River. The lower six miles of the stream reportedly support a warm water sport fishery consisting of largemouth and smallmouth bass and northern pike that likely migrate upstream from the Sugar River. However, recent surveys conducted in 2004, 2006 and 2007 at State Highway 81, Hafeman Road, State Highway 11 and Footville-Brodhead Road found a fishery assemblage made up of mostly tolerant forage fish species, bass and trout. This portion of the stream has the potential to support a cold-water fishery (Don Bush, DNR, pers. comm.); however, numerous beaver dams slow and warm the water. The upper half of the stream is a warm water forage fishery. The stream also suffers from channelization, sedimentation and lack of habitat.

Willow Creek is a seepage fed stream originating south of Orfordville, and flowing southwest 10 miles to enter Taylor Creek. The upper three quarters of the stream has been ditched and supports a warm water forage fishery. The lower three miles of stream supports a warm water sport fishery. The stream was surveyed at State Highway 81 in 2004 and at Nelson Road and Holden Road in 2006. The stream contains a variety of forage species including the state listed least darter and redfin shiner, but is dominated by tolerant species. A few largemouth bass are found in the lower stretch of the stream. Like Taylor Creek, beaver dams also heavily impact this stream. Although there are some good wet meadow buffers along certain sections of the stream, the habitat has been limited by channelization and sedimentation.

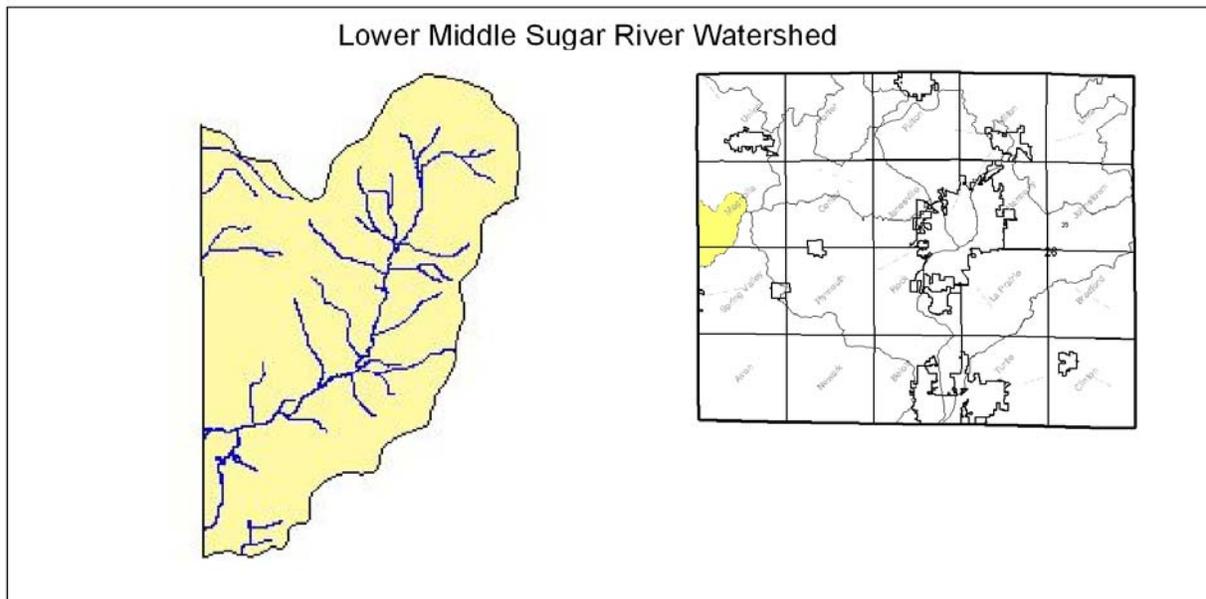
#### *Groundwater Resources*

This watershed has a **medium** susceptibility for groundwater contamination based on the DNR groundwater susceptibility modeling. Protection of the groundwater resource is limited due the following attributes; depth to groundwater is less than 3 feet, soil characteristics have medium attenuation properties, and surficial deposits present tend to be shallow. It should be noted this watershed has two Atrazine Prohibition Areas.

#### **SP12: Lower Middle Sugar Watershed**

This watershed is approximately 56 square miles in size with the upper 11 square miles in Rock County. The whole watershed is in the Western Uplands. Agriculture is the predominant land use in this watershed.

## MAP 2-21



### *Surface Water Resources*

Norwegian Creek is the only named stream within the County's portion of this watershed. This stream flows into Green County and enters the Mill Race Arm of the Sugar River at Decatur Lake. It is home to forage fish, including the least darter, a species on the State's special concern list. Norwegian Creek was surveyed at County Highway B and County Highway E in 2006. A variety of forage fish were found at both sites, including the least darter. An unnamed tributary to Norwegian Creek was also surveyed in 2006 at Atkinson Road and Bump Road. This tributary also contained the least darter as well as a similar assemblage of forage species. This subwatershed will continue to be a priority for the implementation of CREP and the LWRM Plan. The section of this stream, found in Green County is classified as an ERW. For a more complete water quality profile, refer to the Sugar-Pecatonica Water Quality Management Plan.

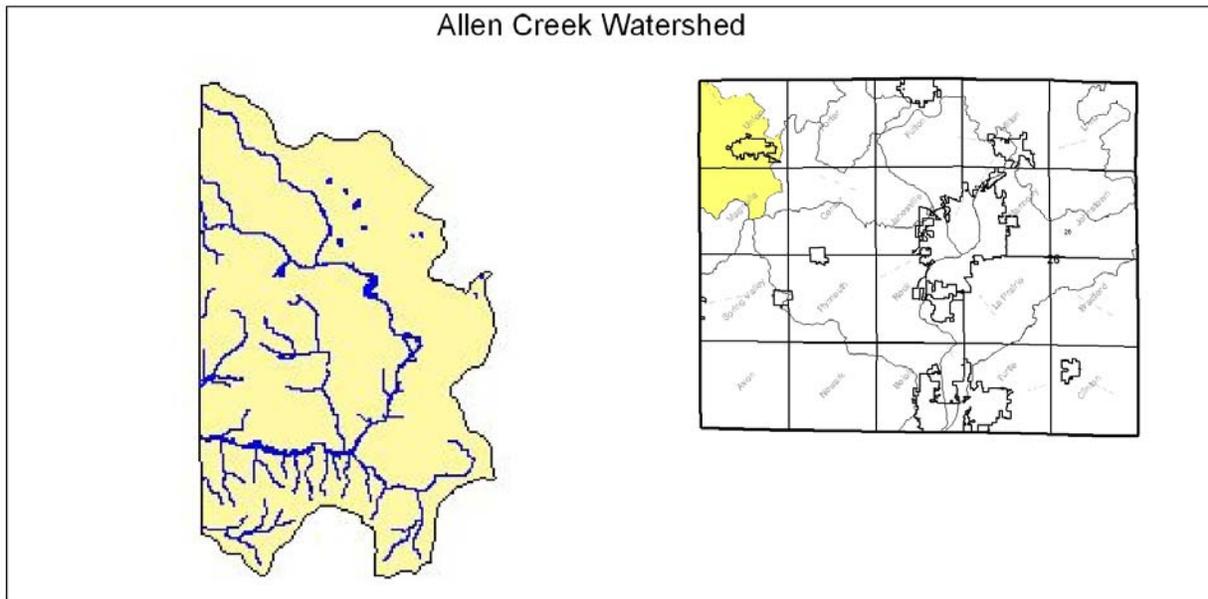
### *Groundwater Resources*

This watershed has a **medium** susceptibility for groundwater contamination based on the DNR groundwater susceptibility modeling. Protection of the groundwater is limited, hence a medium rating. Depth to groundwater is less than 3 feet, soil characteristics have medium attenuation properties, surficial deposits tend to be shallow, and the area is underlain by fractured dolomite and sandstone bedrock. It should be noted this watershed has two Atrazine Prohibition Areas.

### **SP13: Allen Creek and Middle Sugar River Watershed**

This watershed is approximately 153 square miles in size with 40 square miles located in the uppermost northwest section of Rock County (Moraine High Relief). The City of Evansville is only city in this watershed in Rock County. Storm water and construction site erosion from this municipality have impacted the water quality of Allen Creek. Agricultural is the predominant land use.

## MAP 2-22



### *Surface Water Resources*

The Allen Creek subwatershed is divided by a dam at Evansville, which forms Lake Leota. The city of Evansville dredged and restored the lake in 2009. The last 11 miles of Allen Creek from the confluence with the Sugar River up to Old Hwy 92 Road is a very good diverse warm water fishery and classified as an ERW. A section from Old 92 Road up to the dam at Lake Leota is also ERW. The next 10 miles upstream, with the exception of Lake Leota, are classified as trout waters; from the dam at Lake Leota downstream to Hwy 213 has been upgraded from Class III trout waters to Class II trout waters. Above the lake, Allen Creek is Class II and III trout waters. Lake Leota is a very shallow impoundment that has been intensely studied for restoration as a recreational lake in recent years by the Save Our Lake and Environment (SOLE), a citizen group. In November 2008, the City of Evansville citizens passed a two million dollar referendum authorizing the lake's revitalization. The restoration of the Lake should be completed by spring of 2009.

The upper reaches of Allen Creek are in a drainage district and have been extensively altered by stream straightening and wetland drainage. The upper section of the stream (upstream from County Highway T and Evansville Road) was sampled in 2006 as part of the Brooklyn wastewater treatment plant re-design. No trout were found and the stream contained a half dozen, mostly tolerant, forage species. Index of Biotic Integrity (IBI) scores ranged from "Poor" to "Fair". Allen Creek was surveyed at two sites downstream from the dam in 2003. Both sites showed a variety of forage species as well as smallmouth bass and brown trout. Soil erosion control will continue to be an important aspect of water quality management in this area. For a more complete water quality profile, refer to the *Sugar-Pecatonica Water Quality Management Plan*.

### *Groundwater Resources*

This watershed has a **medium** susceptibility for groundwater contamination based on the DNR groundwater susceptibility modeling. Protection of the groundwater is limited and hence a medium rating. Depth to groundwater is less than 3 feet, soil characteristics have medium attenuation properties, and surficial deposits tend to be shallow.

## **OTHER NATURAL RESOURCE CONCERNS**

### **Threatened and Endangered Species**

While the conservation is important for all native plants, animals, and habitat, this is particularly essential for threatened and endangered species. A threatened species is one that is likely, within the foreseeable future, to become endangered. An endangered species is one whose continued existence is in jeopardy and may become extinct. When the size and composition of habitat are reduced, plants and animals are forced to adjust or, if able, to seek suitable habitat elsewhere. This adjustment or movement stresses the viability of individuals, of the population, and of the plants and animals that rely on the affected species.

The State Legislature enacted the Wisconsin Endangered Species Law to protect animals and plants recognized as threatened or endangered at the state level. In addition, the Federal Endangered Species Act protects animals and plants that are considered endangered or threatened at the national level. Projects that receive federal or state funding must be screened for threatened or endangered species. Remnants of Wisconsin's intact native habitats are also tracked but not protected by the law.

The Wisconsin DNR's Endangered Resources Program monitors endangered, threatened, and species of special concern and maintains the state's Natural Heritage Inventory (NHI) database of rare species in Wisconsin. NHI data are exempt from the open records law because of their sensitive nature; however, maps of general locations of reports, species lists, and statuses are available to the public.

According to the NHI and the DNR, there are 43 species in Rock County listed threatened or endangered by federal or state governments (24 plants, 6 birds, 6 fish, 2 turtles, 1 snake, and 4 mussels) (Table 2-23).

**Table 2-23**

Threatened and Endangered Species – Rock County (NHI, 2008)		
Common Name	Scientific Name	State Status
<b>PLANTS</b>		
Woolly Milkweed	<i>Asclepias lanuginosa</i>	Threatened
Purple Milkweed	<i>Asclepias purpurascens</i>	Endangered
Hill's Thistle	<i>Cirsium hillii</i>	Threatened
Roundfruit St. Johns Wort	<i>Hypericum sphaerocarpum</i>	Threatened
Prairie White-fringed Orchid	<i>Platanthera leucopaea</i>	Endangered
Pink Milkwort	<i>Polygala incarnata</i>	Endangered
Small Skullcap	<i>Scutellaria parvula var. parvula</i>	Endangered
Snowy Campion	<i>Silene nivea</i>	Threatened
Roundstem Foxglove	<i>Agalinis gattingeri</i>	Threatened
Prairie Milkweed	<i>Asclepias sullivanti</i>	Threatened
Kitten Tails	<i>Besseyia bullii</i>	Threatened
Prairie Indian Plantain	<i>Cacalia tuberosa</i>	Threatened
Small White Lady's-slipper	<i>Cypripedium candidum</i>	Threatened
Beak Grass	<i>Diarrhena Obovata</i>	Endangered
Pale-purple Coneflower	<i>Echinacea pallida</i>	Threatened
Yellow Gentian	<i>Gentiana alba</i>	Threatened
Yellow Giant Hyssop	<i>Agastache nepetodes</i>	Threatened
Wild Hyacinth	<i>Camassia scilloides</i>	Endangered
Prairie Bush-clover	<i>Lespedeza leptostachya</i>	Endangered
Prairie Parsley	<i>Polytaenia nuttallii</i>	Threatened
Hairy Wild-petunia	<i>Ruellia humilis</i>	Endangered
Rough Rattlesnake-root	<i>Prenanthes aspera</i>	Endangered
Musk-root	<i>Adoxa moschatellina</i>	Threatened
Forked Aster	<i>Aster Furcatus</i>	Threatened
<b>BIRDS</b>		
Cerulean Warbler	<i>Dendroica cerula</i>	Threatened
Yellow Throated Warbler	<i>Dendroica dominica</i>	Endangered
Acadian Flycatcher	<i>Empidonax virescens</i>	Threatened
Loggerhead Shrike	<i>Lanius ludovicianus</i>	Endangered
Yellow-crowned Night-heron	<i>Nyctanassa violacea</i>	Threatened
Hooded warbler	<i>Wilsonia citrine</i>	Threatened
<b>TURTLES</b>		
Blanding's Turtle	<i>Emydoidea blandingii</i>	Threatened
Ornate Box Turtle	<i>Terrapene ornata</i>	Endangered
<b>SNAKES</b>		
Eastern Massasauga Rattlesnake	<i>Sistrurus catenatus</i>	Endangered
<b>MUSSELS</b>		
Purple Wartyback	<i>Cyclonaias tuberculata</i>	Endangered
Monkeyface	<i>Quadrula metanevra</i>	Threatened
Ellipse	<i>Venustaconcha ellpiiformis</i>	Threatened
Rainbow Shell	<i>Villosa iris</i>	Endangered
<b>FISH</b>		
Redfin Shiner	<i>Lythurus umbratilis</i>	Threatened
Greater Redhorse	<i>Moxostoma valenciennesi</i>	Threatened
Ozark Minnow	<i>Notropis nubilus</i>	Threatened
Gravel Chub	<i>Erimystax x-punctatus</i>	Endangered
Pallid Shiner	<i>Notropis amnis</i>	Endangered
Starhead Topminnow	<i>Fundulus dispar</i>	Endangered

## **Forests and Woodlands**

According to the WDNR, Rock County forested area comprised 58,551 acres or 12.56% of the total county land area. Of this acreage, 55,198 are privately owned with the remainder being public lands. Approximately two-thirds of the total acreage is in tracts of less than forty acres. All land enrolled in Managed Forest Law in Rock County as of January 2006 was 5,607 acres.

Threats to the ecologic benefits of woodlands are disturbance and fragmentation, and invasive species. Fragmentation or the conversion of large contiguous areas of forest into relatively small patches occurred in the generations since European settlement to meet the agricultural and lumber needs of the county and contributed to the decline of this limited resource. Today, fragmentation and disturbance are occurring due to housing developments in woodlands. Wildlife habitat suffers the greatest as these lands are developed. Farmers are still the largest holders of woodlands, but as long as woodlands are taxed at higher rates and increase in real estate value, these lands continue to experience the greatest development pressure in the County.

The future of the county's woodland resources rests in sustainable management. Woodland plans ensure that sound management practices are used to grow healthy timber in exchange for reduced taxes and harvest profits. Management plans establish systems for the control of invasive species and tree diseases that harm timber production. Currently the most wide spread invasives in Rock County woodlots are Glossy and Common buckthorn, Garlic mustard, Reed Canary grass and Exotic Bush Honeysuckle.

## **Invasive Species**

Invasive species are aggressive opportunists that quickly produce, overwhelming populations to dominate resources. Native invasive species have native enemies to keep populations under control. Non-native invasive species, however, have few if any effective barriers to population growth. Nonnative species are introduced by human activity and once naturalized can be dispersed by wildlife, other natural means, or by people. Humans assist with the spread of invasive species by planting them in their gardens and yards or inadvertently moving seeds, spores, eggs, or parts of plants stuck to equipment used in multiple locations without being cleaned. Some well known local examples are: infestations of wild parsnip spread by mowing rural roadsides after flowers appear; Buckthorn and Honeysuckle brought from Asia for ornamental use; the Rusty Crayfish from Ohio discarded alive after fishing trips; Emerald Ash Borer inadvertently brought from Asia in packing material.

Like the rest of the state, Rock County faces an onslaught of invasive species from other regions and countries. Although a problem in any favorable environment, in forests, these species often out-compete native trees and may degrade forest productivity, wildlife habitat, recreational values, and water quality. Invasive species also greatly increase expenses as public and private land managers work to combat their spread and deal with their effects.

Controlling invasive species is difficult, and clearing an area of them completely is often impossible. People play a major role in spreading invasive species, and can also help keep them from spreading. Gypsy moth, Glossy and Common buckthorn, Garlic mustard, Oak wilt, Reed canary grass, Exotic bush honeysuckle, Spotted knapweed, and Carp are a few of the invasive species, which the citizens of Rock County are currently contending with. However, the LCD will be involved with the Emerald Ash Borer elimination efforts in the future, as this pest

migrates north and west. The LCD also provides assistance to the EQIP program, which is currently battling Reed canary grass, Common buckthorn, Garlic mustard, and Multi-floral rose.

### **Wildlife Resources**

The varied topography and vegetative communities found among the major physiographic regions of the county are prime habitat for a large variety upland and wetland wildlife species, including mammals, birds, amphibians, reptiles, invertebrates and fish. Forest, savanna, grasslands, cropland, streams, lakes, and marshes and transition zones from one cover to another provide shelter and a progression of food sources for many species to thrive. Whitetail deer and wild turkey are common in agricultural areas. Large wetlands provide food and rest for migrating waterfowl and as homes for countless amphibians, reptiles, and fish. Some very good wetland complexes waterfowl breeding are found in the northeast section of the County. Lake Koshkonong and connected wetlands are home to many resident and migratory birds and is a recognized Important Bird Area (IBA), a designation earned from the Wisconsin Bird Conservation Initiative, a cooperative of state and federal organizations. The western section of the County lends itself to grasslands for upland birds and is considered the best pheasant and bobwhite quail habitat in the state. Rock County is the southernmost point of the Rock Prairie Giant Canadian Goose flock's winter migration. The flock's summer nesting grounds are in southeast Manitoba, Canada.

Healthy and sustainable wildlife populations depend on a clean environment and adequate habitat for food, cover, and water. Land use and development are negatively affecting their environment and habitat. Development and rural home building are fragmenting woodland and grassland habitat, disturbing wildlife travel corridors, cover, and food sources. Non-point source pollution from agricultural and urban land uses are degrading surface waters to the point that they no longer support the variety of fish species that they were once capable of sustaining. The draining and filling of wetlands are destroying habitat and breeding grounds for fish and other species.

Wildlife areas owned and managed by DNR are open to a full range of traditional outdoor recreational uses. These include hunting, fishing, trapping, hiking, nature study, and berry picking. The Wildlife areas in Rock County are Turtle Creek, Avon Bottoms, Footville, Evansville, Storrs Lake, and Lima March.

According to DNR wildlife resource professionals, the following are issues of concern related to wildlife and wildlife habitat in the County:

1. Fragmentation of woodlands and grasslands:
  - a. Privately created woodlands and grasslands are not matching the surrounding landscape, creating fragmented habitat;
  - b. Government programs for grassland and woodland establishment promote fragmentation;
  - c. Need more connected grassland areas for grassland species of birds (meadowlark, bobolink, upland sandpipers) and
  - d. Need more corridors for neotropical birds (purple martin, warblers, orioles);

2. Impacts of high deer and goose populations on woodlands, croplands, and domestic plantings;
3. County owned parks are becoming deer refuges during hunting seasons;
4. CWD in eastern ½ of County.

According to DNR fishery professionals, the following are issues of concern related to fisheries in the County:

1. Nutrient and sediment inputs to surface waters have degraded water quality and destroyed habitat;
2. Loss of wetlands have made river systems flashy resulting in low flows during critical periods of the year;
3. Fragmentation of fish habitat from dams and other structures (small or perched culverts) have negatively impacted fish migration and stream fisheries;
4. Alteration of shorelines and stream banks have reduced valuable fish habitat;
5. Need more trees along streams and lakes to create woody debris in stream for fish and other aquatic life habitat; and
6. Reed canary grass along streams catches sediment and the weight then collapses the stream bank.

Other concerns from DNR staff related to wildlife, habitat, and fisheries are contained in the AAC meeting notes in Appendix E. These issues were considered in the development of the goals, objectives, and activities of the 2009 LWRM plan. The LCD provides assistance in the restoration of wildlife habitat, including in-stream habitat, to county residents. Wetland design, land survey, and construction site services are available to county landowners. The LCD also provides information on and application assistance for Federal and State programs to cost share restorations.

## **CHAPTER 3**

### **Conservation Programs: Past, Current, and Future**

In 1982, Rock County Board of Supervisors created the Land Conservation Department (LCD) under the supervision of the Land Conservation Committee (LCC) and managed by the County Conservationist. From 1942 until 1982, the Soil Conservation District, an independent unit of government, provided technical assistance for agricultural soil conservation as needed by county landowners. Starting in 1979, the County provided the District with a soil conservation technician. Water quality initiatives were added after 1982 and Rock County was one the first in the state to receive funding for a Non-Point Source Pollution Abatement Program locally implemented as the Turtle Creek Priority Watershed. In 1997, Wisconsin Act 27 (1997-1999 Biennial Budget Bill) amended Chapter 92 of the Wisconsin Statutes creating the Land and Water Resource Program. The Rock County LCC petitioned DATCP to be included in the first selection of Land and Water Resource Management Planning grants. The next year, the Rock County Board of Supervisors adopted the County's first Land and Water Resource Management Plan (LWRMP). The plan outlined future programming, but did not include the NR 151 or ATCP 50 administrative codes adopted by the State in October 2002 until the LWRMP was amended in 2004.

Many changes have occurred within the LCD as a result of the 2004 LWRMP and a reorganization of programs in Rock County. The LCD now administers the Construction Site Erosion Control, Storm Water Management, and Non-Metallic Mining Reclamation Ordinances in most of the County (2007), these will be discussed in chapter 4; coordinates the Clean Sweep for Household and Agricultural Hazardous Waste (2000); coordinates the gypsy moth suppression program for the county (2006); and provides the application review process for ATCP 51 for the participating towns. In November 2008, the LCD became the co-administrator of the recently approved Well Abandonment component of the Rock County Health Code.

### **Programs**

The LCD uses many programs to meet conservation initiatives for **resource conservation** associated with agriculture and development; **surface and ground water quality** associated with agriculture and development; control of non-native invasive species; collection of household and agricultural **hazardous wastes**; establishment and enhancement of **wildlife habitat**; and providing **technical assistance** to other departments, local units of government in Rock County, and federal conservation programs. Voluntary programs are described below and regulatory programs are described in Chapter 4.

The **Land and Water Resource Management Program (Current)** protects or improves identified resources with management recommendations to meet stated goals and objectives. State cost sharing is available through the LCD for soil conservation and water quality practices that include but are not limited to; grassed waterways, diversions, terrace systems, water and sediment control basins, well decommissioning, nutrient management and stream bank protection.

The **Farmland Preservation Program (Current)**, developed by the state DATCP and adopted by all towns in Rock County by 1977, provides an income tax credit for landowners who use an approved conservation plan and soil conservation practices on at least 35 acres of land enrolled in Exclusive Agricultural (A-1) Zoning. Landowners must annually certify that they are farming their lands within the Rock County Soil and Water Conservation Standards for the Farmland Preservation Program. In 2007, 808 landowners participated in this program, resulting in 159,349 acres protected.

The **Clean Sweep Program for Hazardous Agricultural and Household Waste (Current)** provides safe and affordable hazardous material disposal for county residents with the aid of state grant funds. The program is currently offered to farmers and residents on a two-year cycle. Qualifying businesses can take waste to any Clean Sweep in the state for cost. The goal of this program is to establish Rock County as a permanent collection program offering these services on a yearly basis. The LCD manages the event with aid and input from a local work group. Since 2006 the LCD has assisted 449 participating landowners removing 27,701 lbs of hazardous materials from the county.

The **Citizen Stream Monitoring/Sampling (Current)** started in 2002 as part of a basin wide effort by the Rock River Coalition, DNR, and UW-Extension, among others to promote stream awareness and gather baseline data on streams. The program is not intended for enforcement. Trained volunteers collect data using the protocols of Water Action Volunteers (WAV or Level 1), the database manager for many such programs across Wisconsin. In 2006, DNR began offering Level 2 stream monitoring which uses basic DNR protocols and equipment. Rock County LCD currently trains WAV monitors and gathers data for Level 2. Most sites are selected with input from DNR basin field staff.

In both programs, stream sites are sampled once per month from May through September for “snapshots” of stream health. WAV monitors record monthly dissolved oxygen, transparency, temperature, and flow. In addition, volunteers conduct an annual habitat assessment and macroinvertebrate sampling (biotic index) at the beginning and end of each season. Such long-term information when added to snapshot data indicates the impact of land use in particular watersheds. Level 2 monitors measure dissolved oxygen, pH, temperature, and transparency once per month. Continuous temperature is recorded for five streams in the county per season.

Volunteers have monitored water quality for 15 streams in Rock County. Volunteers are an important connection with the public for surface water concerns. Monitors know their sites and share observations with staff. In turn, through monitor input, training days, and monitoring, staff can better understand stream quality in each watershed with a monitoring site. WAV data is available for 16 sites on 8 streams for 201 data days since May 2002 (<http://watermonitoring.uwex.edu/wav/>). Level 2 data is available for 17 sites on 12 streams for 200 data days starting in May 2006 (<http://prodoasjava.dnr.wi.gov/swims/welcome.do>; limited access). The following streams have been monitored by volunteers or staff through WAV or Level 2: Allen Creek (three sites), Badfish Creek, Fisher Creek, Otter Creek (three sites), Saunders Creek, Turtle Creek (three sites), Spring Brook/Blackhawk Creek, Raccoon Creek - East Fork, Raccoon Creek - West Fork, Norwegian Creek, Willow Creek, Stevens Creek, Markham Creek, Marsh Creek, and Taylor Creek.

The **Invasive Non-native Species Suppression Program (Current)**, most notably used for gypsy moth, has involved the LCD since 2006. It is well known that Wisconsin faces an onslaught of invasive species from other regions and countries. Because they lack the predators and competitors they faced in their homelands, invasive non-native species can spread rapidly and aggressively. These non-native plants, animals, and pathogens harm native species, species of economic importance, and disrupt and significantly degrade the recreational value of ecosystems. They also damage commercial, agriculture, and aquaculture resources. Although controlling invasive species is difficult and getting rid of them is often impossible, targeted and strategic management can be effective.

The **Wildlife Damage Abatement and Claims Program (WDACP) (Current)**, adopted by the Rock County in 1997, this program provides damage prevention assistance and partial compensation to landowners when deer, bear, geese, and/or turkey damage their agricultural crops. Wildlife managers issue agricultural damage shooting permits to farmers for removal of animals that cause damage. The LCD contracts with USDA-Wildlife Services to provide all field investigations. The LCD does the book keeping and notifications for the program.

The **Livestock Siting (ATCP 51) (Current)** addresses the issues related to siting and expanding the livestock operations that are essential to keeping Wisconsin's agricultural economy growing. The livestock facility siting regulations balance local control, community oversight, environmental protection and the need for a predictable siting process. During 2006, the LCD and UWEX agreed on guidelines to assist landowners and towns with the application process. The UWEX provides the landowners with assistance while the LCD assists all towns requesting reviews of application materials with technical accuracy.

The **Tree/Shrub and Native Seed Program (Current)** consists of a yearly plant and seed sale, tree planter and sprayer rental, and technical assistance with plantings. The sale offers a wide selection of tree and shrub seedlings appropriate for windbreaks and small forest plantings or for enriching edge or savanna habitat when combined with prairie mixes. Currently the LCD maintains three tree planters and one sprayer, which can be rented by individuals.

**Notice of Discharge (NOD) (Current):** The NOD program establishes criteria under which the DNR may issue a notice of discharge or a permit to animal feeding operations that discharge pollutants to waters of the state or fail to comply with applicable performance standards and prohibitions in NR 151. Only those animal feeding operations that improperly manage their wastes and as a result cause groundwater or surface water pollution or that fail to comply with applicable performance standards and prohibitions are regulated under this program. A protocol has been established in the Memorandum of Understanding (MOU), refer to Appendix F, with the DNR for this program's administration.

The **Conservation Reserve Program (CRP) (Current)** provides technical and financial assistance to eligible landowners to address soil, water, and related natural resource concerns on their lands in an environmentally beneficial and cost-effective manner. The USDA/Farm Service Agency (FSA) administers the CRP. The LCD and NRCS provide technical assistance to this program. The CRP reduces soil erosion, improves water quality, establishes wildlife habitat, and enhances forest and wetland resources. The CRP has two forms; a competitive, limited period

“general” sign up to convert highly erodible cropland to native grasses, wildlife plantings, or trees; and an on-going, need-based, non-competitive “continuous” sign-up for filter strips, riparian buffers, contour strips, and grassed waterways. 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 practices are subject to NRCS technical standards adapted for local conditions.

The **Conservation Reserve Enhancement Program (CREP) (Current)**, an offshoot of the “continuous” CRP, is a voluntary program for landowners to receive additional financial incentives for installing specific conservation practices on agricultural land. The LCD plays a crucial role in the CREP by implementing the State portion of the funding. Over \$1.13 million in state funding has been brought into Rock County through direct payments to landowners. These monies are in addition to the U.S. Department of Agriculture payments to landowners. As of April 1, 2009, Rock County had 163 fifteen-year agreements and 26 perpetual agreements covering 2,236.4 acres of installed buffers and wetland restorations. The CREP plantings currently protect over 1300 riparian acres of stream banks from erosion. The remaining 700+ acres was devoted to reclaiming wetlands. Both components of this program are water quality driven but also provide a diverse wildlife habitat.

The **Environmental Quality Incentives Program (EQIP) (Current)**, a voluntary federal conservation program, offers financial and technical help to eligible participants to install and establish structural and management practices on agricultural land. LCD is a member of the local work group that provides input on local practices and assists NRCS with project design and installation. The EQIP encourages the incorporation of conservation technology into farming operations from managing runoff around buildings and farmyards to no-till to nutrient management among many other practices. The lengths of contracts, incentive payments, and capped cost shares for EQIP depend on the practice. Eligible participants include individuals engaged in livestock or agricultural production as owners or renters. Limited resource producers and beginning farmers may be eligible for cost shares up to 90%. For each contract, a local conservationist and a producer develop a plan of operations that identifies resource concerns, appropriate conservation practice(s), and covered costs. The practices are subject to NRCS technical standards adapted for local conditions. Practices are selected annually by a local workgroup. There is one sign-up per year.

The **Wetland Reserve Program (WRP) (Current)** is a voluntary federal program offering landowners the technical and financial support to protect, restore, or enhance the hydrology and ecology of wetlands on their properties. The LCD provides limited technical assistance to landowners with their wetland restoration efforts. The program goal is to achieve the greatest wetland functions and values, along with optimum wildlife habitat, on every acre enrolled in the program. The practices are subject to NRCS technical standards adapted for local conditions.

The **Working Lands Initiative (Current)** seeks to preserve a critical mass of land in Rock County for agriculture, forestry, recreation, and tourism using comprehensive planning for business and housing growth in an environmentally friendly way. Rock County has started an information and education program regarding conservation easements and Purchase of Agricultural Conservation Easements (PACE; formerly called Purchase Development Rights or PDRs). The county’s agricultural economy (1.3 billion dollar impact annually) depends on retaining prime

farmland for long-term production. PACE is one tool available to ensure that these lands are protected in perpetuity. Under a PACE program, a landowner voluntarily sells his or her rights to allow development to occur on a parcel of land to qualified organizations, usually a town, county, or land trust. The landowner retains all other ownership rights attached to the land, and a conservation easement is placed on the land and recorded on the title. In placing such an easement on their land, participating landowners often take the proceeds from the sale of the development rights to invest in their farming operations or retire from the business, and may allow another farmer to purchase the land at lower rates (i.e., rates devoid of development rights).

The **Targeted Runoff Management (TRM) Grants (Future)** from the DNR replace the priority watershed projects that were last selected by the State of Wisconsin in 1997 and closed in 2002. The DNR program offers competitive financial awards to support small-scale, short-term projects that are completed within 24 months of the start of the grant period. Both urban and rural projects can be funded through a TRM grant. Seventy percent of project cost up to a maximum of \$150,000 in State funding is available through a TRM grant. Project selection is based on geographical water quality priorities, local support for the project, and the ability of the project to control nonpoint pollution and other factors.

The **River Protection Planning Grants (Future)** developed by the DNR, this grant program awards financial assistance to qualified organizations for the collection, assessment, and dissemination of information on riparian ecosystems. Eligible grantees may receive up to 75% of the costs associated with an approved project not to exceed a maximum of \$10,000. Project selection is based on geographical water quality priorities and local support for the project.

The **River Protection Management Grants (Future)** developed by the DNR, this grant program awards financial assistance to qualified organizations for the implementation and management of projects associated with river/stream protection. Eligible grantees may receive up to 75% of the costs associated with an approved project not to exceed a maximum of \$50,000. Project selection is based on geographical water quality priorities and local support for the project.

## **CHAPTER 4**

### **Regulatory Requirements in Rock County**

#### **Introduction**

The LCD administers several ordinances related to soil and water resource management: Animal Waste Management - Chapter 30; Construction Site Erosion Control - Chapter 27; Storm Water Management - Chapter 28; and Non-Metallic Mining - Chapter 31. The LCD administers the Soil and Water Resource Conservation Standard for the Farmland Preservation Program and will co-administer the County Well Abandonment component of the Public Health Code.

The LCD has also developed a strategy for implementing the NR 151 performance standards and prohibitions. Through provisions in 1997 to Act 27 and in 1999 to Act 9, the Wisconsin Legislature directed the DNR to develop performance standards to: control polluted runoff from non-agricultural activities; develop performance standards and prohibitions for agricultural activities through cooperation with DATCP (including four manure management prohibitions developed through a previous advisory committee effort); and make other changes to address polluted runoff problems from rural and urban sources. Additional details on the rule can be found at <http://www.dnr.state.wi.us/org/water/wm/nps/rules/NRrules.html>.

While Chapter 3 identified voluntary conservation programs, this chapter describes local regulatory requirements of local ordinances and state administrative codes. As part of the requirements of the LWRM Plan process, components of the structured implementation for NR 151 that will be used by the LCD are included in this chapter. This chapter also identifies protocols that will be used for the compliance, enforcement, appeals, and cost share requirements as it relates to the implementation of NR 151 as outlined in the recently signed MOU with the DNR, refer to Appendix F.

#### **LOCAL ORDINANCES:**

##### **Animal Waste Management Ordinance - Chapter 30**

This ordinance was developed to regulate the location, design, construction, installation, operation, and alteration of an animal waste storage facility. The ordinance also regulates the transfer of animal waste into a facility and the utilization of animal waste stored in a facility. Abandonment of idled storage facilities are also regulated. All activities are regulated to prevent the pollution of both the surface water and groundwater resources of Rock County.

##### **Construction Site Erosion Control Ordinance – Chapter 27**

This ordinance sets mandatory countywide performance standards that minimize the amount of sediment and other pollutants carried by runoff or discharged from land disturbing activities to the waters of the state. It is intended to give users the flexibility to meet the standards effectively and efficiently. This ordinance is reviewed and amended as needed to keep current with construction site erosion control standards and technology. The ordinance applies to all unincorporated areas of the county excluding the Town of Beloit, which enforces its own ordinance.

### **Storm Water Management Ordinance – Chapter 28**

This ordinance was developed to prevent or control the adverse effects of storm water on soils (loss of topsoil, stream bank failure and channel erosion); the safe capacity of existing drainage facilities and receiving water bodies; and on downstream property. At the same time, the ordinance will protect or improve fisheries, riparian habitat, and the scenic appeal of local waters, and will preserve topsoil. Performance standards for the ordinance allow flexibility for choosing the most cost-effective and efficient Best Management Practices (BMPs). The ordinance is not intended to limit the activity or division of land under the applicable zoning and land division ordinances. The ordinance is reviewed and amended as needed to keep current with storm water management standards and technology. The ordinance is applied in all unincorporated areas of the county excluding the Town of Beloit and the Town of Union, which enforce their own ordinances.

### **Non-Metallic Mining Reclamation Ordinance - Chapter 31**

This ordinance was developed to set performance standards countywide (incorporated and unincorporated areas) that must be followed to ensure that impacts to surface water and groundwater resources and public safety are minimized following reclamation. The ordinance also ensures that sites will not be used for solid and/or hazardous waste accumulation by overseeing the creation of a productive post-mining land use. Reclamation Plans are due prior to the start of mining so that the standards must be considered early in the operation plan for that site. Rock County is obligated by the State to administer and enforce this program and is subject to periodic audits by the DNR.

### **Soil and Water Conservation Standard for the Farmland Preservation Program**

This policy was established by the LCC pursuant to ss. 92.105, Wis. Statutes and related guidelines adopted by the Wisconsin Land and Water Conservation Board under s. 91.105 (2). It provides for soil and water conservation standards to be met and procedures to be followed by participants in the Wisconsin Farmland Preservation Program. Conformance with these standards and procedures will be necessary for landowners to establish and maintain eligibility for Farmland Preservation tax credits under subchapter IX of chapter 71 and 92.105 (6). This policy shall apply to landowners that claim a Farmland Preservation tax credit. This policy was updated to meet the requirements set forth by DATCP in 2004.

### **Well Abandonment Program, Rock County Public Health Ordinance, Chapter 13.13**

This section of the well abandonment ordinance was developed in response to an abandoned well inventory made in the late 1990s. Since 2000, the LCD has provided cost sharing to landowners resulting in approximately 10 safely abandoned wells per year. In 2006, the LCD and the Rock County Public Health Department agreed that a well abandonment program was needed in the county. Under this program, the LCD notifies landowners of their status and the program requirements and the Department of Public Health acts as the enforcement agency.

### **NR 151 Implementation Strategy for Agricultural Performance Standards**

The following discusses the LCD's strategy for implementation of the NR 151 performance standards. The implementation strategy details the methods that will be employed to assure landowners are in compliance with the state mandated regulations. In addition to the strategy, a checklist was drafted which will be used by staff to help determine overall compliance with the

NR 151 performance standards. The implementation of compliance strategy is based on staff and funding availability.

### **Identification of Priority Farms**

Priority farms can best be described as those farms that have significant problems with manure management, lands where excessive nutrient applications are being made, and/or farms with clearly excessive rates of cropland erosion. Identification of priority farms is based on comprehensive strategy as per ATCP 50.12(2)(f) which allows the LCD to focus the priority farm strategy. The strategy will focus on a countywide Nutrient Management effort for farms making excessive nutrient applications. Also the strategy will include farms in subwatersheds, which directly drain to either ERW or 303(d) waters. Subwatersheds will be ranked according to their ability to respond to the implementation of Best Management Practices for the abatement of nonpoint source pollution. Currently Stevens and Markum Creek Subwatersheds have been identified as priority areas within the county. Also, farms that are subject to a DNR notice of intent under s.281.16(4) or a NOD under NR 243.24, shall also be included in the priority farm strategy.

### **Determination Of Current Compliance - Records Inventory**

The records inventory involves a cursory review of Conservation Plans on file at the office. Conservation files apply to both State and Federal program participation. LCD staff will be responsible for this review. Evaluation methods to be used may include one or more of the following:

- 1) Review of existing conservation plans;
- 2) Existing priority watershed contracts;
- 3) Nutrient management plans;
- 4) Annual status reviews; and,
- 5) Self-certifications – Farmland Preservation Program.

### **Onsite Evaluations**

The LCD will perform onsite evaluations based on the following criteria:

- 1) Review at the request of the landowner;
- 2) Landowners who, through the records inventory, are deemed to be out of compliance based on the evaluation methods utilized;
- 3) Formal complaints received by the LCD or DNR;
- 4) Where a landowner may be out of compliance with the performance standards or applicable Rock County Ordinance;
- 5) Farmsteads located within a WQMA as determined through the use of GIS;
- 6) Landowners who implement Alternative Cropping Systems (ACS); and
- 7) Landowners who have expired CRP plans or lack an approved conservation plan for their farm.

Onsite evaluations will be prioritized based on the overall threat to groundwater and surface waters. Compliance will be determined by the staff and documented. Should it be determined that the field(s)/farmstead being evaluated is not in compliance, a report will be drafted to include the following:

- 1) Corrective measures needed to be brought into compliance;
- 2) Estimated costs for implementing the corrective action(s);

- 3) Status of eligibility for cost share assistance;
- 4) Funding sources and technical assistance available from federal, state, and local sources;
- 5) Signature line on the report findings indicating whether the landowner agrees or disagrees with the report findings;
- 6) Process and procedures for the purpose of the landowner contesting the findings;
- 7) A copy of the performance standards and prohibitions; and,
- 8) A process/schedule for continued compliance monitoring.

As per the DNR/LCD MOU, (Appendix F) the DNR will be notified prior to landowner contacts, and the LCD will communicate with DNR throughout the process.

### **Funding, Administration, and Technical Assistance**

Landowners who are required to implement conservation practices under the provisions of the County's policy or ordinances will have a schedule of compliance developed. Cost share dollars may be appropriated if available or required as part of the ordinance or policy.

As part of the implementation of the LWRM Plan, the cost sharing of conservation practices may be required to achieve compliance with the state performance standards. A cost share offer may be from different sources. If a Landowner who qualifies for the cost sharing of conservation practices is tendered an offer from ATCP 50 then that landowner must follow the conditions set forth in ATCP 50. If a landowner is tendered an offer from NR 153 or NR 243, then landowners must follow the conditions set forth in the aforementioned administrative rules. Other sources of funding may be used to achieve compliance. Landowners may qualify as an economic hardship case under ATCP 50.42, NR 151.09. Cost sharing will be increased to the required cost share level of 90%.

If cost sharing is involved, the appropriate agreements will be signed and implemented. Technical assistance in the form of the following will be provided throughout project implementation:

- 1) Conservation planning assistance;
- 2) Review of conservation plans prepared by third parties, TSP;
- 3) Engineering design assistance;
- 4) Review of engineering designs by third parties, TSP;
- 5) Construction oversight;
- 6) Certification of construction projects to standards; and
- 7) Cost containment.

Upon completion of the practice(s) installation, the appropriate staff/LCC will notify the landowner, in written form, indicating the site has been brought into compliance with the applicable performance standards and prohibitions.

### **Notification Letter and Schedule of Compliance**

After the onsite evaluation has been completed and it has been determined that a non-compliance issue(s) exists, a notification letter will be forwarded to the landowner. As part of this letter, a schedule of compliance will be included for each BMP or corrective measures needed, per NR 151.09 and/or NR 151.095. In consultation with DNR, a compliance period will be developed

for each non-compliance issue. The severity of the water quality problem will determine the length of the compliance schedule. The DNR may authorize an extension of up to 4 years in total, which will be handled on a case-by-case basis. If cost sharing is not required, as per NR 151.095(7), then the compliance period shall be no longer than 2 years.

### **Notice of Intent and Enforcement Process**

A notice of intent will be issued to a landowner who has refused to cooperate under normal voluntary efforts. It consists of a certified letter sent by the corresponding agency that details the infraction(s) that must be addressed so that compliance can be achieved:

- 1) If a landowner does not follow the agreed upon schedule of compliance for the implementation of the State Agriculture Performance Standards, the landowner's name will be forwarded to the appropriate state agency for a letter of intent to issue an order to address the infraction(s).
- 2) If a landowner does not follow the agreed upon schedule of compliance for the implementation of local standards or ordinances, the information will be forwarded to the Rock County Corporation Counsel.

After all voluntary means have been expended and a landowner continues to remain in noncompliance with the state performance standards, or should a landowner refuse technical and/or financial assistance from the LCD, the LCD will forward all information corresponding to the infraction(s) to the DNR and will notify the landowner(s) by registered mail that they are subject to an enforcement action pursuant to NR 151.09. All enforcement actions associated with NR 151.09 are coordinated with the DNR per a Memorandum Of Understanding (MOU), further described in Appendix F.

### **Appeals**

A landowner of a site that has been determined to be out of compliance with any of the state nonpoint performance standards identified in this plan may appeal the determination to the LCC. The appeal shall be in writing and must be specific to the component(s) that the landowner wishes to appeal. The written appeal must be received by the LCD within 60 days of the landowner's receipt of the Notice of Noncompliance. All Notices of Noncompliance are sent by registered mail. The LCC shall do the following after receipt of an appeal:

- 1) Provide the appellant with a hearing and give reasonable notice of the hearing to the appellant, the DNR and DATCP.
- 2) The hearing shall be conducted as an informal hearing. Chapter 68 of the Wisconsin Statutes does not apply to the hearing. This chapter of the state statutes identifies a formal appeals process for state constitutional rights.
- 3) The hearing shall be conducted during a regularly scheduled LCC Meeting.
- 4) The LCC may affirm or reserve the findings. The LCC shall limit their consideration to whether the findings of noncompliance are valid and consistent with respected sections of NR 151 and/or ATCP 50. The LCC shall consider whether the governmental representative erred in their verification of the findings presented and identified in the case file. Loss of profit or pecuniary hardship is not grounds for affirmation of the appeal. Appeals granted to other appellants shall not justify affirmation of an appeal.

- 5) An appeal shall stay all proceedings in furtherance of the action appealed until the appellant has received a decision and has exhausted the entire appeals process.
- 6) Following the hearing, the LCC shall render a decision in writing to the appellant within 60 days. The DNR or DATCP may submit reports or recommendations specific to any determination that is being appealed. All reports and/or recommendations will be reviewed by the LCC and used to assist with the final determination of actions associated with the appeal in question.

### **NR 151 Performance Standards Implementation Strategy - Non-Agricultural**

The Rock County Construction Site Erosion Control and Storm Water Management Ordinances were adopted in March 2004 and meet or exceed the non-agricultural performance standards of NR 151. Each ordinance outlines the following procedures that are used to ensure landowners, developers, and contractors meet these standards.

### **Jurisdiction and Applicability**

The provisions of these ordinances apply to all unincorporated lands within the jurisdictional boundaries of Rock County where a town board has not adopted an ordinance under sec. 60.627, Wis. Stats. As of December 2008, the Town of Beloit administers their Erosion Control and Storm Water Management Ordinances. Additionally, the Town of Union administers their Storm Water Management Ordinance. Therefore, the County's ordinance(s) are not administered in these Towns. The County's Erosion Control and Storm Water Management ordinances also continue in effect in any area annexed by a city or village, unless the city or village enacts, maintains and enforces an ordinance that complies with minimum standards established by the DNR and meets or exceeds the standards of these ordinances, as established under sec. 59.693 (10), Wis. Stats.

The Construction Site Erosion Control Ordinance applies to projects that involve the following:

- Grading, removal of protective cover, excavation or filling which disturbs 4,000 square feet or more of land;
- Disturbing or grading more than 1,000 square feet of land on a slope of 12 percent or greater;
- Grading, removal of protective ground cover or vegetation, excavation, or land filling exceeding 1,000 square feet or 40 cubic yards of fill near a navigable waterway, wetland or floodplain within the Shoreland Overlay District (as defined in Chapter 16 of the Rock County Code of Ordinances).
- Disturbing 100 feet or more of road ditch, grass waterway, or other land area where surface drainage flows in an existing water channel;
- Grading, excavating or filling more than 400 cubic yards of material;
- Constructing new public or private roads, access roads, or driveways exceeding 100 feet in length;
- Laying, repairing, replacing, or enlarging underground pipe, cable or wire for a distance of 300 feet or more;
- Land disturbing construction activities relating to land division (subdivision plat, Certified Survey Map or Condominium Plats) requiring public or semi-public public improvements, or;

- Other activities that are likely to result in undue channel erosion, increased water pollution by scouring or the transportation of particulate matter, or endangerment of property or public safety.

The Storm Water Management Ordinance applies to project that involve any of the following:

- Land Disturbance activity of 1 acre (43,560 square feet) or more;
- Land Disturbance of less than one acre but is part of a larger “common plan of development” that in total disturbs more than one acre;
- Other activities that pose a serious risk of flooding or damage due to runoff as determined by the Technical Review Committee.

Each ordinance has a specific list of exempt activities that are not subject to the provisions of the respective ordinance.

### **Technical Standards**

Design criteria, standards and specifications for Best Management Practices installed, as part of these ordinances must meet the DNR Technical Standards developed under subchapter V of NR 151. Where technical standards have not been developed for certain practices, the LCD may approve alternative installation methods.

### **Performance Standards**

As included above, the performance standards for the Construction Site Erosion Control and Storm Water Management Ordinances meet or exceed the standards adopted in NR 151. This includes criteria for Suspended Solid Removal (water quality), Discharge Rate and Volume (water quantity) and Infiltration.

### **Permit Application and Plan Review**

Standardized application forms and construction plans are required for review and approval prior to commencing land-disturbing activities. For projects requiring a Storm Water Management permit, detailed engineering reports are also required to ensure the hydrological aspects of the project meet ordinance standards. Staff reviews the applications for completeness and compliance with the ordinance. Incomplete applications are returned to the applicant and the project may not proceed until a complete application is reviewed approved. In the case of a complete application, with simply minor changes or details to work out, staff responds with a request for additional information prior to commencing construction. Timeframes for staff review are outlined by ordinance. Each application includes a fee (base fee plus a per square foot fee) paid by the applicant to cover some of the cost of administering the permit and this program.

### **Permit Approval, Site Inspections, Long Term Maintenance**

Following a complete plan review, a permit is either denied (rare) or approved with conditions, which may be standard conditions found in ordinance or site specific conditions derived for an individual project. The conditions of approval inform the permit holder what is expected of them, before, during and after project completion. Permits are valid for one year or until the project is complete, which ever comes first.

Permit holders are required to conduct site inspections and maintenance of BMPs weekly and within 24 hours or a rain event of 0.5 inches or more. These inspections are critical and must be documented in an inspection log. LCD staff also makes periodic, random, site inspections to ensure compliance with the plan and ordinance standards based on the activity at the site and the proximity to sensitive areas. Once a project is considered stabilized (uniform vegetative cover of 70% or greater on unpaved or graveled areas), the permit is typically expired, temporary measures (such as silt fence) may be removed, and weekly inspections are no longer required.

For most projects, a financial guarantee is required, based on the estimated cost of construction of the BMPs, to ensure that the practices are constructed according to plan. If the permit holder defaults, the LCD may draw upon this guarantee to complete the necessary portions of the project. The most accepted method of financial guarantee is an irrevocable letter of credit from a financial institution.

Storm Water Management Permits require that provisions for long-term maintenance of the storm water management practices and facilities are scheduled and a responsible party(s) is assigned. Maintenance agreements are approved, signed and recorded at the Rock County Register of Deeds so that the restrictions are binding upon all future owners of land served by the storm water management BMPs.

### **Enforcement and Penalties**

Any land disturbing activity subject to the provisions of these ordinances which is not conducted in compliance with the terms of the permit approval(s), or commencing prior to obtaining a permit, is deemed a violation and is considered a public nuisance. When LCD Staff becomes aware of a violation, notification is sent to the landowner or permit holder via certified mail. The notice includes remedial action required to gain compliance with the provision of the applicable ordinance(s). If the actions listed in the notice are not complete by the schedule set, further enforcement may commence, including posting a stop-work order, requesting a cease and desist order, issuing a citation or filing a lawsuit. The authorization to issue citations under these ordinances was granted in 2008 by the Rock County Board of Supervisors for implementation beginning in January 2009.

If non-compliance with these ordinances is determined to cause damage to adjacent property, public facilities, or waters of the state, the LCD may issue a notice of intent to perform necessary work to protect said lands. If after five working days, the landowner or permit holder has not complied with the notice, the LCD may enter upon the land to perform the work and bill the expenses to the property owner or deduct it from the financial assurance established as part of the permit process.

### **Appeals**

As the governing committee, the LCC is the first step in the appeal process. Staff decisions may be review upon written requests to the Committee Chair by a property owner or other effected person. Where a waiver of an ordinance standard is requested, The Technical Review Committee is responsible for making a recommendation to the LCC. The Technical Review Committee is made up of the Director of the LCD, a representative of the Planning and Development Agency, a representative of the LCD and a representative of the Public Works Department. If the waiver request is for a Storm Water Management Standard, also invited to

participate are: a representative of the town where the site is located, a representative of the city or village if the project is within the extraterritorial area, and if groundwater concerns are an issue, the Public Health Department.

The Rock County Board of Adjustment is the next avenue of appeal and functions under Chapter 14 of the Rock County Code of Ordinances, in accordance with sec. 59.694, Wis. Stats. Any applicant, permittee, or landowner may appeal within 30 calendar days of the date of any order, decision, or determination made by the LCD in administering these ordinances; relative to sites in which such a person has an interest.

## **CHAPTER 5**

### **Monitoring and Evaluation**

A comprehensive evaluation that indicates whether conservation efforts are meeting the intent of the statutes, administrative codes, county ordinances, and policies is essential. When evaluating a specific project or program, a qualitative or quantitative measurement should be used to determine its effectiveness. Such evaluations need to take into account a variety of factors, including but not limited to: customer needs, protection or enhancement of the physical resource targeted, regulatory requirements, and fiscal responsibility.

The LCD will monitor progress with regards to the achievement of the stated goals and objectives of this plan. As new resource information becomes available it will be integrated and used to make needed changes to increase the effectiveness of this plan.

**Farmland Preservation Program** - Through the conservation component of the Wisconsin FPP, landowners are required to develop and implement a conservation plan to maintain the average annual soil loss rate at or below “T”. This program requires that landowners’ conservation plans be reviewed every five years to assure that conservation systems are being maintained as designed.

**Transect Survey** – A transect survey was conducted in 1999 by staff from the LCD. The survey is a cross section of the county containing approximately 700 data points. From this data set, the conservation office is able to establish trends in conservation usage and soil loss/erosion averages in Rock County. To support updating the data set, the LCD will commit to the new standards established which require a minimum of three consecutive years of data.

**Status Reviews of Cost Share Practices** – To ensure landowners and/or cost share recipients are maintaining conservation systems that were completed with the use of cost share dollars, staff from the conservation office are required to conduct annual status reviews. The USDA-NRCS also conducts status reviews on an annual basis. If landowners or cost share recipients do not maintain the systems as described in the conservation plans established for federal and/or state programs, information specific to state or county programs is forwarded to LCD staff for further review and action. The 2008 Federal Farm Bill prevents the LCD from using information gathered to establish an individual’s federal program eligibility for enforcement purposes.

**Annual Accomplishment Reports** – The LCD produces an annual report as a component for grant eligibility associated with DATCP/DNR. This report outlines the County’s accomplishments associated with the implementation of the County’s Land and Water Resource Management Plan.

**Nutrient Management Planning** – LCD will track the implementation of nutrient management planning as it relates to the state performance standard. Plans are submitted to the LCD on an annual basis and reviewed by staff for compliance purposes. After the plan meets the criteria as set in NRCS 590 standard, the information is forwarded to DATCP for statewide tracking and quality assurance purposes.

**Citizen Water Quality Monitoring Program** – Since 2001, Rock County has been involved with the Citizen Water Quality Monitoring Program that focuses on the Rock River Basin. In 2006, citizen monitoring was advanced to Level II monitoring protocols. Endorsed by DNR, the LCD trains volunteers to take measurements of dissolved oxygen in the water, temperature, water clarity, water flow, and habitat, and macroinvertebrate inventories. By finding crayfish, mayflies and other insects, clams, crustaceans or worms, identifying them and using a simple form, the volunteer is able to tell whether the water quality is excellent, good, fair or poor. Using animal life to determine water quality is called biotic indexing. Volunteers provide valuable data for resource professionals who are often times limited in their efforts due to time constraints. This type of monitoring provides important baseline and trend data and in some cases, may be the only data available.

**Groundwater Monitoring** - General trends in groundwater quality will be developed by the Public Health Department in the future. Information from past well tests will be entered into a GIS layer and analyzed for developing trends. This analysis will help the LCD in regards to developing a groundwater strategy as it relates to nutrient management priority areas.

## **CHAPTER 6**

### **Information and Education**

Natural resource conservation and protection are at the core of the LCD mission. It is well known that the county's population places considerable value on the quality of the county's resources and are considered an important aspect of their quality of life. As part of the strategic planning process, Information and Education (I&E) activities were identified as a component for building support for the plan's delivery.

#### **Information and Education Activities to Encourage Voluntary Implementation of Best Management Practices**

Every effort will be made to inform Rock County landowners about the required agricultural performance standards and prohibitions. The Conservation Office (LCD/NRCS) assists approximately 1,500 landowners on an annual basis. The LCD will provide landowners/users with an overview of requirements for all applicable programs. This effort will utilize existing fact sheets, one-on-one consultations, conservation planning, referrals to applicable agencies and/or websites, newsletters, workshops, displays, news paper articles, etc. Additional information will be disseminated through the multi agency newsletter that reaches over 3,800 landowners/land users. The LCD will continue its partnership with the following organizations to further information dissemination:

- 1) UWEX;
- 2) DNR;
- 3) DATCP;
- 4) Rock County Planning and Development Agency;
- 5) Rock County Public Health Department;
- 6) USDA-Natural Resource Conservation Service;
- 7) USDA-Farm Service Agency;
- 8) Rock County Chapter - Towns Association;
- 9) American Farmland Trust;
- 10) Natural Heritage Land Trust;
- 11) US Fish and Wildlife Service;
- 12) Lake Associations/Districts;
- 13) River Protection Citizen Groups; and,
- 14) Non-Governmental Organizations (Pheasants Forever, Green Rock Audubon Society, Welty Environmental Center).

Activities that will continue if current staffing and funding remain at 2009 levels are:

- 1) Meet one-on-one with landowners for natural resource management issues;
- 2) Partner with UWEX for support of nutrient management workshops;
- 3) Promote nutrient management BMP were ever possible;
- 4) Promote well abandonment BMP;
- 5) Provide Public Health Department with community presentations for groundwater quality programs.
- 6) Sponsor a conservation display at Earth Day Events;
- 7) Submit articles for the multi-agency newsletter, weekly and daily newspapers;

- 8) Update the LCD web page to disseminate current resource and program information;
- 9) Develop workshops and distribute materials in cooperation with Rock County Towns Association, Planning and Development, and Extension on Purchase of Conservation Easements for Farmland Protection;
- 10) Promote Donation and/or Purchase of Conservation Easements;
- 11) Develop and distribute aquatic management publications;
- 12) Distribute terrestrial invasive species documents;
- 13) Provide assistance to lake and river groups;
- 14) Conduct educational programming for school aged children;
- 15) Implement the construction site erosion control and storm water management I&E plan;
- 16) Promote conservation easements for CREP;
- 17) Promote shoreline buffers through CREP and CRP; and
- 18) Conduct citizen stream monitoring workshops.

It is important to identify barriers to protecting natural resources, especially a lack of information and awareness. An Information and Education (I&E) program is the best method for minimizing barriers by demonstrating to residents how their activities directly affect the watershed in which they live. Watershed residents take ownership when they see how activities in their backyard impact their water quality. I&E programs are long-term commitments. The information and education strategy for Rock County will last well into the future, more than just the five years of this plan. Learning styles must be taken into account and information needs to be presented in different manners for different people. Barriers must be identified and eliminated while messages need to be repeated often for residents to change their activities. Potential prompts need to be identified and implemented. Rock County is home to a very diversified population, which calls for an I&E strategy that dispenses information in various formats and to a wide range of audiences. A strong, Countywide I&E program is essential to the implementation of the LWRM plan and ultimately the protection of Rock County's natural resources.

## **CHAPTER 7**

### **Plan Implementation**

As part of the plan's development, the public was asked to rank natural resource programming within Rock County. Five hundred eighty surveys (580) were sent out to landowners in the county and one hundred and sixty (160) were returned. The survey asked for a ranking of the eight natural resource initiatives currently administered by the LCD; Groundwater quality, Surface water quality, Soil quality, Land preservation, Hazardous waste programming, Non-agricultural runoff, Invasive species, and Endangered and threatened species. The goals for the plan were set by the results of the survey with collaboration of the LCC and the AC. Please refer to Appendix B for the survey and results.

The LWRM will be used to direct the delivery of soil and water conservation programming into the future. From the recommendations, the LCD has developed a work plan that outlines the major goals of the Land and Water Resource Management Plan. Objectives follow each goal. The listed objectives and goals will be reviewed on an annual basis to determine priorities and available funding levels. Progress toward the plan implementation will be measured via the evaluation tools discussed in Chapter 5. Annual reports will be generated and forwarded to the appropriate agencies for program review.

The following goals were developed from the 2009 Resource Concern Survey, with guidance from the LCC and the AC.

#### **GOAL 1: IMPROVE & PROTECT GROUNDWATER QUALITY**

##### **INCREASE PUBLIC AWARENESS OF GROUNDWATER QUALITY**

1. Provide input to Public Health for the development and implementation of a groundwater education plan.
2. Provide assistance with private well testing programs conducted by Public Health and or UWEX.
3. Develop and foster partnerships with citizen organizations and local governments to deliver education programs.
4. Develop maps of high-risk areas of the County.
5. Assist municipalities in developing and implementing their wellhead protection plans.
6. Promote the use of the Agricultural and Household Clean Sweep Programs.
7. Promote voluntary compliance with NR151 performance standards and prohibitions.

##### **INCREASE USE OF NUTRIENT MANAGEMENT PLANNING**

1. Implement a nutrient management-training program for farmers.
2. Provide cost sharing for development of nutrient management plans.
3. Implement NR 151 performance standards for nutrient management on cropland.
4. Use program policies and regulations to require use of nutrient management plans.

##### **ENSURE THE PROPER ABANDONMENT OF UNUSED WELLS**

1. Include well abandonment as a part of the groundwater education program.
2. Provide cost sharing for proper well abandonment.
3. Use local regulations to require abandonment of unused wells.

**ENSURE COMPLIANCE WITH NR 151 PERFORMANCE STANDARDS AND PROHIBITIONS.**

1. Use program policies and regulations to require compliance with NR 151 Performance Standards and Prohibitions.
2. Ensure cost sharing of required practices is available.

**GOAL 2: CONSERVATION EASEMENTS FOR FARMLAND PRESERVATION**

**INCREASE PUBLIC AWARENESS OF FARMLAND PRESERVATION NEEDS**

1. Implement an educational program for the protection of farmland.
2. Develop and foster partnerships with citizen organizations and local governments to deliver educational programs.
3. Develop educational sheets for distribution through the multi agency newsletter.

**PROMOTE FARMLAND PRESERVATION AND PURCHASE OF DEVELOPMENT RIGHTS PROGRAMS**

1. Promote the use of Conservation Easements and town zoning to protect prime farmland.
2. Develop a long range plan to protect prime farmland
3. Promote the use of the USDA-NRCS Farm and Range Land Protection Program.
4. Promote the use of the states' Working Lands Initiative.

**DEVELOP AND FOSTER PARTNERSHIPS WITH THE FOLLOWING ORGANIZATIONS**

1. P&D
2. NRCS
3. FSA
4. DATCP
5. DNR
6. UWEX
7. Rock County Towns Association
8. American Farmland Trust
9. Natural Heritage Land Trust
10. Gathering Waters Conservancy
11. Land Trust Network of Jefferson County

**GOAL 3: IMPROVE & PROTECT SURFACE WATER QUALITY**

**INCREASE PUBLIC AWARENESS OF SURFACE WATER QUALITY**

1. Implement a surface water quality public education program.
2. Develop and foster partnerships with citizen organizations and local governments to deliver education program.
3. Promote the use of the Agricultural and Household Clean Sweep Programs.
4. Promote the use of CREP.

**INCREASE USE OF NUTRIENT MANAGEMENT PLANNING**

1. Implement a nutrient management-training program for farmers.
2. Provide cost sharing for development of nutrient management plans.
3. Implement NR 151 performance standards for nutrient management.
4. Use program policies and regulations to require the use of nutrient management plans.

#### **REDUCE POLLUTED RUNOFF & SEDIMENT DELIVERY TO SURFACE WATERS**

1. Reduce soil erosion from all land uses.
2. Promote the establishment and maintenance of vegetative buffers within Riparian Zones through use of CRP/CREP.
3. Provide technical assistance and cost sharing for installation of conservation practices to reduce polluted runoff.
4. Implement NR 151 performance standards and prohibitions for agricultural runoff.
5. Implement County ordinance performance standards and permit requirements for storm water runoff management.
6. Use program policies and local regulations to require use of conservation practices to reduce polluted runoff and pollutant delivery to surface waters.
7. Use County ordinance to regulate construction, use, maintenance and closure of animal waste storage facilities.

#### **GOAL 4: IMPROVE & PROTECT SOIL QUALITY**

##### **INCREASE PUBLIC AWARENESS OF SOIL QUALITY & EROSION**

1. Develop and conduct a soil quality and soil erosion public education program

##### **REDUCE SOIL EROSION ON CROPLAND TO TOLERABLE LEVELS**

1. Increase the use of conservation tillage to reduce soil erosion rates.
2. Increase the use of grassed waterways to reduce gully erosion.
3. Implement NR 151 performance standard on control of soil erosion.
4. Use program policies and regulations to require the use of conservation practices to control erosion soil erosion.
5. Identify soil erosion rates and tillage practice trends.
6. Target efforts to reduce soil erosion in watersheds with high erosion rates.

##### **REDUCE SOIL EROSION ON CONSTRUCTION SITES TO TOLERABLE LEVELS**

1. Develop and implement a training program on proper installation of conservation practices for prospective homeowners, builders, contractors, and developers.
2. Implement County Ordinance standards and permit requirements for construction site erosion control.
3. Use program policies and local regulations to require the use of conservation practices to control soil erosion.

##### **CONTROL SOIL EROSION ON STREAM BANKS**

1. Provide technical assistance and cost sharing for conservation practices to control stream bank and shoreline erosion.
2. Implement County Ordinances and DNR permit requirements for storm water runoff.

#### **GOAL 5: IMPROVE & PROTECT HABITAT QUALITY**

##### **PRESERVE & RESTORE HABITAT AREAS**

1. Promote programs and provide technical assistance for habitat preservation and restoration.

2. Promote correct placement of wetlands on the landscape to improve habitat for wildlife.

**PROMOTE TREE AND PRAIRIE PLANTING & SUSTAINABLE WOODLANDS MANAGEMENT**

1. Promote programs for tree planting and sustainable woodland management.
2. Promote correct placement of woodland plantings on the landscape to improve habitat and travel corridors for wildlife.
3. Promote woodland management plans through the DNR Forester's office.
4. Administer tree sale program for county residents.
5. Promote the use of native plantings in Critical Area Stabilization and fencerows.

**PRESERVE & RESTORE IN-STREAM HABITAT & RIPARIAN CORRIDORS**

1. Promote programs and provide technical assistance for restoring in-stream habitat.
2. Promote programs and provide technical assistance for stream corridor restoration.
3. Promote correct placement of buffers on the landscape to improve habitat for wildlife.

**PRESERVE & RESTORE THREATENED & ENDANGERED SPECIES HABITAT**

1. Provide informational materials to the public on threatened and endangered species.
2. Promote programs for restoring and preserving habitat in critical areas.
3. Ensure that projects to install conservation practices do not negatively impact species or their habitat.

**PREVENT THE SPREAD OF INVASIVE SPECIES**

1. Provide informational materials to the public on invasive species.
2. Assist public organizations and DNR in mapping past and current populations of invasive plant species.

**PRESERVE & RESTORE GRASSLAND & NATIVE PLANT COMMUNITIES**

1. Provide informational materials to the public on native species of grasses, forbs, shrubs and trees.
2. Promote programs for preservation and restoration of native plant and grassland communities.
3. Promote correct placement of communities on the landscape to improve habitat and travel corridors for wildlife.
4. Administer native seed sale program for county residents.

**Conclusion**

The goals and objectives were used to develop a five-year work plan for the LCD. The work plan, shown as Appendix D, goes into the details of how the LCD plans to address the goals and objectives and accomplish measurable outcomes. The work plan includes the goals, objectives, and actions; the planned accomplishments, estimated staff hours, and financial resources that will be needed to complete them.

The table below tabulates the goals as identified in the work plan and provides the reader with the anticipated year of development, implementation costs, source of funding, and staffing costs associated with the implementation of this plan. The estimated costs provided below were developed from past program administration experiences and information provided by DATCP.

**Table 7-23: Multiyear Goals and Proposed Budget**

<b>GOALS</b>	<b>Year(s) of Action</b>	<b>Cost Sharing &amp; Funding Sources</b>	<b>Estimated LCD Staff Cost (2009 dollars)</b>
GOAL 1 – Improve and Protect Groundwater Quality	2009 - ongoing	\$ 1,750,000 <sup>1</sup> Federal, Local & State	\$ 425,000 <sup>2</sup>
GOAL 2 – Farmland Conservation Easement (PDR)	2009 - ongoing	\$ 4,000,000 <sup>3</sup> Federal, Local & State	\$ 575,000 <sup>4</sup>
GOAL 3 – Improve and Protect Surface Water Quality	2009 - ongoing	\$ 2,000,000 <sup>5</sup> Federal, Local & State	\$ 1,900,000 <sup>6</sup>
GOAL 4 – Improve and Protect Soil Quality	2009 - ongoing	\$ 1,000,000 <sup>7</sup> Federal, Local & State	\$ 531,000 <sup>8</sup>
GOAL 5 – Improve and Protect Habitats	2009 - ongoing	\$ 250,000 <sup>9</sup> Federal, Local & State	\$450,000 <sup>10</sup>
<i>TOTALS</i>	<b>N/A</b>	\$9,000,000 Federal, Local & State	\$3,881,000
Current LCD Staff (2009) = 4.75 FTE			<b>7.75 FTE needed to implement objects.</b>

It must be noted that programs administrated by the LCD, as defined in Chapter 3, are not included in this table. The table is a reflection of the LCD five-year work plan goals. Each goal incorporates varies conservation programs available to the LCD to fulfill the identified goal.

Constant changes in annual budget allocations from the county, state, and federal partners to administer conservation programs make it difficult to predict when the outlined goals/objectives will or can be completed. As an internal exercise the LCD prepares an annual work plan as part

<sup>1</sup> All Nutrient Management Program expenditures accounted for here. This value includes costs associated with well abandonment from the USDA, State, County funding.  
<sup>2</sup> 1 FTE staff person plus associated costs.  
<sup>3</sup> Cost associated with purchasing PDR; use of funding from USDA Farm and Ranchland Protection Program, the State Working Lands Inactivate Program, and County funding.  
<sup>4</sup> 1 FTE staff person plus associated costs.  
<sup>5</sup> Costs associated with physical best management practices, excluding nutrient management and well abandonment, which are funded through the USDA-EQIP and the state SWRM Grant program.  
<sup>6</sup> 3.75 FTE staff persons plus associated costs.  
<sup>7</sup> Cost associated with most soft BMPs and includes funding from CRP and CREP.  
<sup>8</sup> 1.5 FTE and associated costs.  
<sup>9</sup> Costs associated with invasive species and habitat restorations.  
<sup>10</sup> 1 FTE staff person plus associated costs.

of the county budget process, which identifies continued conservation efforts to implement this plan.

The five-year work plan will serve as an overall guide to the development of annual grant applications. It will also serve as a guidance tool to assist county, state, and federal partnering agencies with the development and implementation of various conservation programs.

Expanding livestock operations, changing crop rotations, fewer but larger farms, and farmland conversion to development are trends that will continue into the future. Without proper planning, the aforementioned resource concerns may have a negative impact on the natural resources of the County.

As noted above farmland conversion to development has occurred at a staggering rate in the last five years. To combat this issue the county will participate in the newly developed Working Lands Initiative, specifically the LCC will develop and the LCD will implement a PDR program.

Local, state and federal programs will continue to be used to support the county and these decision makers. As Rock County grows and more development occurs, sediment and other associated pollutants are delivered to area streams and lakes. In addition to conventional pollutants in urban runoff, thermal pollution is also a major concern in coldwater watersheds. Groundwater resources are also receiving more attention as development reduces potential infiltration and groundwater consumption increases. The Construction Site Erosion Control Ordinance and the Storm water Management Ordinance are now mandatory throughout the County. Efforts will continue to provide LCD staff support for the proper implementation of these ordinances.

## Appendix A; Committee Information



*Rock County Land Conservation Department*  
440 N US Hwy 14, Janesville, WI 53546-9708  
Phone: (608) 754 - 6617 Ext. 115 / Fax: (608) 752 - 1247  
E-mail: [sweeney@co.rock.wi.us](mailto:sweeney@co.rock.wi.us)     [www.co.rock.wi.us](http://www.co.rock.wi.us)

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December 2, 2008

Mary Ann Buenzow  
DNR  
2514 Morse St  
Janesville, WI 53545

Dear Mary Ann:

On behalf of the Rock County Land Conservation Committee, I invite you to join the Advisory Committee to update the Rock County Land and Water Resource Management Plan (LWRMP). This plan serves as a platform for the activities and programs of the Rock County Land Conservation Department (LCD). All counties in the state are required by statute to develop and implement a LWRMP.

**The Advisory Committee provides technical information that warrants inclusion in the plan and comments on drafts.** The Rock County LCD is involved in many aspects of conservation from storm water, erosion control, nutrient management, well abandonment, Clean Sweep for hazardous waste, tree-shrub-seed program. The current LWRMP can be viewed at the Rock County Land Conservation Department website under "LCD County Programs".

**Rock County has a deadline of April 2009 to submit the first draft to DATCP and DNR for comments.** Therefore, we need to commence with the update as soon as possible. I have scheduled two meetings at the Rock County Land Conservation Department:

- December 17<sup>th</sup>, 1:00 p.m. – 4:00 p.m. Review the current LWRMP, published in 2004, and lay the groundwork for the second meeting.
- December 29<sup>th</sup> from 1:00 p.m. – 4:00 p.m. Discuss goals and components to include in the 2009 plan.
- January 2009, date to be determined. Gather comments of the draft document.

Attendance at the committee meetings is not required. Written comments and or recommendations will hold the same weight as verbal comments.

Your input is very important. Please e-mail me if you want to serve on this committee.

Sincerely,

Thomas Sweeney  
County Conservationist

## **AGENDA**

### **LAND AND WATER RESOURCE MANAGEMENT PLAN ADVISORY COMMITTEE MEETING DECEMBER 17, 2008 USDA SERVICE CENTER JANESVILLE WI**

1. Introductions
2. Plan Schedule
3. Public Surveys vs. Citizen Advisory Committee.
4. Review Chapter 2; Existing Resource Concerns.
5. Review Chapter 3 and Accomplishments from 2004 Plan.
6. Resource Concerns Worksheets.
7. Next Meeting.
8. Adjourn.

## Meeting Notes

### LAND AND WATER RESOURCE MANAGEMENT PLAN ADVISORY COMMITTEE MEETING DECEMBER 17, 2008 USDA SERVICE CENTER JANESVILLE WI

1. Introductions. Thomas Sweeney, LCD; Roger Allan, NRCS; Judy Schambow, FSA; Andrew Baker, LCD; Rick Wietersen, Rock Co. Health Dept.; Dennis Presser, DATCP; Mary Robb, Rock Co. Planning and Development; Anne Miller, LCD; Norman Tadt, LCD; Randy Thompson, UWEX; Brian Buenzow, DNR.
2. Discussion - Schedule For Presenting Plan To Land And Water Conservation Board - Dennis Presser, DATCP. Plans approved this and in coming years will very likely be for five years with option to renew for another 10 years. The citizen committee sets out goals for the next 5-10 years based on resource priorities. Land Conservation and partner agencies must determine a work plan to attain those goals. Accomplishments for now are not measured against the work plan; however, the Land and Water Board likes to see specific measures where appropriate. First draft for review is in "early April". The final report is due August-September.
3. Public Surveys Vs Citizens Advisory Committee. In the past few years, citizen surveys and citizen input has been compiled for the Rock County Comprehensive Plan (in public comment period now), the Farmland Preservation update (2004), and the Rock County Health Department PACE report. Would it be possible to use data from these related surveys to gage citizens' concerns? Yes, for the draft and then send out drafts to a citizen's review committee is a possibility. Dennis, Tom, Mary, and Rick will discuss this later.
4. Review Chapter 2; Existing Resource Conditions. See draft handout. Groundwater was added. Health Dept. started making well layer in September 2008 and is currently catching up on older data. Andrew is working on another groundwater related layer. Norm added that as part of the Spring Creek project that wells were given an identification number. Much of the rest of this chapter is from the Lower Rock River Basin Plan. It is not certain if the basin plans will continue with the USEPA and DNR moving to TMDLs. The two TMDLs in Rock County (Stevens and Markham Creeks) remain local priorities.
5. Review Chapter 3; Accomplishments from the 2004 LWRM Plan and Conservation Programs. See draft handout. Manure storage ordinance needs to be added.
6. Resource Concerns - Worksheets. See draft handout. The group reviewed each item in the grid. Tom will add group comments.
7. Next Meeting. Monday, December 29, 2008 at 1:00 pm at Land Conservation Dept. Please look over handouts and forward comments to Tom at [sweeney@co.rock.wi.us](mailto:sweeney@co.rock.wi.us)
8. Adjourn.

Submitted by Anne Miller, December 17, 2008

## **AGENDA**

### **LAND AND WATER RESOURCE MANAGEMENT PLAN ADVISORY COMMITTEE MEETING DECEMBER 29, 2008 USDA SERVICE CENTER JANESVILLE WI**

1. Call Meeting to Order:
2. Public Survey.
3. Review Chapter 1; Introduction
4. Review Chapter 2; Existing Resource Conditions.
5. Review Chapter 3; Conservation Programs.
6. Review Chapter 4; Regulations.
7. Review Resource Concerns Worksheets.
8. Next Meeting.
9. Adjourn.

**LAND AND WATER RESOURCE MANAGEMENT PLAN  
ADVISORY COMMITTEE MEETING MINUTES  
DECEMBER 29, 2008  
USDA SERVICE CENTER  
JANESVILLE WI**

1. **Call Meeting to Order, 1:00 p.m.** Present: Tom Sweeney, LCD; Roger Allan, NRCS; Andrew Baker, LCD; Mary Robb, Rock Co. Planning; Randy Thompson, UWEX; Rick Wietersen, Rock Co. Health; Anne Miller, LCD.
2. **Public Survey --** A survey will be sent to a sample of the FSA mailing list (every fifth address) if this list is available. The survey will be mailed January 9<sup>th</sup>, due January 27<sup>th</sup>, and data tabulated for the next meeting on January 30<sup>th</sup>. Judy will check on list. LCD will coordinate mailing.
3. **Review Chapter 1; Introduction --** Hand out revised draft. No major changes.
4. **Review Chapter 2; Existing Resource Conditions --** Hand out revised draft. Tom will meet with Rick to fill out groundwater section with new data on groundwater and wells from Health Dept. LCD (Norm and Andrew) and Planning (Mary) are working on maps for groundwater, surface water, and wetlands.  
The draft of the surface water section of this chapter has been sent to DNR basin personnel for informal review and comments; no replies yet. Much of the surface water section is from the Lower Rock basin report.  
Excluding the major rivers in the county (Rock, Sugar, and Yahara), water quality has improved somewhat in most of the contributing sub-watersheds. The LWRMP will focus on protecting exceptional waters and improving poor waters.  
A comment was made on citing sources.  
Watershed management across county boundaries is addressed in DNR basin reports.
5. **Review Chapter 3; Conservation Programs --** Hand out of revised draft. Some programs added and some data still needed.
6. **Review Chapter 4; Regulations --** The previous LWRMP focused on water quality. The update will have a more diversified approach to water quality management to take advantage of more funding sources.  
Chapter 4 contains regulations specific to water quality from NR 151. DNR signed an MOU with Rock County that should limit the County's liability from lawsuits and states the obligations of DNR.
7. **Review Resource Concerns Worksheets --** Review of draft revised after previous meeting (Dec. 17, 2008). Copies of working draft were sent to DNR committee members for comments.
8. **Next Meeting --** January 30, 2008 at 1:00 pm at Land Conservation.
9. **Adjourn, 3:15 pm.**

*Submitted by Anne Miller, Dec. 29, 2008*

## **AGENDA**

### **LAND AND WATER RESOURCE MANAGEMENT PLAN ADVISORY COMMITTEE MEETING MARCH 10, 2009 USDA SERVICE CENTER JANESVILLE WI**

1. Call Meeting to Order:
2. Public Survey - results
3. Review Draft Document - Develop Final Comments
4. Other Business
5. Adjourn.



**Rock County Land Conservation Department**  
**440 N US Hwy 14**  
**Janesville, WI 53546-9708**  
**Phone: (608) 754 - 6617 ext.3**  
**Fax: (608) 752 - 1247**

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## **MEMORANDUM**

**TO:** Land Conservation Committee

**FROM:** Tom Sweeney, County Conservationist

**DATE:** February 17, 2009

**REFERENCE:** Working Copy of the Land and Water Resource Management Plan

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I have enclosed a copy of the working draft of the Land and Water Resource Management Plan. I ask each of you to spend some time reviewing this document and have a list of concerns, comments, and/or ideas readied for the February 24, 2009 LCC meeting. This document should be ready for delivery to DATCP on April 1, 2009 for their first review.

Please note that we are still working on this document, so the formatting hasn't been completed.

After the document has been completed, and prior to delivery to DATCP an Executive Summary and a Table of Contents will be drafted. Also, the appendix will be expanded to include; all letters of request, results of the public survey, minutes from the agency advisory committee meetings, and definitions and acronyms.

I would like to thank each of you in advance for your time regarding this matter.

## Appendix B



### Rock County Land Conservation Department

440 N US Hwy 14  
Janesville, WI 53546-9708  
Phone: (608) 754 - 6617 ext.3  
Fax: (608) 752 - 1247  
Website: [www.co.rock.wi.us](http://www.co.rock.wi.us)

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January 9, 2009

Dear Rock County Stakeholder:

We are asking rural residents, landowners, and/or farmers what soil, water, and habitat resource issues the Rock County Land Conservation Department should address in the next five years in our Land and Water Resource Management Plan. **Results from the returned surveys will help us prioritize our programs and seek funding.**

**Please complete the enclosed short survey and return it to us by January 23, 2009.** If you have any questions regarding this survey, please call us. There is no need to give us your name.

**What is the Rock County Land Conservation Department?** In 1942, the Soil Conservation District was created as an independent unit of government to provide technical assistance for agricultural soil conservation. In 1982, Rock County Board of Supervisors created the Land Conservation Department (LCD) under the supervision of the Land Conservation Committee. In recent years, the scope of conservation has expanded. The LCD offers technical assistance to landowners and other agencies on the resource concerns listed in the survey. In addition, LCD and its conservation partners provide several cost-sharing programs. LCD primarily works on private lands. We are located in the same building as the Farm Services Agency (FSA) and in the same office as the Natural Resources Conservation Service (NRCS).

**If you want to know more about our conservation services, please contact us.** More information is also available at the Rock County website ([www.co.rock.wi.us](http://www.co.rock.wi.us) under "Land Conservation").

Thank you for your interest in conservation in Rock County.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas Sweeney".

Thomas Sweeney  
County Conservationist

Encl.

## 2009 Resource Concern Survey

### INSTRUCTIONS:

1. Please read the summaries of the resource concerns below.
2. Complete the questions in the survey. If you have questions, call 608-754-6617 ext. 115.
3. Mail the completed survey to the Rock County LCD by January 23, 2009.

**Groundwater** is the primary source of potable water for the citizens of Rock County. Rock County ranks as the third highest user of groundwater in Wisconsin based on withdrawal estimates. This groundwater comes from sand, gravel, and bedrock directly under our homes, farms, and businesses. The Rock County Health Department estimates that 33% of all private wells in Rock County do not meet safe water standards set forth by the USEPA. High nitrates and bacteria are the main pollutants.

**Surface water** includes streams, rivers, lakes, and ponds that many of us enjoy. Polluted surface water indicates excessive run-off and other costly problems in a watershed. Loss of topsoil and fertilizer inputs, repairs to collapsed stream banks, and clearing channels, culverts, and ditches of silt are a few examples. Decreased recreational value and degraded fisheries are two long-term results of polluted water. Rock County exhibits a wide range of surface water quality. Some of our streams rank as Exceptional Water Resources while others are severely degraded from human impact.

**Invasive non-native species** of plants and animals can have significant wide-reaching impacts on forest regeneration, agricultural productivity, fisheries, and wildlife habitat. Well-known non-native invasive species in Rock County are Garlic Mustard, Buckthorn, Reed Canary Grass, Canada Thistle, Multiflora Rose, Common Carp, Rusty Crawfish, Purple Loosestrife, Eurasian Milfoil, and many crop pests. Problem species continue to invade Rock County. Recent arrivals include Gypsy Moth and Japanese Knotweed.

**Endangered Species** are a measure of our impact on our environment. Rock County is home to several endangered animals, insects, and plants. To preserve threatened and endangered species, improve their status, and possibly keep more species off this list, habitat must be protected from further encroachment and must have special protection efforts.

**Land Preservation** in the context of this survey is specific to a program that would be created to protect the agricultural lands and the woodlands in Rock County from development. The program would provide voluntary options for land preservation that may include monetary assistance to landowners who desire to keep land in its current undeveloped use for generations to come.

**Non-Agricultural Run-off** – Active construction sites and roof and run-off from new and existing development can be major sources of pollution in our rivers and lakes. For new development, an approved storm water run-off and soil erosion control plan must be implemented during construction and a post-construction storm water management plan established to properly handle storm water long after the project is completed. Ordinances for non-ag run-off apply to the unincorporated areas of Rock County.

**Agricultural Practices** - Most of the land in Rock County is used for agriculture. The demands and market pressures on crop and livestock farmers are challenging to conservation, however, without taking precautionary measures to protect topsoil from storm run-off and manage nutrients, the rich farmland on which we depend can lose its productive edge. Practices available to farmers include stream bank protection, nutrient management, and general soil erosion control practices (e.g. conservation tillage, contour farming, crop rotations, cover crops) among many others.

**Hazardous Waste Programs** - Several Rock County agencies and local governments have formed a consortium to provide safe and affordable disposal of hazardous wastes such as pesticides, mercury, solvents, and oil-based paint among others from the homes or farms of all citizens of Rock County. Efforts are underway to transform this program from a temporary system (collection every other year) into a permanent collection system (collection every year).

**2009 Resource Concern Survey**

\*\*If you have any questions, please call 608-754-6617 ext. 115\*\*

**Please complete the following:**

Resource Concerns for Rock County <b>Rank the list below in order of priority</b>	Below are ways we can address each resource concern. <b>For each group, rank items by preference</b> Circle 1 = higher, 2 - 3 = lower, 0 = no opinion.
___ Groundwater	Groundwater Protection 1 - 2 - 0 Well Abandonment 1 - 2 - 0
___ Surface Water	Surface Water Protection 1 - 2 - 3 - 0 Surface Water Improvement 1 - 2 - 3 - 0 Wetland Protection 1 - 2 - 3 - 0
___ Invasive Species	Terrestrial Invasive Species 1 - 2 - 0 Aquatic Invasive Species 1 - 2 - 0
___ Endangered and Threatened Species	Habitat Restoration 1 - 2 - 0 Habitat Protection 1 - 2 - 0
___ Land Preservation	Woodland Preservation 1 - 2 - 3 - 0 Ag Land Protection through Zoning 1 - 2 - 3 - 0 Ag Land Preservation through Purchase Development Rights (PDR) 1 - 2 - 3 - 0
___ Non-Agricultural Run-off	Storm Water Management 1 - 2 - 0 Construction Site Erosion Control 1 - 2 - 0
___ Agricultural Practices	Stream Bank Protection 1 - 2 - 3 - 0 Nutrient Management 1 - 2 - 3 - 0 Ag - Soil Erosion Control 1 - 2 - 3 - 0
___ Hazardous Waste Programs	Agricultural Clean Sweep Program 1 - 2 - 0 Household Clean Sweep Program 1 - 2 - 0

**Please answer the following (use additional sheets as needed):**

1. Which natural resource concerns from the list above would you want to know more about?  
\_\_\_\_\_
  
2. What do you feel are the most important conservation issues facing rural Rock County in the next 10 years?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  
3. What do you feel are the most important conservation issues facing rural Rock County in the next generation?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. What are three of your immediate or on-going resource conservation concerns for rural Rock County?

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5. What resource concerns have gotten better in the past decade in rural Rock County?

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6. What resource concerns do you believe have gotten worse in the past decade in rural Rock County?

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7. What do you like best about rural Rock County?

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**END OF SURVEY**

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**Please return this page in the enclosed envelope by  
JANUARY 23, 2009 to:**

Rock Co. Land Conservation Department  
440 N US Hwy 14  
Janesville, WI 53546

*Thank you for participating!*

## Public Survey

In January 2009, people who live in and/or farm rural land in Rock County were asked to rank a list of eight resource concerns and then describe what they believed to be the most urgent resource conservation issues framed in regard to progress in the last decade, now, over the next decade, for the next generation, and what they valued most about rural living. A brief paragraph describing the eight resource concerns accompanied the survey. Of the 579 surveys that were mailed, 167 were returned (29%). The final resource ranking was averaged from 103 usable responses. The following summary was compiled from all the returned surveys. Responses to questions were grouped then compared.

Rural residents most value open space, peace and quiet, and natural settings. They appreciate the relationships of rural life such as working the land, family, small communities, and local government that protects and improves rural life (town zoning, conservation agencies, among others); however, a few respondents remarked that there is a feeling of too much government. The most cited concerns were for the protection of farmland, followed by groundwater, and scenic resources, and the tools to make farming and conservation compatible. Respondents ranked groundwater the most important resource. Contaminated ground water threatens health, relationships with neighbors, and peace of mind. Safe groundwater is critical to rural independence. The other major threat to rural life is the very visible loss of open farmland and farming opportunities to development.

Perhaps the failures of the past add urgency to the present and future. Soil and water conservation practices, improved surface water, and the restrictions and disposal programs for hazardous chemicals were perceived as the most successful conservation efforts of the last ten years whereas programs to preserve farmland and destruction of existing habitat were viewed as the worst losses. Looking ahead 10 years, nearly half of the respondents said that preservation of farmland is the most important rural resource concern. By the next generation, though still the top concern, the urgency for farmland preservation lessens perhaps because by then the torch will have been passed. Habitat and invasive species gain importance in a generation suggesting long-term legacies that transcend ownership. Surface water remains important and a problem that can be improved in a decade as seen in progress over the last decade, but by the next generation surface water also loses ground as stewardship changes hands. Concern for groundwater remains very strong regardless of the timeframe. This may be because unlike surface water, the presence and source of groundwater contamination are not always obvious or easy if possible to repair. Ag-related concerns for soil, management of nutrients and manure remained steady for each time period suggesting the continued need for programs to keep conservation and farming in step.

Rural residents want to know what they can do to help conserve land and water resources. Response to this survey exceeded expectations and there is demand for more information on all the resource concerns covered by the survey especially land preservation and groundwater. It supports the value of conservation programs and the goals of agency partnerships to address conservation of water, soil, land use, and habitat.

## Appendix C; Resource Concern Worksheets

The following worksheets were developed during discussions with the Advisory Committee. The committee identified each resource concern and then filled the activities, as identified in the right column. This information was then merged into common themes and workload issues to develop the goals as identified in Chapter 7.

<b>Land and Water Resource Management Plan Concerns – Animal Waste Issues</b>	
	<b>Current and Potential Activities</b>
<b>Education</b>	<ul style="list-style-type: none"> <li>• Newsletters</li> <li>• Maps of high risk areas</li> <li>• One-on-one consultation</li> <li>• Conservation planning</li> <li>• Direct mailings to businesses working on animal waste systems.</li> <li>• County GIS System</li> <li>• County sponsored Website</li> </ul>
<b>Conservation Practices</b>	<ul style="list-style-type: none"> <li>• Nutrient Management / animal waste credits</li> <li>• Animal waste storage</li> <li>• Barnyard runoff management</li> <li>• Clean water diversions</li> </ul>
<b>Incentives</b>	<ul style="list-style-type: none"> <li>• DATCP cost sharing</li> <li>• NRCS EQIP cost sharing</li> </ul>
<b>Critical Areas in County</b>	<ul style="list-style-type: none"> <li>• Depth to groundwater/bedrock</li> <li>• Areas draining to impaired waters</li> <li>• Internally drained areas</li> <li>• Stevens and Markham Creek Watersheds</li> <li>• Porous soils</li> <li>• Water Quality Management Areas</li> </ul>
<b>Regulations</b>	<ul style="list-style-type: none"> <li>• Animal Waste Management Ordinance</li> <li>• Agricultural Runoff Performance Standards and Prohibitions/NR151</li> <li>• Notice Of Discharge Program - DNR</li> <li>• Livestock Siting Law-ATCP 51</li> </ul>
<b>Partnerships</b>	<ul style="list-style-type: none"> <li>• DNR</li> <li>• DATCP</li> <li>• NRCS</li> <li>• FSA</li> <li>• UWEX</li> <li>• Livestock Groups</li> <li>• Commodity Groups</li> <li>• Towns</li> </ul>

<b>Land and Water Resource Management Plan Concerns – Agricultural Erosion and Sediment Control</b>	
	<b>Current and Potential Activities</b>
<b>Education</b>	<ul style="list-style-type: none"> <li>• Newsletters</li> <li>• Conservation planning</li> <li>• One-on-one consultation</li> <li>• County sponsored website</li> </ul>
<b>Conservation Practices</b>	<ul style="list-style-type: none"> <li>• No-till/reduced tillage</li> <li>• Buffers</li> <li>• Grassed waterways</li> <li>• Clean water diversions</li> <li>• Stream bank stabilization</li> </ul>
<b>Incentives</b>	<ul style="list-style-type: none"> <li>• DATCP cost sharing</li> <li>• NRCS EQIP cost sharing</li> <li>• USDA-FSA CRP/CREP</li> <li>• FPP tax credits</li> </ul>
<b>Critical Areas in County</b>	<ul style="list-style-type: none"> <li>• Steep slopes</li> <li>• Areas draining to DNR impaired waters</li> <li>• Areas draining to outstanding and exceptional water resources</li> <li>• Markham and Stevens Creek Watersheds</li> <li>• Internally drained areas</li> <li>• Water Quality Management Areas</li> <li>• CCC structures – still operating</li> </ul>
<b>Regulations</b>	<ul style="list-style-type: none"> <li>• DNR Agricultural Runoff Performance Standards and Prohibitions - NR 151</li> <li>• Farmland Preservation Standards</li> <li>• USDA conservation compliance</li> </ul>
<b>Partnerships</b>	<ul style="list-style-type: none"> <li>• DNR</li> <li>• DATCP</li> <li>• NRCS</li> <li>• UWEX</li> <li>• FSA</li> </ul>

<b>Land and Water Resource Management Plan Concerns – Groundwater</b>	
	<b>Current and Potential Activities</b>
<b>Education</b>	<ul style="list-style-type: none"> <li>• Newsletters</li> <li>• Maps of high risk areas of county</li> <li>• Community presentations</li> <li>• Groundwater/well water testing</li> <li>• One-on-one consultation</li> <li>• County sponsored website</li> </ul>
<b>Conservation Practices</b>	<ul style="list-style-type: none"> <li>• Nutrient management</li> <li>• Well abandonment</li> <li>• Animal waste management</li> </ul>
<b>Incentives</b>	<ul style="list-style-type: none"> <li>• DATCP cost sharing</li> <li>• NRCS EQIP cost sharing-well abandonment</li> <li>• DNR Cost Share-well abandonment</li> <li>• County Cost Share-well abandonment</li> </ul>
<b>Critical Areas in County</b>	<ul style="list-style-type: none"> <li>• Exposed bedrock</li> <li>• Porous soils</li> <li>• Internally drained areas</li> </ul>
<b>Regulations</b>	<ul style="list-style-type: none"> <li>• County Health Code – well abandonment</li> <li>• DNR Agricultural Runoff Performance Standards and Prohibitions</li> <li>• DNR Well Code and drinking water regulations.</li> <li>• Non-Metallic Mining Ordinance</li> </ul>
<b>Partnerships</b>	<ul style="list-style-type: none"> <li>• DNR</li> <li>• DATCP</li> <li>• NRCS</li> <li>• FSA</li> <li>• UWEX</li> <li>• Public Health</li> </ul>

<b>Land and Water Resource Management Plan Concerns – Surface Waters</b>	
	<b>Current and Potential Activities</b>
<b>Education</b>	<ul style="list-style-type: none"> <li>• Newsletters</li> <li>• One-on-one consultations</li> <li>• Monitoring program</li> <li>• County sponsored website</li> <li>• Conservation planning</li> </ul>
<b>Conservation Practices</b>	<ul style="list-style-type: none"> <li>• To numerous to itemize. Refer to ATCP 50</li> </ul>
<b>Incentives</b>	<ul style="list-style-type: none"> <li>• DATCP cost sharing</li> <li>• NRCS EQIP cost sharing</li> <li>• CRP/CREP</li> <li>• Wetland Reserve Program</li> <li>• Ag and Household Clean Sweep</li> </ul>
<b>Critical Areas in County</b>	<ul style="list-style-type: none"> <li>• Areas draining to impaired waters</li> <li>• Areas draining to exceptional and outstanding waters</li> <li>• Stevens Creek Watershed</li> <li>• Markham Creek Watershed</li> <li>• Wetlands</li> <li>• Springs</li> <li>• Lakes</li> <li>• Riparian Areas</li> </ul>
<b>Regulations</b>	<ul style="list-style-type: none"> <li>• Agricultural Runoff Performance Standards and Prohibitions-NR151</li> <li>• Shoreland zoning</li> <li>• NR 216</li> <li>• Beach inspections</li> </ul>
<b>Partnerships</b>	<ul style="list-style-type: none"> <li>• DNR</li> <li>• DATCP</li> <li>• NRCS</li> <li>• UWEX</li> <li>• Planning and Development</li> <li>• Public Health</li> <li>• Fish and Wildlife</li> <li>• FSA</li> <li>• Lake Associations/Districts</li> </ul>

<b>Land and Water Resource Management Plan Concerns – Wildlife/Plants/Animals</b>	
	<b>Current and Potential Activities</b>
<b>Education</b>	<ul style="list-style-type: none"> <li>• Newsletters</li> <li>• Newspaper articles</li> <li>• One-on-one consultations</li> <li>• Conservation planning</li> <li>• County sponsored website</li> </ul>
<b>Conservation Practices</b>	<ul style="list-style-type: none"> <li>• Buffers</li> <li>• Stream bank and shoreline stabilization</li> <li>• Conservation cover</li> <li>• Tree / shrub / wildflower seed establishments</li> <li>• Brush management</li> <li>• Gypsy Moth Suppression</li> </ul>
<b>Incentives</b>	<ul style="list-style-type: none"> <li>• USDA-CRP/CREP</li> <li>• NRCS EQIP cost sharing</li> <li>• DNR Managed Forest Law</li> <li>• State stewardship funds</li> <li>• NRCS Wetland Incentive Program</li> <li>• NRCS Wildlife Habitat Incentive Program-WHIP</li> </ul>
<b>Critical Areas in County</b>	<ul style="list-style-type: none"> <li>• State owned natural areas</li> <li>• Grassland complexes</li> <li>• Wetland complexes</li> <li>• Riparian areas</li> <li>• Prairie remnants</li> <li>• Undeveloped woodlots</li> <li>• Gypsy Moth suppression areas</li> </ul>
<b>Regulations</b>	<ul style="list-style-type: none"> <li>• Limited State Regulations on Invasive Species</li> </ul>
<b>Partnerships</b>	<ul style="list-style-type: none"> <li>• DNR</li> <li>• DATCP</li> <li>• NRCS</li> <li>• UWEX</li> <li>• FSA</li> <li>• Planning and Development</li> <li>• US Fish and Wildlife Service</li> <li>• Non-governmental organizations (Pheasants Forever, Rock-Green Audubon Society, Etc)</li> <li>• Rock River Coalition</li> </ul>

<b>Land and Water Resource Management Plan Concerns – Construction Site Erosion Control and Storm Water Management</b>	
	<b>Current and Potential Activities</b>
<b>Education</b>	<ul style="list-style-type: none"> <li>• Workshops</li> <li>• Direct mailings</li> <li>• One-on-one consultations</li> <li>• County sponsored website</li> </ul>
<b>Conservation Practices</b>	<ul style="list-style-type: none"> <li>• Stormwater detention/retention ponds</li> <li>• Grass swales</li> <li>• Buffers</li> <li>• BMPs</li> </ul>
<b>Incentives</b>	<ul style="list-style-type: none"> <li>• County ordinance enforcement</li> </ul>
<b>Critical Areas in County</b>	<ul style="list-style-type: none"> <li>• All surface water and groundwater systems</li> </ul>
<b>Regulations</b>	<ul style="list-style-type: none"> <li>• County ordinances</li> <li>• County citation ordinance</li> <li>• State laws</li> <li>• Town ordinances – Beloit/Union</li> </ul>
<b>Partnerships</b>	<ul style="list-style-type: none"> <li>• DNR</li> <li>• Planning and Development</li> </ul>

<b>Land and Water Resource Management Plan Concerns – Conservation Easements Purchase/Transfer of Development Rights for Farmland Preservation</b>	
	<b>Current and Potential Activities</b>
<b>Education</b>	<ul style="list-style-type: none"> <li>• Workshops</li> <li>• Direct mailings</li> <li>• One-on-one consultations</li> <li>• Town meetings</li> <li>• Comprehensive Plans (County &amp; Towns)</li> <li>• County sponsored website</li> </ul>
<b>Conservation Practices</b>	<ul style="list-style-type: none"> <li>• Conservation easements</li> <li>• Town zoning</li> </ul>
<b>Incentives</b>	<ul style="list-style-type: none"> <li>• USDA-Farm and Ranchlands Protection Program</li> <li>• IRS Tax Code</li> <li>• State Working Lands Initiative</li> </ul>
<b>Critical Areas in County</b>	<ul style="list-style-type: none"> <li>• Towns surrounding urban centers</li> <li>• Towns prone to development</li> <li>• Undeveloped woodlots</li> <li>• Prime agricultural lands</li> <li>• Natural areas (Evansville/Footville Wildlife Area)</li> </ul>
<b>Regulations</b>	<ul style="list-style-type: none"> <li>• Easements</li> <li>• Zoning (Standard &amp; Sliding Scale)</li> </ul>
<b>Partnerships</b>	<ul style="list-style-type: none"> <li>• Planning and Development</li> <li>• NRCS</li> <li>• FSA</li> <li>• DATCP</li> <li>• DNR</li> <li>• UWEX</li> <li>• Towns Association</li> <li>• American Farmland Trust</li> <li>• Natural Heritage Land Trust</li> <li>• Gathering Waters Conservancy</li> </ul>

**Appendix D; Five-Year Work Plan**

**Rock County Work Plan  
2009 – 2013**

<b>Goal I. Protect and improve the quality of groundwater in Rock County.</b>			
<b>Objectives</b>	<b>Actions</b>	<b>Priority</b>	<b>Partnering Agencies</b>
1. Seal unused wells.	<ol style="list-style-type: none"> <li>1. Educate landowners to the importance of sealing unused wells. (Seal 20-40 wells/year)</li> <li>2. Provide assistance with well testing programs to Public Health and UWEX.</li> <li>3. Assist landowners with funding abandonment of wells to be abandoned and refer to County Public Health and NRCS for additional grant assistance.</li> <li>4. Use local regulations to require abandonment of unused wells.</li> </ol>	High	LCD, PH, DATCP, UWEX
2. Continue to work with partnering agencies to protect recharge areas in County.	<ol style="list-style-type: none"> <li>1. Map priority areas for infiltration &amp; recharge.</li> <li>2. Educate developers, citizens, etc. on importance of protecting these areas.</li> <li>3. Provide interpretive materials and maps for use during site development and review.</li> <li>4. Protect areas by appropriate means including inclusion into County comprehensive plan, restrict by ordinance if necessary.</li> </ol>	High	LCD, PH, UWEX, WGNHS, TOWNS, MUNICIPALITIES, P&D
3. Reduce nutrients and associated pollutants from entering ground water	<ol style="list-style-type: none"> <li>1. Promote and review Nutrient Management Plans to ensure proper implementation at the field level (<i>Target 10,000 acres/yr.</i>).</li> <li>2. Review and oversee implementation of manure storage construction and closure plans and all other pertinent standards and prohibitions in accordance with chapter 30 and NR 151</li> <li>3. Promote the use of Clean Sweep Programs</li> </ol>	High	LCD, DNR, DATCP, NRCS, PH, and CSC
4. Ensure compliance with NR 151.	<ol style="list-style-type: none"> <li>1. Promote voluntary efforts for compliance with NR 151, especially within the Steven's and Markham Creek Subwatersheds.</li> <li>2. Use program policies and regulations to require compliance with NR 151.</li> <li>3. Ensure cost sharing is available for required practices.</li> </ol>	High	LCD, NRCS

<b>Goal II. Protect Farmlands with Conservation Easements for Preservation</b>			
<b>Objectives</b>	<b>Actions</b>	<b>Priority</b>	<b>Partnering Agencies</b>
1. Increase public awareness of Farmland Protection needs	<ol style="list-style-type: none"> <li>1. Develop and implement an information and education program for the protection of farmland.</li> <li>2. Develop and foster partnerships with NGOs and local units of government to protect prime farmland.</li> </ol>	High	LCD, UWEX, DATCP, P&D, TOWNS, NRCS, NGOs, MUNICIPALITIES
2. Program development	<ol style="list-style-type: none"> <li>1. Develop a long-range plan for a PDR program based for Rock County.</li> <li>2. Appoint an Ad-hoc committee to assist with the</li> </ol>	High	LCD, UWEX, P&D, NRCS, DATCP, NGOs,

	<p>program development.</p> <ol style="list-style-type: none"> <li>3. Allocate sufficient funds in county budget to support program (capital plan).</li> <li>4. Commit necessary county staff resources to plan and implement Program.</li> <li>5. Adopt program via master plan and county ordinance.</li> <li>6. Apply for matching grant funds and solicit donations.</li> <li>7. Purchase a minimum of 10 easements per year.</li> </ol>		TOWNS, MUNICIPALITIES,
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<b>Goal III. Protect and improve the quality of surface water in Rock County.</b>			
<b>Objectives</b>	<b>Actions</b>	<b>Priority</b>	<b>Partnering Agencies</b>
1. Increase Public awareness of surface water quality	<ol style="list-style-type: none"> <li>1. Implement a water quality public education program.</li> <li>2. Develop and foster partnerships with NGOs and local governmental units to assist with deliver of education program.</li> <li>3. Annually host a clean sweep program for urban and rural landowners.</li> </ol>	High	LCD, UWEX, DNR, DATCP, NRCS
2. Increase the use of Nutrient Management	<ol style="list-style-type: none"> <li>1. Address nutrient management (NM) planning through conservation planning.(Annually)</li> <li>2. Provide Nutrient Management workshops for landowners to implement plans on their own. (Conduct 2/year).</li> <li>3. Incorporate industrial waste, septage and sludge applications into Nutrient and Conservation Plans.</li> <li>4. Work with commercial fertilizer applicators, farmers, their employees and crop consultants to ensure application of nutrients is according to nutrient management plans. (Target 20,000 acres/year).</li> <li>5. Work with landowners to ensure compliance with NR 151 standards.(Implement annual DATCP SEG Grant-approx 3,500 acres/yr).</li> <li>6. Assist crop consultants with the development of a NM plan meeting the NRCS 590 standard.</li> <li>7. Promote the use of the most recent nutrient management planning models by landowners and operators.</li> <li>8. Conduct on farm status reviews on nutrient management plans to ensure all cropland meets “T” soil loss levels.</li> </ol>	High	LCD, UWEX, DNR, DATCP, NRCS
3. Ensure compliance with NR 151.	<ol style="list-style-type: none"> <li>1. Promote voluntary efforts for compliance with NR 151.(Ongoing county wide)</li> <li>2. Use program policies and regulations to require compliance with NR 151, especially within the Priority areas).</li> <li>3. Ensure cost sharing is available for required practices.</li> </ol>	High	LCD, NRCS, DATCP, DNR

4. Promote Buffers	1. Promote the establishment of riparian buffers with the use of CRP/CREP in WQMAs.	High	LCD, NRCS, DNR, DATCP, UWEX
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**Goal IV. Improve and protect soil quality for long-term production.**

<b>Objectives</b>	<b>Actions</b>	<b>Priority</b>	<b>Partnering Agencies</b>
1. Reduce or maintain all cropped fields to “T” or below.	<ol style="list-style-type: none"> <li>Promote and develop conservation plans on all agricultural land in Rock County to ensure compliance with NR 151. (Target 100 landowner contacts/year).</li> <li>Use storm water erosion control measures to minimize off site sediment delivery.</li> <li>Work with landowners to install/maintain effective agricultural conservation practices.</li> <li>Promote the use of the most recent soil loss models by landowners and operators.</li> </ol>	High	LCD, NRCS, DATCP, DNR, FSA
2. Assist landowner with compliance all NR 151 Agricultural Performance Standards, including TMDL implementation or select watersheds where feasible.	<ol style="list-style-type: none"> <li>Landowner certification and spot checks through Farmland Preservation Program.</li> <li>Complete annual status reviews. (Target 250/year).</li> <li>Utilize landowner compliance checklist (Target 100/year).</li> <li>Respond to complaints in a timely manner.</li> <li>Prioritize at the watershed level where feasible.</li> <li>Conduct educational workshops, forums, and field demonstrations. (Conduct 2/year).</li> </ol>	High	LCD, DNR, P&D, DATCP, MS4s,
3. Maintain agricultural land viability.	<ol style="list-style-type: none"> <li>Develop and implement a Plan for Purchase of Development Rights (PDR) program</li> <li>Acquire conservation easements for natural resource protection.</li> </ol>	High	LCD, UWEX, NRCS, DATCP, DNR, P&D, TOWNS,

**Goal V. Protect and enhance habitat quality.**

<b>Objectives</b>	<b>Actions</b>	<b>Priority</b>	<b>Partnering Agencies</b>
1. Restore and stabilize stream banks and shorelines in Rock County.	<ol style="list-style-type: none"> <li>Continue to apply for nonpoint source and other applicable grants while considering the broader value of flora, wildlife, and water quality in addition to overall habitat.</li> <li>Work with partner agencies NGOs and other conservation groups to identify critical stream corridors.</li> <li>Refer to DNR Basin Plans for coordinated approach to prioritize areas based in water quality needs and updated 303 (d) listed waters.</li> <li>Work with landowners to ensure compliance with NR 151 and ATCP 50 standards.</li> </ol>	High	LCD, DNR NRCS, DATCP, NGO
2. Restore wetland habitat where possible.	<ol style="list-style-type: none"> <li>Promote county, state and federal programs to assist landowners with technical and financial planning.</li> <li>Provide assistance to NRCS/NGO for restoration of wetlands identified in water quality plans in Rock County.</li> </ol>	High	LCD, DNR, NRCS, NGO’s

3. Restore/enhance upland habitats.	<ol style="list-style-type: none"> <li>1. Promote county, state and federal programs to assist landowners with technical and financial planning.</li> <li>2. Refer landowners to partner agencies and, NGOs specializing in upland restoration and enhancement programs.</li> </ol>	Medium	LCD, NRCS, DNR, NGOs, FWS
4. Develop/expand invasive species programs (aquatic and terrestrial) aimed at preventing introduction of new species and reducing existing species	<ol style="list-style-type: none"> <li>1. Develop and update an invasive species management plan for flora and fauna. (2010)</li> <li>2. Educate water resource users on the impacts and actions they can take to reduce impacts and transfer.</li> <li>3. Work with partnering agencies to identify new threats and management alternatives for existing threats.</li> <li>4. Educate public on Emerald Ash Borer Management and Response Plan. (Fall 2009)</li> <li>5. Continue serving as Gypsy Moth program coordinator.</li> <li>6. Continue to implement eradication contracts through federal programs.</li> <li>7. Continue upland management efforts on county-owned property.</li> </ol>	Medium	LCD, NRCS, DNR, UWEX, NGOs

<b>Goal VI. Implement all applicable Rock County erosion control and storm water management (ECSM) and related programs consistently throughout the County.</b>			
<b>Objectives</b>	<b>Actions</b>	<b>Priority</b>	<b>Partnering Agencies</b>
1. Work with all units of government in Rock County to ensure the minimum requirements of the ordinances are met.	<ol style="list-style-type: none"> <li>1. Implement procedures for ensuring consistent municipal implementation.</li> <li>2. Offer technical and administrative training to municipal staff, developers and consultants</li> <li>3. Update ECSM manual to include new technical information as needed.</li> <li>4. Maintain email list of contractors, developers, consultants and municipal staff, and use to inform of changes to ECSM manual, workshops, etc.</li> <li>5. Maintain web page resources for implementation</li> <li>6. Provide information &amp; education assistance detailing the importance of Rock County water resources.</li> <li>7. Ensure implementation of related ordinances that improve the quality of storm water runoff.</li> </ol>	High	LCD, Municipalities, DNR, TOWNS NOGs, MS4s
2. Identify necessary improvements for inclusion in the ordinance and determine new methodologies to implement effectively.	<ol style="list-style-type: none"> <li>1. Annual review of administrative policies and procedures to improve program delivery.</li> <li>2. Continue to develop/research new methodologies to mitigate adverse effects of storm water runoff.</li> <li>3. Amend ordinances as necessary as result of 1 and 2.</li> <li>4. Ensure that the County Ordinance complies with NR- 151.</li> </ol>	Medium	LCD, MS4s, Municipalities TOWNS

<p>3. Identify transitional areas for future development, provide technical assistance as needed to ensure implementation of standards.</p>	<p>1. Review storm water management plans to ensure they comply with the Erosion Control and Storm water Management Ordinance.</p>	<p>Medium</p>	<p>LCD, MS4s, Municipalities TOWNS</p>
<p>4. Ensure county internal procedures for implementing ordinances are efficient and effective.</p>	<p>1. Continue internal staff meetings to improve policy and procedure. 2. Work with other Rock County Departments to ensure compliance with NR 216 requirements.</p>	<p>Medium</p>	<p>LCD, MS4s, Municipalities TOWNS, P&amp;D</p>

## Appendix E; Agricultural Conservation Practices

<b>CONSERVATION PRACTICES FOR AGRICULTURE</b>			
<b>Conservation Practice</b>	<b>ATCP 50 Reference</b>	<b>Conservation Practice</b>	<b>ATCP 50 Reference</b>
Manure storage systems	50.62	Relocating or abandoning animal feeding operations	50.81
Manure storage system closure	50.63	Residue management	50.82
Barnyard runoff control systems	50.64	Riparian buffers	50.83
Access roads or cattle crossings	50.65	Roofs	50.84
Animal trails and walkways	50.66	Roof runoff management	50.85
Contour farming	50.67	Sediment basins	50.86
Cover and green manure	50.68	Sinkhole treatment	50.87
Critical are stabilization	50.69	Streambank and shoreline protection	50.88
Diversions	50.70	Stripcropping	50.89
Field windbreaks	50.71	Subsurface drains	50.90
Filter strips	50.72	Terrace systems	50.91
Grade stabilization structures	50.73	Underground outlets	50.92
Heavy use area protection	50.74	Waste transfer systems	50.93
Livestock fencing	50.75	Wastewater treatment strips	50.94
Livestock watering facilities	50.76	Water and sediment control basins	50.96
Milking center waste control systems	50.77	Waterway systems	50.97
Nutrient management	50.78	Well decommissioning	50.98
Pesticides management	50.79	Wetland development or restoration	50.98
Prescribed grazing	50.80		

### Summary of Wisconsin Runoff Pollution Abatement Rules

Wisconsin Administrative Code NR 151 establishes Runoff Pollution Abatement Procedures and Prohibitions for the Agricultural Sector; Wisconsin Administrative Code ATCP 50 establishes program standards and procedures for the implementation of NR 151. Major points of rules include:

#### **Prohibitions:**

- 1) No overflow of manure storage;
- 2) No unconfined manure stacks in water quality management areas;
- 3) No runoff from barnyards;
- 4) No unlimited grazing along streams, rivers, lakes or ponds.

**Performance Standards:**

- 1) Manure, commercial fertilizer and other nutrients shall be applied according to a nutrient management plan.
- 2) All lands where feed or crops are grown must be cropped at or below the established “T” for the predominant soil type for each field. In Rock County, the average “T” value for most soils equals 3 tons per acre.
- 3) All producers within a water quality management area must divert runoff away from contacting barnyards, feedlots, and manure storage areas.
- 4) Any new or alterations to an existing animal waste storage or closure of an existing facility must comply with the rules.

**Program Standards:**

- 1) Landowners must be offered cost sharing if required to install Best Management Practices.
- 2) Counties must insure the practices are installed according to State Standards as defined in ATCP 50.
- 3) Counties must adopt Land and Water Resource Management Plans.

**Memorandum of Understanding**  
**Rock County Land Conservation Department**  
**Department of Natural Resources**  
**Implementation of the Agricultural Performance Standards**  
**and Prohibitions under NR 151**

AUGUST 21, 2007

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## Glossary for Rock County and DNR NR151 Implementation MOU

**Compliance Status Report (CSR):** A document that is prepared by Rock County, that contains detailed information for each practice and facility where an on-site evaluation (field inspection) or records review has been conducted, (*Appendix A*). This report is primarily to be used for updating landowners. The CSR will include the compliance status and basis for the compliance determination, such as field inspection or records review. The following information is to be included in the Compliance Status Report:

- a. Parcel status (new versus existing)
- b. The current compliance status of individual tax parcels with reference to each of the performance standards and prohibitions.
- c. Status of eligibility (costs eligible) for public cost sharing.
- d. Corrective measure options to comply with each of the performance standards and prohibitions for which a parcel is not in compliance.
- e. Grant funding sources and technical assistance available from Federal, State, and local sources.
- f. An explanation of conditions that apply if public cost share funds are used.
- g. Signature lines indicating landowner agreement or disagreement with report findings.
- h. The purpose of the report, the implications for achieving and maintaining compliance.
- i. Process and procedures to discuss evaluation results with county and or state.
- j. If appropriate, a copy of performance standards and prohibitions and technical design standards.

**Cost-share agreement and supplemental form for NR151.** This document package is to be developed by the DNR and DATCP. The cost-share agreement offers funding to comply with performance standards and prohibitions. The supplemental form includes a compliance schedule to achieve compliance, requirements to maintain compliance in perpetuity and appeals procedures. Together, the agreement and form meet the requirements of s. NR 151.09 and NR 151.095.”

**On-site evaluation:** A process, to be established by Rock County, for conducting on-site evaluations for the purpose of making a determination of parcel compliance with agricultural performance standards and manure management prohibitions.

**On-site evaluation form:** A standardized form that is developed by Rock County for use by county staff, for the purpose of conducting consistent and complete on-site evaluations. The on-site evaluation form should be designed to record all the information necessary to complete the Compliance Status Report, (*Appendix B*).

**Records review:** A process, to be established by Rock County, for checking information contained in existing files for the purpose of making a preliminary determination of parcel compliance with agricultural performance standards and manure management prohibitions.

**Records review form:** A standardized form that is developed by Rock County for use by county staff for the purpose of conducting and recording the results of consistent and complete records reviews, (*Appendix C*).

**Status letters:** *Standardized letters that should be sent to landowners apprising them of the compliance with NR 151, (Appendix D).*

# **Rock Co. LCD and DNR NR151 Memorandum of Understanding**

**08/21/07**

## **Purpose**

This Memorandum of Understanding (MOU) has been developed by the Rock County Land Conservation Department (County) and the Wisconsin Department of Natural Resources (DNR) to clarify their respective roles and responsibilities needed to implement and enforce agricultural nonpoint pollution performance standards and prohibitions established in ch. NR 151, Wis. Adm. Code. Specifically, this agreement clarifies how the County and the DNR will:

- Evaluate and define the level of agency commitment to the NR 151 workload.
- Conduct information and education activities.
- Select and evaluate parcels to determine compliance with standards and prohibitions.
- Prepare compliance reports and notify landowners of compliance status.
- Provide technical assistance and/or cost-sharing funding to allow landowners to meet performance standards and prohibitions.
- Issue notice letters under NR 151.09 and NR 151.095 as appropriate.
- Monitor compliance.
- Conduct enforcement activities.
- Develop reports.

## **Component 1: Plan the Implementation Approach**

The Parties Agree:

1. This MOU provides a framework to plan how the parties will cooperate to implement the agricultural performance standards and prohibitions.
2. This MOU and the County Land and Water Resource Management Plan (LWRM) can be used as the means to document procedures for implementing NR 151.
3. Guidance prepared by DNR is useful for making formal correspondence with landowners concerning compliance issues.
4. Targeted Performance Standards (NR 151.004) will be developed where implementation of statewide performance standards and prohibitions will not be sufficient to meet water quality standards.
5. Sections NR151.09, NR 151.095, ATCP 50.04 and ATCP 50.08 require agricultural landowners and operators to meet non-point performance standards and prohibitions. These requirements are contingent upon sufficient cost sharing for existing facilities and practices.

Rock County will:

1. Implement select portions of the administrative rules.
2. Focus NR 151 implementation activities initially in targeted areas.

3. Cooperate with DNR to identify priority areas where the county may apply for funding under the Targeted Runoff Management Program (TRM) to increase compliance with performance standards and prohibitions.

DNR will:

1. Implement select portions of the administrative rules.
2. Assign an agency representative to participate in the LWRM planning process.
3. Work jointly with the County to set mutual priorities for implementing agricultural performance standards and prohibitions.
4. Provide the County with guidance needed to fulfill its agreed-upon roles and responsibilities to implement portions of NR 151.

## **Component 2: Define Level of Agencies' Commitment to NR151 Workload**

The parties agree:

1. There must be a clear understanding of each agency's responsibilities and level of commitment in carrying out implementation of agricultural performance standards and prohibitions, including implementation and enforcement activities identified under NR151.09 and NR151.095.
2. The extent of each agency's commitment is dependent upon the availability of public funds and agency priorities and, therefore, may be expected to change through time.
3. To meet annually to review this MOU and the associated workload commitment.
4. To notify each agency of any significant changes in workload capability.

DNR will:

1. To the extent staffing limitations allow, involve the DNR Environmental Enforcement staff in development of NR151 enforcement processes and guidance.

## **Component 3: Conduct information and education activities**

The Parties Agree:

1. An information and educational program is a critical component of an agricultural nonpoint source pollution control program.
2. An effective educational program will meet the following objectives:
  - a. Educate landowners about Wisconsin's agricultural performance standards and prohibitions, applicable conservation practices, and cost share grant opportunities;
  - b. Promote implementation of conservation practices necessary to meet performance standards and prohibitions;
  - c. Inform landowners about procedures and agency roles to be used statewide and locally for ensuring compliance with the performance standards and prohibitions; and
  - d. Establish expectations for compliance and consequences for non-compliance.

Rock County will:

1. Implement a local information and education strategy to support the NR151 implementation.
2. Distribute information and educational material prepared by the DNR.

DNR will:

1. Work with UW-Extension, DATCP and others to identify and develop I & E materials and activities needed on a statewide basis and to make these materials available to the County for use and dissemination.
2. Assist the County and the Basin Educator, where possible, with implementation of the Information and Education program.

### **Component 4a: Determine current compliance through records review**

The parties agree:

1. Sections NR151.09(3)(b) and NR 151.095(4)(b) require existing cropland practices and livestock facilities that achieve compliance with performance standards and prohibitions to remain in compliance regardless of public cost share.
2. Sections NR 151.09(3)(d) and NR 151.095(4)(d) require new cropland practices and livestock facilities to comply with performance standards and prohibitions regardless of cost share.
3. To establish a baseline for program implementation, documentation will be made of locations in compliance as of October 1, 2002. Landowners will be informed, in writing, of the compliance determination and the requirements to maintain compliance.
4. State cost-share agreements, subject to contractual obligations of active operation and maintenance plans on or after October 1, 2002, can be used to document the extent of current compliance achieved through previous public investments.
5. The County will use the tax parcel as the basic geographic unit for evaluating and reporting compliance. Where a tax parcel contains more than one livestock facility or cropland practice, the evaluation and reporting system will contain information to distinguish between facilities and practices based on whether they are new, existing, in compliance and out of compliance.
6. The information in landowner files may not be up-to-date. An on site evaluation may be necessary to determine the accuracy of file information.

Rock County will:

1. Work towards developing a geographic database to input conservation plans, practices, and resource needs and compliance status determinations.
2. Conduct a records review of farms in priority areas and/or priority farms.
3. From the records review, make a preliminary determination as to the location of cropland practices and livestock facilities that were clearly in compliance with all performance standards and prohibitions applicable to the parcel. Document compliance that is a result of:
  - a. Installed or implemented BMPs under an existing state or federal cost share agreement; and/or;

- b. Maintaining compliance with state or county animal waste regulations (e.g. NR 243, WPDES, or SWRM programs).
- 4. From the records review, identify the location of parcels and operations that are inconclusive and warrant an on-site evaluation to determine compliance, as described in Component 4b.
- 5. Utilize county-developed standardized records review forms to document all record reviews. Document compliance in accordance with Component 5 of this document.

The DNR will:

- 1. Evaluate the County records review forms for consistency with status determination and notification requirements under NR 151.09 and NR 151.095 for parcels that are in non-compliance with NR 151.
- 2. For large-scale livestock operations permitted and operating under the WPDES:
  - a. Provide the County a notification that an updated Nutrient Management Plan for each WPDES permitted facility has been filed with the DNR, where applicable. A copy of the Nutrient Management Plan checklist will be included in this notification.
  - b. Provide specific permit information as identified in County's request.

### **Component 4b: Determine Compliance through On-Site Evaluation**

The parties agree:

- 1. On-site evaluations are often necessary to document current resource conditions and current management practices, as a basis for determining compliance.
- 2. The process for responding to public animal waste complaints, is spelled out in NR243, and is routinely administered through the cooperation of the DNR and the County.
- 3. New or expanding livestock facilities subject to regulations under NR 243 or the Rock County Animal Waste Management Ordinance will be evaluated for compliance with performance standards and prohibitions. An on-site evaluation and a Compliance Status Report should be completed prior to issuance of the state or county permits.

Rock County will:

- 1. Following the records review process as specified in Component 4a, compile a list of parcels and operations that have records that are inconclusive and warrant an on-site evaluation to determine compliance.
- 2. Determine the highest priority parcels for on-site evaluations.
  - a. In priority areas and/or priority farms;
  - b. New sites;
  - c. Sites identified through public complaints or staff observations;
  - d. Requests from landowners seeking compliance checks for owned parcels.
- 3. Contact owners of selected parcels and schedule site evaluations.
- 4. Utilize county on-site evaluation forms to document all evaluations

DNR will:

1. Review the County on-site evaluation forms for consistency with status determination and notification requirements under NR 151.09 and NR 151.095.
2. Assist in the identification of environmental models, site evaluation forms, and other assessment tools used to evaluate compliance.
3. Have the opportunity to provide input of the development of the County LCC's annual work plan process, specific to:
  - a. The location of livestock facilities and cropland parcels where, if standards are not implemented, there is a high potential for nonpoint discharge that may adversely impact waters of the state.
  - b. A request to the County for an onsite evaluation and report to determine and document the extent of current compliance.
4. Assist in making compliance status determinations for high priority or potentially controversial situations, such as those that may require notification.

### **Component 5: Prepare Compliance Status Report (CSR) and Inform Landowners of Compliance Status**

The parties agree:

1. To be valid, the results of a record review and/or on-site compliance evaluation must be documented and be based upon confirmed facts.
2. A standardized report format will allow for the systematic collection and reporting of evaluation results and will provide consistency through time.
3. A local process, independent of a formal administrative appeal under chapter 227, Wis. Stats., can be used to provide for a structured review of any local decision pertaining to an initial finding of compliance or other decision involving the interpretation of NR 151.
4. Site evaluation forms, CSR and associated correspondence are public records that should be retained by a custodial agency.
5. The CSR is a document that will be used to inform the landowner about the compliance status of his/her operation, seek confirmation of information used to determine current compliance, and, if necessary, resolve disagreements regarding compliance status.
6. The CSR provides important baseline information needed to secure and allocate funding and technical assistance to address on-farm conservation needs.
7. A geographic database and record keeping system is necessary to provide ready access to compliance reports completed over time.

Rock County will:

1. Establish a local process to provide for reconsideration of local administrative decisions regarding findings of compliance as established in a CSR. The LCC will be the administrative body that reconsiders decisions made by County staff in implementing NR 151.

2. Following completion of the record reviews and site evaluations, prepare CSR's of the evaluated parcels. At a minimum, a CSR will convey the following information:
  - a. The status of cropping practices or livestock operations based on whether they are "new" or "existing".
  - b. Current status of compliance of individual parcels with each of the performance standards and prohibitions.
  - c. Corrective measure options and rough cost estimates to comply with each of the performance standards and prohibitions.
  - d. Status of eligibility for public cost sharing.
  - e. Grant funding sources and technical assistance available from Federal, State and local sources, and third party service providers.
  - f. An explanation of conditions that apply if public cost share funds are used.
  - g. Signature lines indicating landowner agreement or disagreement with report findings.
  - h. Process and procedures to contest evaluation results to county and/or state.
  - i. (Optional) A copy of performance standards and prohibitions and technical design standards.
3. Provide a copy of the CSR and an accompanying informational status letter to the landowner.
4. If the landowner disagrees with the facts and findings of the CSR, gather additional information and/or provide the landowner with written procedures and a timeframe to pursue reconsideration of local decisions.
5. Where livestock facilities or cropping practices are not in compliance, assess the relative pollution threat associated with the noncompliance and make a determination regarding the allocation of staff and financial resources under Component 6 of this agreement.
6. Keep and maintain public records, as the custodial authority, following requirements of the Wisconsin Open Records Law
7. Work toward developing a geographically based record keeping system and database to track site evaluations, CSR's and informational status letters issued, CSR appeals, etc.
8. Work toward developing a process for informing landowners of compliance status at the time of property ownership changes.

The DNR will:

1. Co-sign informational status letters, if requested by the County, where the Department concurs with the County's CSR findings.
2. Provide support to the County in explaining compliance determinations that DNR assisted in developing.

## **Component 6A: Secure Funding and Technical Assistance – Voluntary Cost-Share Component**

The parties agree:

1. Section 281.16(3), Wis. Stats., sections NR151.09(3)(c), and NR151.095(4)(d) prohibit the State or municipalities from requiring that “existing” practices and facilities , to come into compliance through State regulation or local ordinance unless public cost share funds are provided for eligible costs.
2. NR151.09(3) and NR151.095(4) identify compliance requirements for owners and operators of cropland practices and livestock facilities based on whether the practices and facilities are determined to be “existing” or “new”, and whether cost sharing is required and made available.
3. The CSR and accompanying Status Letter are important informational documents that explain the obligations of accepting cost sharing for practices that bring parcels into compliance with applicable performance standards and prohibitions.
4. NR151 defines cost share availability requirements for funding administered by DNR under 281.65, Stats. ATCP 50 defines cost-share availability from any other source. These requirements must be clearly understood to ensure that DNR and County staffs make proper determinations of cost-share availability.

Rock County will:

1. Prioritize parcels identified as noncompliant through the CSR process, based on the relative pollution threat associated with the noncompliance.
2. If feasible, seek additional cost-share funds through State or Federal funding programs.
3. Encourage and receive requests for voluntary cost-sharing and/or technical assistance from landowners.
4. Confirm cost-share grant eligibility and availability of cost-share & technical assistance.
5. Develop a Cost Share Agreement supplemental form for NR151. The supplemental form informs landowners of their NR151 obligations as a condition of accepting cost sharing, and stipulates that the affected cropland practices and livestock facilities will maintain or be brought into compliance with applicable performance standards and prohibitions, as enumerated in the compliance status report.

The DNR will:

1. Provide cost sharing (if available) through the TRM grant program where there is voluntary compliance and cost sharing is required.
2. With DATCP, seek to secure sources of funding to reimburse the County for its administrative and technical services.

### **Component 6B: Option to Issue Non-Voluntary NR151 Notice of Cost-Share and/or Noncompliance**

The parties agree:

1. Chapter NR 151.09 and NR 151.095 set forth notification requirements that must be met before DNR can initiate enforcement action under Ch. 281, Stats., for non-compliance with performance standards and prohibitions. This includes provision of a notification to the landowner at the time that cost sharing is made available, or in cases when cost share is not required, when the compliance achievement period starts.

2. Notification requirements and cost-share availability requirements vary depending upon the legal authority that is used to enforce the standards and the source of funding.
3. Developing and issuing notices of cost sharing under the non-voluntary NR151 option is a joint responsibility of the County and DNR.

Rock County will:

1. If a landowner chooses not to voluntarily apply for public funding to install or implement corrective measures that entail eligible costs, or not to voluntarily install or implement corrective measures that do not entail eligible cost, issue landowner notification per NR 151.09(5-6) and/or 151.095(6-7). The County will issue this notice jointly with DNR.
  - a. If eligible costs are involved, this notification shall include an offer of cost sharing.
  - b. If no eligible costs are involved, or if cost sharing is already available, the notification will not include an offer of cost sharing.
2. Develop, cosign, and issue notices. Provide draft notices to DNR regional staff review and DNR signature.

DNR will:

1. Co-sign notices to landowners under NR151.09 and NR151.095.

## **Component 7: Administer Funding and Technical Assistance**

The Parties agree:

1. If public cost share funds are offered to install conservation practices, through either the voluntary or non-voluntary option, a cost share agreement must be developed and public funds must be accounted for.

Rock County will:

1. Establish and administer a budget and accounting system to receive and disperse state funds administered by the County on behalf of the State.
2. Utilize a state developed cost share agreement and supplemental form for NR151 as described in Component 6a and as defined in the Glossary.
3. Keep and maintain public records, as the custodial authority, following requirements of the Wisconsin Open Records Law.
4. Upon completion of BMP's implemented through NR151, conduct an on-site evaluation of the operation to document compliance with the agricultural performance standards and prohibitions.
5. If the site is compliant, prepare and issue a document that verifies satisfactory compliance with applicable performance standards.
6. If site is non-compliant, determine whether non-compliance is weather-related, is the fault of the landowner, or whether there has been a willful breach of contract. Nonregulatory remedies, or enforcement action taken by the County will be determined by the LCC, and will be based on the cause of the non-compliance.

The DNR will:

1. With DATCP, seek to secure sources of funding to reimburse the County for its administrative and technical services.
2. Conduct program reviews to verify that cost share funding and conservation services have been administered in accordance with appropriate state administrative rules.
3. Co-sign, if requested, a document that verifies satisfactory compliance with applicable performance standards. A "Satisfaction Letter" may be used for this purpose.

## **Component 8: Enforcement**

The parties agree:

1. DNR and the County will use voluntary means, to the extent practical, to achieve compliance with performance standards and prohibitions, but may use enforcement when necessary to meet requirements of ch. 281, Stats., and NR151.
2. Each party has independent authority to enforce standards and reserves the right to exercise that authority without permission of the other.
3. To be effective, the public and affected landowners must perceive enforcement as a necessary option, pursued jointly by the parties, after voluntary measures to achieve compliance have failed.
4. The County has authority to enforce the performance standards and prohibitions under s. 281.16, Stats., but has chosen not to do so at this time.
5. DNR has authority to enforce performance standards and prohibitions through a number of statutory options. These include, but are not limited to:
  - a. Referral by DNR to the Wisconsin Department of Justice to seek relief under s.281.98, Wis. Stats.
  - b. Use of enforcement procedures under NR 243 and s. 283.89, Stats., to obtain compliance with performance standards and prohibitions or to resolve a water quality problem.
  - c. Use of other state laws, including citation authority under s. 29.601, Wis. Stats.
6. To be effective, enforcement procedures must be well-coordinated and documented between DNR and the County, and must be supported by both parties.
7. NR 151.09 and NR 151.095 establish the procedures that must be followed as pre-requisites to enforcement when DNR funds are used or when DNR pursues enforcement under s. 281.98, Wis. Stats.
8. Formal enforcement procedures are recognized to begin with the issuance of a Notice of Violation. Grounds for issuing a Notice of Violation letter is non-compliance by the landowner or operator with the notice issued under NR 151.09(5), NR 151.09(6), NR 151.095(6), or NR 151.095(7) and as spelled out in Components 6a and 6b of this agreement.

Rock County will:

1. Support DNR's lead role in enforcement.
2. Identify cases where landowners do not follow the requirements of their noncompliance notices and provide this information to the DNR.

3. Participate in DNR enforcement conferences.
4. Provide background information to DNR needed for WPDES permits or to develop referral packages to the Wisconsin Department of Justice.
5. Provide documents or other technical support for enforcement cases.
6. In circumstances where the County has issued permits or is pursuing legal actions under other authority, ensure that appropriate information concerning those permits or enforcement activity is transmitted to DNR.

DNR will:

1. Take the lead role in initiating enforcement action, including issuing notices of violation.
2. Ensure that appropriate information concerning enforcement activity by the Department is transmitted to the County.
3. Schedule and conduct enforcement conferences if appropriate.
4. If a point source discharge exists, issue a WPDES permit or take enforcement action under NR 243 and ch. 283, Stats., if consistent with regional and statewide permitting priorities.
5. Determine compliance with permits if consistent with regional and statewide compliance activities.
6. Prepare referral packages to Attorney General's Office if non-compliance continues and referral is approved by the DNR Secretary's Office.

### **Component 9. Ongoing Compliance Monitoring**

The parties agree:

1. NR151.09(3)(b) and NR151.095(4)(b) require that existing cropland practices and livestock facilities, which are in compliance on or after October 1, 2002, remain in compliance without the offer of cost share.
2. Ongoing agricultural operations continually change in response to market forces, changes in technology, and changes in land ownership.
3. Periodic compliance evaluations benefit owners and operators, as they make routine business decisions, including capital investments, land rental, and land sales.
4. Routine compliance monitoring benefits the general public by verifying that compliance is maintained.

Rock County will:

1. Conduct routine compliance monitoring for parcels/operations that have received a letter indicating compliance. The extent of monitoring will be proportional to the amount of State funding allocated to support this effort.
2. Under the monitoring system:
  - a. Conduct an annual reporting and self-certification program for parcels that have been determined to be in compliance.
  - b. Conduct an annual educational mailing for operations that are in compliance.

3. In regards to the content of this subchapter, respond to public complaints when compliance with NR 151 is in question, conduct site evaluations and make compliance determinations following procedures established in Components 4 and 5.

DNR will:

1. Be responsible for compliance monitoring on large-scale livestock operations WPDES permitted facilities.

### **Component 10: Annual Reporting**

The parties agree:

1. Annual reports should track progress toward implementing the NR151 agricultural performance standards and prohibitions.
2. The County's record-keeping system must systematically capture information needed for an annual report.
3. To assure effective recording keeping, State agencies must pre-identify their data needs.

Rock County will:

1. Provide an annual compliance status report on forms provided by DATCP/DNR .
2. Work toward developing mapping capabilities to show the locations of cropland parcels and livestock operations that have been evaluated, and the compliance status of these lands and operations.

DNR will:

1. Work with DATCP to prepare an annual statewide report that documents the status of program implementation. Make this report available to the Land and Water Conservation Board, DNR Board, Agricultural Board, Wisconsin Legislature and other interested parties.

**Signatures**

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**Neil Duepree, Chair, Rock County Land Conservation Committee**      **Date**

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**Lloyd Eagan, DNR South Central Region Director**      **Date**

## Appendix G; Glossary/Abbreviations

### GLOSSARY

**Animal Unit:** A mature animal weighing 1000 pounds or an equivalent number of other animals.

**Animal Waste Management Program:** This regulatory program, administered by the DNR, seeks to identify and correct animal waste-related water quality problems.

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

**Aquifer:** An underground layer of soil material or bedrock that contains groundwater.

**Basin:** An extremely large watershed area, used by DNR to identify major drainage patterns in the State. Rock County falls within two Watershed basins in the State, the Sugar Pentatonica and Lower Rock River basins.

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

**Chapter 92:** Portion of Wisconsin statutes outlining the soil and water conservation, agricultural shore land management, and animal waste management laws and policies of the state.

**Crop Residue:** The plant residue left on the soil surface after the harvest of a crop and preparation of the soil for the following crop.

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

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

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

**Cooperative Extension Service (CES):** CES is the educational outreach agency of the USDA.

**Cooperator:** A landowner or operator who is working with, or has signed a cooperative agreement with, a county LCC.

**Critical Sites:** Those sites that are significant sources of nonpoint source pollution upon which best management practices must be implemented.

**Department of Agriculture, Trade and Consumer Protection (DATCP):** The state agency responsible for establishing statewide soil and water conservation policies and administering the

state's soil and water conservation programs. DATCP administers state cost-sharing funds for a variety of LCC operations, including support for staff, materials and conservation practices.

**Department of Natural Resources (DNR):** The state agency responsible for managing and protecting public waters. The DNR also administers programs to regulate, guide and assist LCCs, LCDs and individual land users in managing land, water, fish and wildlife.

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

**Erosion:** The process by which rainwater and runoff detach soil particles from the soil surface and carry them downhill.

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

**Farmland Preservation Program (FPP):** A DATCP land-use program under Chapter 91, state statutes, that helps preserve farmland through local planning and zoning, promotes soil and water conservation and provides tax relief to participating farmers.

**Fisheries Management Program:** A DNR program responsible for protecting, maintaining and selectively developing Wisconsin's fisheries and aquatic resources.

**Geographic Information System (GIS):** A computerized system of maps and layers of data about land including soils, land cover, topography, field boundaries, roads and streams. Such combinations (or layers) of data are otherwise impossible to achieve.

**Highly Erodible Land (HEL):** Land that has a high potential for soil erosion as defined by the NRCS.

**Impaired Waters 303(d) List:** A DNR list of water bodies that do not meet or are not expected to meet water quality standards for the State, as required by the federal Clean Water Act.

**Lake Management Program:** A DNR program designed to maintain a healthy and diverse aquatic environment for Wisconsin's lakes.

**Land and Water Resource Management Plan:** A locally developed and implemented plan with an emphasis on stakeholder involvement and program integration. The plan includes a resource assessment, identifies nonpoint pollution problems and priorities, establishes a progress tracking system, and describes an approach for coordinating information and implementation programs with other local, state and federal agencies, communities and organizations.

**Land Conservation Committee (LCC):** The portion of county government identified, in Chapter 92 of the state statutes, to conserve and protect the county's soil, water and related natural resources.

**Land Conservation Department (LCD):** The department of county government responsible for administering the conservation programs and policies of the Land Conservation Committee.

**Memorandum of Understanding (MOU):** An agreement between two or more public entities that typically involves one providing the other with services, funding or assistance.

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

**Non-point Source Pollution (NPS):** The pollution that occurs when rainfall or snowmelt runs over land surface or through the soil and picks up natural and human applied pollutants, and deposits them into surface water or groundwater. Pollutants include soil particles, fertilizers, animal waste, pesticides, petroleum products, and other toxic materials.

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

**Nutrient Management:** A conservation practice designed to minimize the contamination of surface and ground water by limiting the amount of nutrients applied to the soil to no more than the current crop is expected to use. It involves frequent soil testing and annual planning of the techniques, placement, rate, or timing of fertilizer and animal waste applications.

**Sedimentation:** The transport and deposition of soil particles from soil erosion and by runoff. The particles may be deposited onto the land surface or into surface water or groundwater.

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

**Storm Water:** The portion of rainfall and snowmelt that runs over the land surface and does not soak into the ground. Paved surfaces and roofs increase storm water quantities. Storm water often delivers pollutants to surface waters.

**Surface Water Quality Management Area (WQMA):** A land area draining to and within 1,000 feet of a lake or 300 feet of a stream.

**Technical Standards:** The specifications for the design, construction, implementation and maintenance of conservation practices.

**Tillage:** Farming operations, which mechanically disturb the soil in preparation for planting a crop. Clean tillage, or moldboard plowing, buries all or most of the crop residue from the previous crop. Minimum tillage, reduced tillage, and conservation tillage leave a portion of the crop residue from the previous crop on the soil surface after planting to protect the soil from erosion.

**Transect Survey:** A survey conducted by driving on a representative route through the county, stopping at designated points and making observations of cropped fields on both sides of the road. From the observations, countywide soil erosion rates on cropland and extent of use of different types of tillage can be estimated.

**Tolerable Soil Loss (T):** The maximum rate of soil erosion, in tons per acre per year, that is allowable for a particular soil to sustain its productivity for growing plants and crops.

**Total Maximum Daily Load (TMDL):** A TMDL is a quantitative analysis of the amount of a particular pollutant a stream or lake can receive before exceeding water quality standards. Water quality standards are set to protect and maintain designated uses such as drinking water, fishing, and swimming. The goal of a TMDL is to set limits on pollutant loads to correct water quality impairments, meet water quality standards, and/or achieve designated uses of waterbodies. It serves as a basis for strategies to be developed to improve and protect water quality.

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

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

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

**Wisconsin Land and Water Conservation Association (WLWCA):** Membership organization that represents the state's 72 County Land Conservation Committees and Departments.

## **ABBREVIATIONS:**

**AC:** Advisory Committee  
**APHIS:** Animal and Plant Health Inspection Service  
**BMP:** Best management practice  
**CAFO:** Concentrated animal feeding operation  
**CREP:** Conservation Reserve Enhancement Program  
**CRP:** Conservation Reserve Program  
**DATCP:** Department of Agriculture, Trade and Consumer Protection (Wisconsin)  
**DNR:** Department of Natural Resources (Wisconsin)  
**EPA:** Environmental Protection Agency (United States)  
**EQIP:** Environmental Quality Incentives Program  
**FPP:** Farmland Preservation Program  
**FSA:** Farm Services Agency (USDA)  
**GIS:** Geographic Information System  
**LCC:** Land Conservation Committee  
**LCD:** Land Conservation Department  
**NHI:** Natural History Inventory  
**NPDES:** National Pollution Discharge Elimination System  
**NRCS:** Natural Resource Conservation Service (USDA)  
**P:** Phosphorus  
**PPM:** Parts Per Million  
**T:** Tolerable soil loss  
**TMDL:** Total maximum daily load  
**TRM:** Targeted runoff management (grant)  
**TSS:** Total suspended solids  
**USLE:** Universal Soil Loss Equation  
**USDA:** United States Department of Agriculture  
**UWEX:** University of Wisconsin – Extension  
**WGNHS:** Wisconsin Geological and Natural History Survey  
**WHIP:** Wildlife Habitat Incentive Program  
**WPDES:** Wisconsin Pollution Discharge Elimination System  
**WRP:** Wetland Reserve Program

## Appendix H

### REFERENCES

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