
**Lincoln County
Land and Water Resource Management Plan
2017-2026**



November 2016

Prepared by: North Central Wisconsin Regional Planning Commission

ACKNOWLEDGEMENTS

Lincoln County's Land and Water Resource Management Plan was developed with the following residents and staff. Special thanks are extended to the following people:

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November 2016

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PLAN SUMMARY

Introduction

The Lincoln County Land and Water Resource Management Plan is drafted as a 10-year plan (2017-2027) in accordance to the requirements set forth in Chapter 92 of the Wisconsin Statutes.

Plan Development

To assist in the revision of the land and water resource management plan, Lincoln County's Land Services Committee invited participants from a variety of natural resource professions, and various interested citizens from throughout the County to make an Advisory Committee.

A chronological history of the plan update activities is as follows:

August 30, 2016 – the Advisory Committee meeting was held at the Lincoln County Service Center.

- Initial draft agricultural issues & trends were identified.

(See Attachment F)

September 2016 – the NPS Regional Contact for the Northern Region of DNR was contacted, and the Water Basin Leader was officially invited to participate in the AC (email on file).

September 8, 2016 – Land Services Committee set the public hearing date.

September 29, 2016 – the second Advisory Committee meeting was held at the Lincoln County Service Center.

- The draft goals were prioritized, where each AC member had a sheet of the goals that they prioritized individually. These sheets were tallied in front of the group and then objectives for each goal were created by staff.

November 10, 2016 – Public hearing held.

February 2017 – Presentation of Plan to the Wisconsin Land and Water Conservation Board (LWCB).

February 2017 – Adoption of the plan by the Lincoln County Board of Supervisors.

February 2017 – DATCP sends letter adopting the Plan following LWCB recommendations.

Resource Assessment

Brief summaries of the land and water resources in Lincoln County are described in this chapter.

Location/Geography

Lincoln County is predominantly a rural area with the southern quarter of the county in agriculture, and the remaining parts of the County in forests. Two cities exist along the Wisconsin River, which splits the County in half from west to east. The Wisconsin River has 6 hydroelectric dams on it. Residents and visitors from both near and far utilize its water and expansive natural areas for recreational purposes, forestry, and agricultural enterprise. The landscape is characterized by flat or gently undulating topography, with two areas of hills and kettle lakes—Harrison Hills and the Underdown.

General Land Use

Generally, development occurred in Merrill and Tomahawk, both along the Wisconsin River, and then farming dispersed additional residents throughout the lower 1/3rd of the County to begin tilling the soil. In the last twenty years, growth occurred fastest as shoreland development in the Harrison Hills area. Only about 1,130 people were added to the county's population between 2000 and 2015. Much of Lincoln County's population growth has occurred due to above state or national averages of migration increase, which is generally of older individuals who are retiring "Up North."

Agriculture

The primary agricultural enterprise in Lincoln County is dairy farming. There are 55 dairy farms in Lincoln County as of 2012. On-site production, milk sales, and milk processing generates over \$82 million in revenue. Grains, including corn and oats, are the second main agricultural activity in terms of revenue in the County. Forage and cattle for beef are also major economies. Lincoln County is a leading Christmas tree producer, and was ranked 3rd in the state in terms of value and acreage.

Forestry

Lincoln County is characterized by well developed public and private forests with a mixture of hardwoods and conifer stands.

The Lincoln County Forestry Department manages 100,843 acres of county forest. This land is managed for multiple uses, and is open to public access. Some of the county forest is closed to motorized vehicles.

Residential Development

Lincoln County's residents live in a variety of densities throughout the county. Most of the residential development occurs in the Cities of Merrill and Tomahawk, around the lakes in the Harrison Hills, and around Lake Mohawksin, Lake Alice, and the Spirit River Flowage. Many housing subdivisions and scattered residential sites also exist along town roads throughout the County.

Commercial & Industrial Development

Both the Cities of Merrill and Tomahawk have traditional downtowns and other commercial and industrial developments. Both cities have industrial parks, and light through heavy industrial uses exist on legacy parcels.

Surface Water

Surface water is abundant, due to damming of the Wisconsin River to create several impoundment lakes. Surface water in Lincoln County is mainly used for recreation and industrial processes.

Lincoln County has 152 named lakes and 577 unnamed lakes, totaling 15,585 acres. There are 246 streams in the County, 668 miles in length, with 395 miles designated as trout stream

Impaired Waters – 303(d) Waters

In 2016 there were 11 lakes and 1 river in Lincoln County on the Impaired Waters list.

Outstanding and Exceptional Resource Waters

Lincoln County has 3 outstanding waters, and 39 exceptional waters.

Groundwater

Groundwater is the primary source of drinking water and irrigation water in Lincoln County. In 2005, 2.87 million gallons per day were withdrawn from groundwater, and 8.10 million gallons per day were withdrawn from surface water. Groundwater users in Lincoln County include commercial, domestic, livestock, aquaculture, irrigation, and public use. Industrial users primarily use surface waters for their needs.

The supply of groundwater comes from surficial glacial drift and alluvial sand and gravel, which generally furnish an abundant supply to depths of 20 to 50 feet. Wells located in these areas yield 15 to 60 gallons of water per minute per foot of drawdown.

- 97% of 1,360 private well samples collected met the health-based drinking water limit for nitrate-nitrogen. Meanwhile the other 3% are considered unsuitable for consumption by infants and women who are pregnant or trying to become pregnant because they contained greater than 10 mg/L of nitrate-nitrogen.
- 7% of 166 private well samples collected were greater than what is considered a suitable concentration of arsenic in drinking water.
- Most soils in Lincoln County are highly susceptible to groundwater contamination.

Soils

The majority of the soils in Lincoln County result from glaciation. The soil erosion problem areas in Lincoln County contain unvegetated soils that are located on slopes that are prone to water erosion.

Performance Standards and Prohibitions

Agricultural Performance Standards will continue to be achieved through education delivered in a variety of ways.

Priority farms will be identified by LSD as those farms that allow unfiltered stormwater runoff into state waters as well as the new agricultural fields that are converted from forest land to crop production. A priority farm ranking exists.

Non-agricultural Performance Standards are regulated through ordinances.

2010-2016 Work Plan Accomplishments

Accomplishments and activities completed from the 2010-2016 Lincoln County Work Plan are summarized in Chapter 4.

Goal 1: Implement NR151 Agricultural Performance Standards.

Goal was partially met by the Lincoln County Land Services Department (LSD) by completing compliance inventories on agricultural producers located in watersheds that drain to 303(d) water bodies.

Goal 2: Implement Farmland Preservation Program.

Goal was partially met by the Lincoln County Land Services Department (LSD) by completing reviews on all existing participants. New FPP update is in process.

Goal 3: Implement Soil and Water Resource Management Program.

Goal was successfully met by the Lincoln County Land Services Department (LSD) by completing the DATCP annual allocation requesting \$100,000 cost-share annually. While we were never allocated the full amount requested, we successfully entered into cost-share agreements with landowners to spend all our annual cost-share while providing design and installation assistance for conservation practices. Conservation compliance is monitored for the duration of the contracts as required by the WDNR and DATCP. Lincoln County is currently looking into developing a tracking system within the GIS (WEB Map Update) software to ensure conservation compliance is maintained for the duration of the project cost share requirements.

Goal 4: Provide assistance to non-ag. Landowners to install conservation practices.

Goal was successfully met by the Lincoln County Land Services Department (LSD) by providing design assistance to non-agricultural producers located in Lincoln County for shoreland buffer restoration.

Goal 5: Inform contractors, developers and citizens about construction site erosion control.

Goal was successfully met by the Lincoln County Land Services Department (LSD) by completing a Stormwater Runoff Ordinance. The LSD reviewed and issued permits and provided assistance to landowners to correct Stormwater Runoff Ordinance violations.

Goal 6: Control Invasive Species.

Goal was successfully met by the Lincoln County Land Services Department (LSD) who provided a Lake Specialist and Lumberjack RC&D employee who together with others organized and coordinated citizen volunteers on many lakes within Lincoln County and surrounding counties for the purpose of monitoring and controlling aquatic invasive species. Biological methods were established on lakes, while several others were inventoried for the ability to establish biological control methods. WDNR support was provided for technical and financial assistance.

Goal 7: Provide landowners reimbursement for wildlife damage.

Goal was successfully met by the Lincoln County Land Services Department (LSD) by providing assistance and education to 80 landowners. Work with APHIS and WDNR partnership to assist landowners for technical and financial support.

Goal 8: Participate in Lumberjack RC&D.

Lincoln County Land Services Committee participated in just about every Council meeting as the representative for Lincoln County. The County Conservation Program Manager or Lake Specialist participated as the LSD representative for Lincoln County.

Goal 9: Provide educational and information to residents of Lincoln County.

Goal was successfully met by the Lincoln County Land Services Department (LSD) by providing education and information to people while participating in WLWCA, school activities and lake meetings; attending Town and County Board meetings and answering phone calls and walk-in visits.

Goal 10: Minimize impacts of nonmetallic mining reclamation on the natural resources.

Goal was successfully met by the Lincoln County Land Services Department (LSD) by reviewing and issuing 2 new permits while reviewing and renewing 11 permits.

Goal 11: Minimize impacts of animal manure storage on the natural resources.

Goal was successfully met by the Lincoln County Land Services Department (LSD) by completing a revision of the Animal Waste Storage Ordinance in 2010. The Ordinance was renamed Animal Waste Management Ordinance and provided standards for the land application of animal waste for the purpose of providing nutrients to crops.

Goals & Objectives, 2017-2026

Based upon resource concerns identified by the Advisory Committee, the goals & objectives are listed in priority order.

1. Improve soil health.

Anticipated outcome: Healthy soil continues to produce food and fiber.

2. Protect and improve groundwater quality and surface water quality.

Anticipated outcome: Reduced soil erosion and less nutrient loading of waterbodies.

3. Control the spread of terrestrial and aquatic invasive species.

Anticipated outcome: Stabilize the current ecosystem from further advancement of non -native species, terrestrial and aquatic.

4. Improve forest silviculture for multiple uses.

Anticipated outcome: Maintain a healthy vigorous forest, while also providing for wildlife habitat, water quality, and recreation.

5. Promote well planned development.

Anticipated outcome: Protect property values of privately owned land in Lincoln County.

Monitoring and Evaluation

Performance Standards – Spot checks on a watershed basis are the main tool used to monitor erosion within the county. Spot checks will be conducted on 25% of all installed practices cost shared in the last four years. LSD staff will spot check 25% of those farms required to update Nutrient Management Plans for compliance with the Animal Waste Management Ordinance and Nutrient Management plan completion by all required landowners will be checked off annually. The Farmland Preservation Program Plan, which is implemented in the Land Services Department, is updated and the LSD will conduct the compliance component of the plan as prescribed. The future goal is to get more agricultural producers involved.

Information and Education

Based upon limited success of various educational strategies in the 2010-2016 Work Plan, a different educational strategy will be utilized. The new strategy includes presenting targeted UWEX produced materials at local lake district/association meetings, watershed group meetings, Lincoln County’s web site and town association meetings. Presentations to school age children either in classroom or field settings are being explored as new and continued educational options. Additionally, articles in widely distributed newspapers, and presentations on local radio will reach the general public.

PLAN DEVELOPMENT AND PUBLIC PARTICIPATION

Chapter 1

Introduction

Locally led natural resource management is an important concept in Wisconsin Land and Water Conservation. State and federal agencies support the idea that local residents are best suited to identify and provide solutions for natural resource problems within a county. At the root of the county Land and Water Resource Management (LWRM) plan is the concept of cooperation among local residents and all natural resource agencies operating within the county. The Department of Agriculture, Trade, and Consumer Protection (DATPC) requires that each county Land Services Department (LSD) locally create a Land and Water Resource Management (LWRM) plan (Ch.92, WI Statutes) to coordinate LWCD activities. The Land Services Committee (LSC), and Land Services Department (LSD) have the responsibility of implementing a Land and Water Resource Management (LWRM) Planning Program.

Chapter ATCP 50 implements Wisconsin's Soil and Water Resource Management Program (SWRMP) under Ch. 92, WI Statutes. The Department of Agriculture, Trade and Consumer Protection administers the Soil and Water Resource Management Program (Ch. ATCP 50) in cooperation with County Land Conservation Committees, the Land and Water Conservation Board, the Department of Natural Resources and other state and federal agencies. The program has the purposes specified under Sec. 92.14(2), WI Statutes.

What is a LWRM Plan?

The LWRM plan serves as a long-term strategic plan for the LSD, county residents, and partnering state and federal natural resource agencies. The plan directs conservation efforts within the county and assists in forming annual work plans for the LSD and agencies. It is also used to support 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;
- Water quality objectives;
- Key water quality and soil erosion problem areas;
- Conservation practices needed to address water quality and erosion problems;
- A plan to identify priority farms and other sites within the county;

- Strategies to encourage voluntary implementation of conservation practices;
- State and local regulations that the county will use to implement the plan;
- Compliance procedures that apply if enforcement actions occur;
- Multi-year goals & objectives for the LSD to implement conservation practices and achieve compliance with state runoff management performance standards; and
- How the LSD will measure and monitor progress on the work plan, provide information and education and coordinate its conservation program with state and federal agencies.

Plan Development with Public Participation

The focus of this plan's development process was to identify and prioritize land and water resource issues to develop a Work Plan that addresses those issues. The Work Plan coordinates various agency's efforts to conserve the land and water resources in the county.

A good start to any planning process is finding out what currently exists. NCWRPC staff and the Lincoln County LSD staff collected land and water resource inventories from a variety of sources.

An Advisory Committee (AC) of natural resource and agricultural professionals, and various citizens was gathered to overview all the information and make decisions for the Land Services Committee of the County Board. See the back of the cover of this plan for a list of AC members and their affiliation.

A chronological history of the plan update activities is as follows:

- August – October 2016 – Development of draft plan text and initial maps.
- September 2016 – the NPS Regional Contact for the Northern Region of DNR was contacted, and the Water Basin Leader was officially invited to participate in the AC (email on file).
- August 30, 2016 – the Advisory Committee meeting was held at the Lincoln County Service Center.
 - Initial draft agricultural issues & trends were identified.
 - (See Attachment F)*
- September 8, 2016 – Land Services Committee set the public hearing date.
- September 29, 2016 – the second Advisory Committee meeting was held at the Lincoln County Service Center.

- The draft goals were prioritized, where each AC member had a sheet of the goals that they prioritized individually. These sheets were tallied in front of the group and then objectives for each goal were created by staff.
- Class I Notice published on 10-4-2016, 10-18-2016, & 10-25-2016 in the Tomahawk Leader for the November 10, 2016 Public Hearing.
- Class I Notice published on 10-7-2016, 10-21-2016, & 10-28-2016 in the Merrill Courier for the November 10, 2016 Public Hearing.
- October 13, 2016 – Draft Land & Water Resource Management Plan (LWRMP) reviewed by Land Services Committee. Draft plan and public hearing notice sent to DATCP for plan review.
- November 10, 2016 – Public Hearing for LWRMP.
 - No public comment was received at or before the public hearing.
 - Land Services Committee approved the plan with minor changes.
- February 2017 – Land & Water Conservation Board (LWCB) in Madison reviewed the Lincoln County Land and Water Resource Management plan update (2017-2026).
- February 2017 – Adoption of the plan by the Lincoln County Board of Supervisors.

Goals/Priorities

Identified by the Advisory Committee – August 2016

Prioritized by Advisory Committee – October 2016

Low points means the goal/priority was placed high, because each AC member rated the following goal/priorities from 1 to 10, with “1” being top priority.

1. Supporting all conservation activities to improve soil & water quality. (25 points)
2. Water quality. (34 points)
3. Conservation education & outreach. (40 points)
4. On-farm conservation planning. (41 points)
5. Aquatic invasives. (45 points – discussion about combining w/ Terrestrial invasives.)
6. Terrestrial invasives. (46 points – discussion about combining w/ Aquatic invasives.)
7. Promoting soil health activities. (46 points)
8. Evaluating & improving awareness and management of woodlots. (52 points)
9. Land use balance, farmer/rural homeowner interests. (63 points)
10. Blight elimination in rural areas. (67 points)

Lincoln County & NCWRPC staff combined the above goals/priorities into the following goals and objectives for Land Services Committee review in October:

1. Improve soil health.

Anticipated outcome: Healthy soil continues to produce food and fiber.

Objectives:

- Promote soil health activities (e.g. rotational cropping, establishment of shoreland buffers, grazing, improved plant diversity)

2. Protect and improve groundwater quality and surface water quality.

Anticipated outcome: Reduced soil erosion and less nutrient loading of waterbodies.

Objectives:

1. Promote best management practices to restore and maintain riparian habitat.
2. Promote shoreland stewardship.
3. Reduce phosphorus from septic systems.
4. Reduce phosphorus pollution from lawns.
5. Control soil erosion.

3. Control the spread of terrestrial and aquatic invasive species.

Anticipated outcome: Stabilize the current ecosystem from further advancement of non -native species, terrestrial and aquatic.

Objectives:

1. Control terrestrial, non-native, invasive species.
2. Control aquatic, non-native, invasive species.
3. Prevent introduction of new non-native invasive species.

4. Improve forest silviculture for multiple uses.

Anticipated outcome: Maintain a healthy vigorous forest, while also providing for wildlife habitat, water quality, and recreation.

Objectives:

1. Improve forest management to control sediment, erosion and protect habitat cover types.
2. Reduce erosion and habitat degradation caused by trail use.

5. Promote well planned development.

Anticipated outcome: Protect property values of privately owned land in Lincoln County.

Objective:

- Keep the County Comprehensive Plan current.

RESOURCE ASSESSMENT

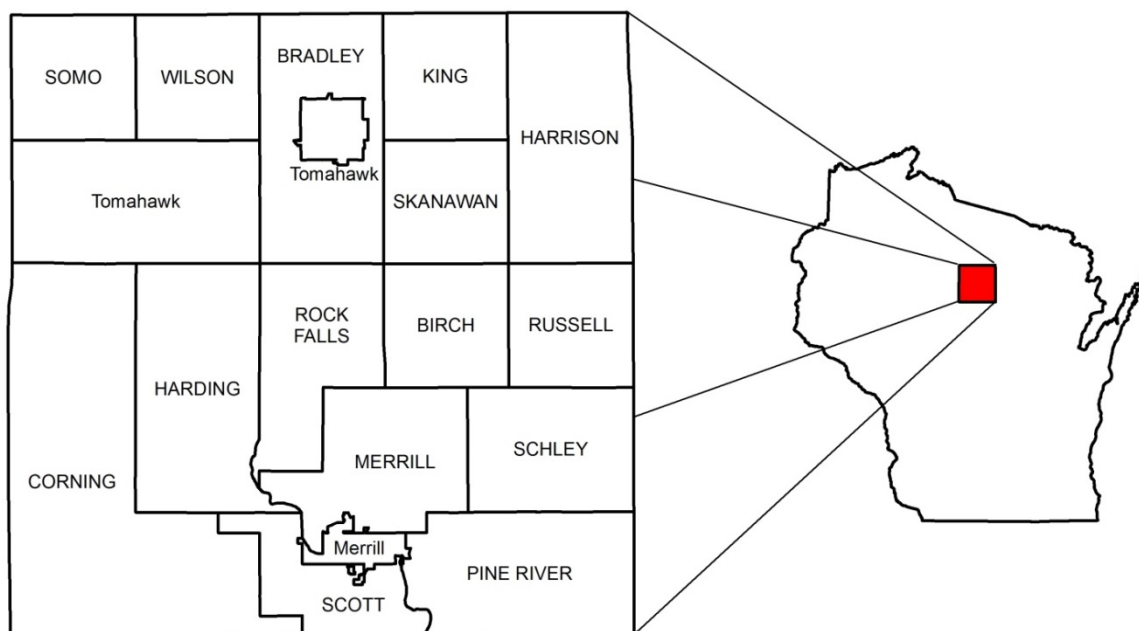
Chapter 2

Lincoln County is predominantly a rural area with the southern quarter of the county in agriculture, and the remaining parts of the County in forests. Two cities exist along the Wisconsin River, which splits the County in half from west to east. The Wisconsin River has 6 hydroelectric dams on it. Residents and visitors from both near and far utilize its water and expansive natural areas for recreational purposes, forestry, and agricultural enterprise. The landscape is characterized by flat or gently undulating topography, with two areas of hills and kettle lakes—Harrison Hills and the Underdown. Elevations along the Wisconsin River range from about 1,450 feet in Tomahawk, downstream to Merrill at about 1,300 feet.

A. Geography

Lincoln County is located in north central Wisconsin and has a total surface area of 584,960 acres, of which approximately 15,000 acres is water (see Figure 1). The county is bounded on the north by Oneida County, on the west by Taylor and Price Counties, on the south by Marathon County and on the east by Langlade County. Lincoln County is divided into 16 townships and 2 cities – Tomahawk in the north and Merrill in the south.

Figure 1 Location



B. Climate

Lincoln County is classified in the continental climate type. Summers here have warm but not excessively hot days and cool nights. Winters are long, cold, and snowy. Mean annual precipitation is 32 inches. Snow cover on the ground and ice cover on the lakes lasts from December to April. The growing season generally extends from May 22 to September 23, for an average frost-free growing season of 124 days. Prevailing winds come out of the northwest from late fall through spring, and from the south during the remainder of the year. The wind speed generally ranges from 4 to 15 miles per hour.

Winter in Lincoln County is very conducive to snowmobiling and skiing due to its long duration and frequent occurrences of fresh snow. Summer encourages camping, fishing, and other activities through the not excessively hot days and cool, comfortable nights.

C. General Land Use

Generally, development occurred in Merrill and Tomahawk, both along the Wisconsin River, and then farming dispersed additional residents throughout the lower 1/3rd of the County to begin tilling the soil. In the last twenty years, growth occurred fastest as shoreland development in the Harrison Hills area. Only about 1,130 people were added to the county's population between 2000 and 2015. Much of Lincoln County's population growth has occurred due to above state or national averages of migration increase, which is generally of older individuals who are retiring "Up North."

The following is a brief description of the major land uses and their trends in Lincoln County.

Table 1 2015 Countywide Land Use	
Land Use Category	Percent of County
Agriculture	9.12
Commercial	0.19
Cranberry Bog	0.04
Governmental/Institutional	0.14
Industrial	0.28
Open Lands	2.60
Outdoor Recreation	0.15
Residential	2.21
Water	2.99
Woodlands	80.91

Source: 2015 NCWRPC

Agriculture

The primary agricultural enterprise in Lincoln County is dairy farming. There are 55 dairy farms in Lincoln County as of 2012. On-site production, milk sales, and milk processing generates over \$82 million in revenue. Grains, including corn and oats, are the second main agricultural activity in terms of revenue in the County. Forage and cattle for beef are also major economies. Lincoln County is a leading Christmas tree producer, and was ranked 3rd in the state in terms of value and acreage.

As of 2015, about 81% of the County is Woodlands, and Agriculture is 9.12%. See Table 1.

Tables 2 and 3 describe agricultural trends according to the USDA Agricultural Census by number of farms for the five largest farm groups in Lincoln County over the past decade. The majority of farms in Lincoln County grow forage and grain, or raise Cattle and Calves. The total amount of land in farms decreased 21 percent over the past ten years, but the average size of farms is increasing, while the number of farms is decreasing.

Table 2 Farm Trends in Lincoln County			
	2002	2007	2012
Farms	593	575	449
Farmland (acres)	98,168	86,770	76,844
Average Farm Size (acres)	166	151	171

Source: USDA Census of Agriculture.

Table 3 Agricultural Trends in Lincoln County (farms)			
	2002	2007	2012
Dairy	103	69	55
Corn for Grain	65	63	67
Oats for Grain	55	48	37
Cattle and Calves	126	123	124
Forage	363	342	301

Source: USDA Census of Agriculture.

A brief description of soils and their limitations for cropland and pasture is described at the end of this chapter under *Geology and Soils*.

Forestry

Lincoln County is characterized by well developed public and private forests with a mixture of hardwoods and conifer stands.

The Lincoln County Forestry Department manages 100,843 acres of county forest. This land is managed for multiple uses, and is open to public access. Some of the county forest is closed to motorized vehicles. Examples of permitted recreational activities are hunting, fishing, hiking, snowmobiling, ATVing, camping, bough cutting (permit required), firewood collection (permit required), and wildlife observation.

Under the Forest Crop Law (FCL), as of February 25, 2016, there were 18,046 acres that are open to the public to hunt and fish. In 2016, there were also 57,498 acres enrolled in the Managed Forest Law (MFL) program that are open for foot travel by the public for hunting, fishing, cross-country skiing, sightseeing, and hiking (make sure the land is enrolled as open), and 86,791 acres that are closed to public access.

Residential Development

Lincoln County's residents live in a variety of densities throughout the county. Most of the residential development occurs in the Cities of Merrill and Tomahawk, around the lakes in the Harrison Hills, and around Lake Mohawksin, Lake Alice, and the Spirit River Flowage. Many housing subdivisions and scattered residential sites also exist along town roads throughout the County.

Merrill is experiencing a housing shortage of the types that people want, even though the non-seasonal housing vacancy rate is higher than the state average. Employers are adding hundreds of jobs, but rentals and homes are not available in the types that employees at these jobs are looking for. Additional housing will continue to be needed throughout the county as the population continues to increase due to net migration into the county.

Commercial & Industrial Development

Both the Cities of Merrill and Tomahawk have traditional downtowns and other commercial and industrial developments. Both cities have industrial parks, and light through heavy industrial uses exist on legacy parcels. See the Land Use map (Map 1) to see where major uses exist.

Brownfields are usually defined as abandoned, idle, or under-utilized industrial or commercial facilities where expansion or redevelopment is complicated by environmental contamination if the sites is no listed as "closed" by the DNR.

D. Surface Water

Surface water is abundant, due to damming of the Wisconsin River to create several impoundment lakes. Surface water in Lincoln County is mainly used for recreation and industrial processes.

Lincoln County has 152 named lakes and 577 unnamed lakes, totaling 15,585 acres. There are 246 streams in the County, 668 miles in length, with 395 miles designated as trout stream.

Basin & Watersheds

There are 13 watersheds contained completely or partially within Lincoln County as shown on Map 2. The drainage pattern flows generally from the east and from the west, both toward the Wisconsin River.

A watershed ranking process (Table 4) was developed by DNR to rank watersheds based on the extent of nonpoint source pollution, the effect on water quality and the ability to manage the pollution sources. In some cases the data was not sufficient to produce a ranking (NR = no ranking).

Table 4 Non-point Source Pollution DNR Watershed Rank	
Watershed	Ranking
Copper River	Low
Devil Creek	Medium
Little Rib River	Medium
Lower Tomahawk River	Low
New Wood River	Low
Noisy and Pine Creeks	High
Pine Creek	NA / Low
Prairie River	Medium
Somo River	Low
Spirit River	Low
Trappe River	Low
Upper Rib River	Low
Woodboro	High for lakes, Low for streams & groundwater

Source: WDNR, 2016 Water Assessment, Tracking and Electronic Reporting Systems (WATERS) Database

The rankings are used by DNR as a basis to award nonpoint source pollution grants to local units of government for nonpoint source pollution planning and/or cost sharing of best management practices for agricultural and urban land use.

Impaired Waters – 303(d) Waters

The DNR maintains a list of surface waters that do not meet specific water quality standards outlined by section 303(d) of the Clean Water Act. The DNR is required to update the list every two years.

In 2016 there were 11 lakes and 1 river in Lincoln County on the Impaired Waters list; see Table 5 and Attachment A for impairment details. Map 2 shows where the Impaired Waters are in the County. The Table 5 “priority” is for DNR funding.

Definitions for Table 5:

BOD = Biochemical oxygen demand (BOD) provides a measure on the impact of a waste (water) on the oxygen content of a receiving system: a stream, river or lake. Wastes are broken down by microbial organisms, frequently referred to as "bugs", who require oxygen for this monumental effort. Thus, in order for this test to work, you need a food source, a nice population of bugs, available oxygen to drive the bugs, and a system which provides a hospitable environment for the bugs.

DO = Dissolved oxygen.

Pollutant Sources for Table 5:

Mercury pollutant is from atmospheric deposition of mercury from coal fired power plants. The closest plant is in Rothschild.

BOD is caused by an overabundance of organic material in a water body that exceeds the ability of the microbial organisms to break it down.

Table 5 Impaired Waterbodies in Lincoln County			
Name	Pollutant	Impairment Indicator	Priority
Bass Lake	Mercury	Contaminated Fish Tissue	Low
Deer Lake	Mercury	Contaminated Fish Tissue	Low
Lake Alice	BOD, sediment load (Sediment Oxygen Demand)	Low DO	Low
Lake Clara	Mercury	Contaminated Fish Tissue	Low
Lake Mohawksin	BOD, sediment load (Sediment Oxygen Demand)	Low DO	Low
Lake Pesabic	Mercury	Contaminated Fish Tissue	Low
Long Lake	Mercury	Contaminated Fish Tissue	Low
Merrill Flowage	Unknown Pollutant	Chronic Aquatic Toxicity	Low
Somo Lake	Mercury	Contaminated Fish Tissue	Low
Spirit River Flowage	Mercury	Contaminated Fish Tissue	Low
Tug Lake	Mercury	Contaminated Fish Tissue	Low
Wisconsin River	Mercury	Contaminated Fish Tissue	Low
	PCBs	Contaminated Fish Tissue	Low
	Unknown Pollutant	Chronic Aquatic toxicity	Low

Source: WDNR.

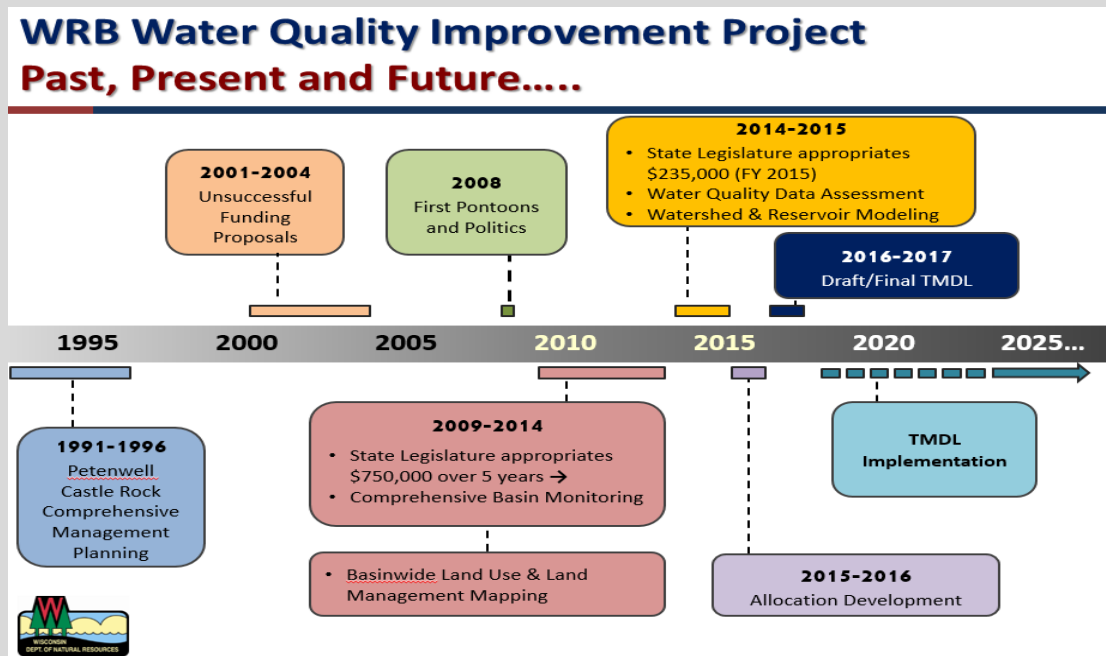
Castle Rock Lake, Petenwell Lake and the Wisconsin River in Adams County have high levels of Total Phosphorus due to non-point sources upstream from Adams County (per 2012-2014 DNR pollutant measurements taken as part of the **Wisconsin River TMDL**).

Local Citizens in Adams County talking with their state legislative representatives and DNR over the course of a decade, has resulted in DNR winning an EPA Clean Water award to create the **Wisconsin River TMDL**, which includes all of Lincoln County.

Wisconsin River Total Maximum Daily Load (TMDL) Study

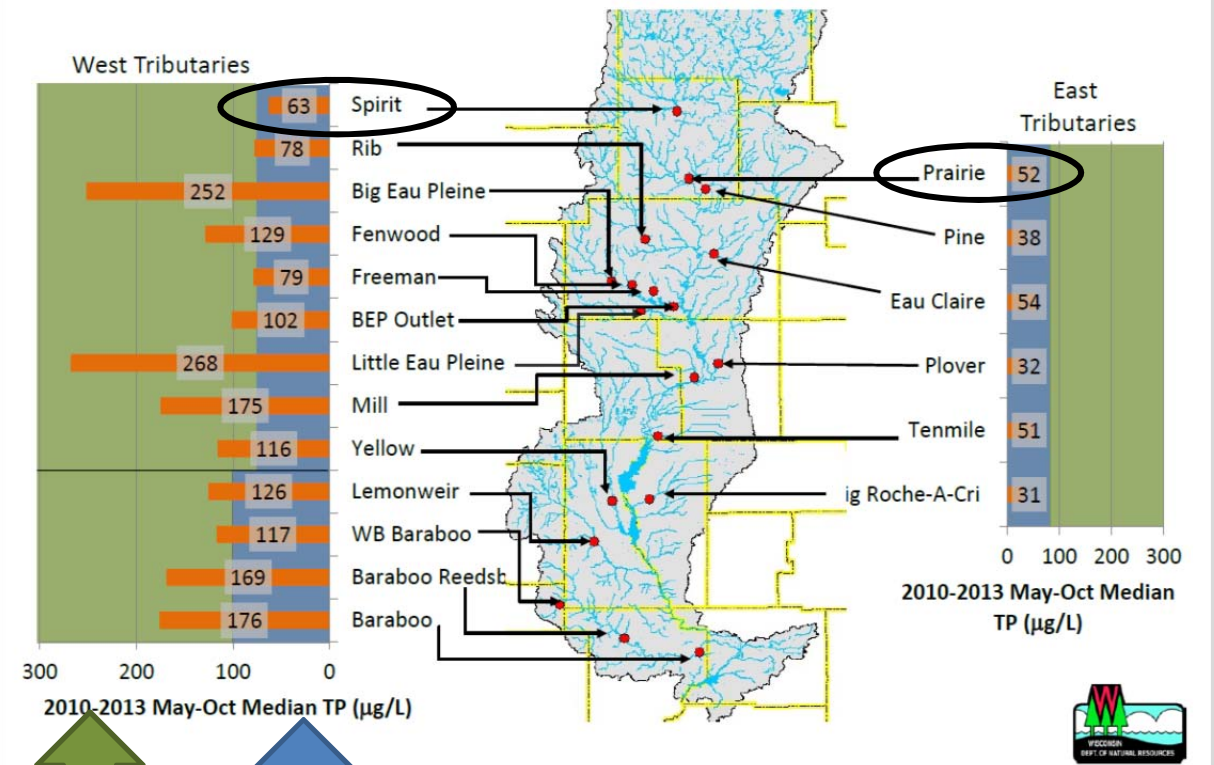
The DNR, together with many partners throughout the basin, are working to improve water quality of the Wisconsin River, its reservoirs and tributaries. The Total Maximum Daily Load (TMDL) study and implementation plan will provide a strategic framework and prioritize resources for water quality improvement in the Wisconsin River Basin. The Wisconsin River TMDL study area spans Wisconsin's central corridor from the headwaters in Vilas County to Lake Wisconsin in Columbia County, covering 9,156 square miles, approximately 15 percent of the state. The study will be completed in 2017 and the implementation portion of identified conservation practices to address the non-point source pollution issues will begin. Total length of the implementation process has not yet been identified due to the scope of the TMDL.

As shown in the Wisconsin River Basin (WRB) chart below, the TMDL is currently in progress. Lincoln County will use the information and data provided by this TMDL to address the pollution issues specifically related to Lincoln County.



Wisconsin River Basin (WRB) monitoring results for two major reservoirs – Spirit and Prairie. Neither tributary has an unacceptable level of phosphorus (see the blue and green arrow text boxes below for explanation of the blue and green tables).

Tributary Monitoring Results – Total P Concentration



Green = Phosphorus in excess of acceptable limits. Resulting in a 303(d) water.

Blue = acceptable level of phosphorus.

Graphic Legend:
Lincoln County Tributaries

Outstanding/Exceptional Resource Waters

ORWs typically do not have any point sources discharging pollutants directly to the water (for instance, no industrial sources or municipal sewage treatment plants), though they may receive runoff from nonpoint sources. New discharges may be permitted only if their effluent quality is equal to or better than the background water quality of that waterway at all times—no increases of pollutant levels are allowed.

Lincoln County has 3 ORWs – See Map 2, and Attachment B.

ERWs are more likely designated if a waterbody has existing point sources at the time of designation. Like ORWs, dischargers to ERW waters are required to maintain background water quality levels.

Lincoln County has 39 ERWs – See Map 2, and Attachment B.

Designation as an ORW or ERW has implications for permitting, in order to protect the quality of the waterway.

E. Groundwater Resources

Groundwater is the primary source of drinking water and irrigation water in Lincoln County. In 2005, 2.87 million gallons per day were withdrawn from groundwater, and 8.10 million gallons per day were withdrawn from surface water.

Groundwater users in Lincoln County include commercial, domestic, livestock, aquaculture, irrigation, and public use.

Industrial users primarily use surface waters for their needs.

The supply of groundwater comes from surficial glacial drift and alluvial sand and gravel, which generally furnish an abundant supply to depths of 20 to 50 feet. Wells located in these areas yield 15 to 60 gallons of water per minute per foot of drawdown. Generally, the glacial till in moraine areas yields less than the outwash deposits. Yields also are lower in areas where till is intermixed with sand and gravel. The underlying crystalline bedrock, which is close to the surface in the southern part of the county, yields little or no water. Shallow wells in the areas of surficial outwash are subject to pollution.

The quality of the groundwater in Lincoln County is good. Local differences in quality are the result of the composition, solubility, and surface area of the soil and rock through which the water moves and the length of time that the water

is in contact with these materials. Generally, the content of dissolved solids in the ground water is relatively low throughout the County. In many areas of the County, the soils have very porous layers that are poor filters for domestic waste and agricultural chemicals. The impact of development and agriculture may cause deterioration of the groundwater quality in these areas.

Groundwater quality summary (Source: WI Well Water Viewer, 2016):

- 97% of 1,360 private well samples collected met the health-based drinking water limit for nitrate-nitrogen. Meanwhile the other 3% are considered unsuitable for consumption by infants and women who are pregnant or trying to become pregnant because they contained greater than 10 mg/L of nitrate-nitrogen.
- 7% of 166 private well samples collected were greater than what is considered a suitable concentration of arsenic in drinking water.
- 69% of 899 private well samples reported concentrations of total hardness less than 100 mg/L as CaCO₃. Total hardness is not a health concern, however can be important for understanding other characteristics of the water. Water with levels of total hardness less than 100 mg/L tend to be more corrosive. Corrosive water is more likely to corrode metal plumbing and various metal water heater components.

Potential sources of groundwater contamination summary:

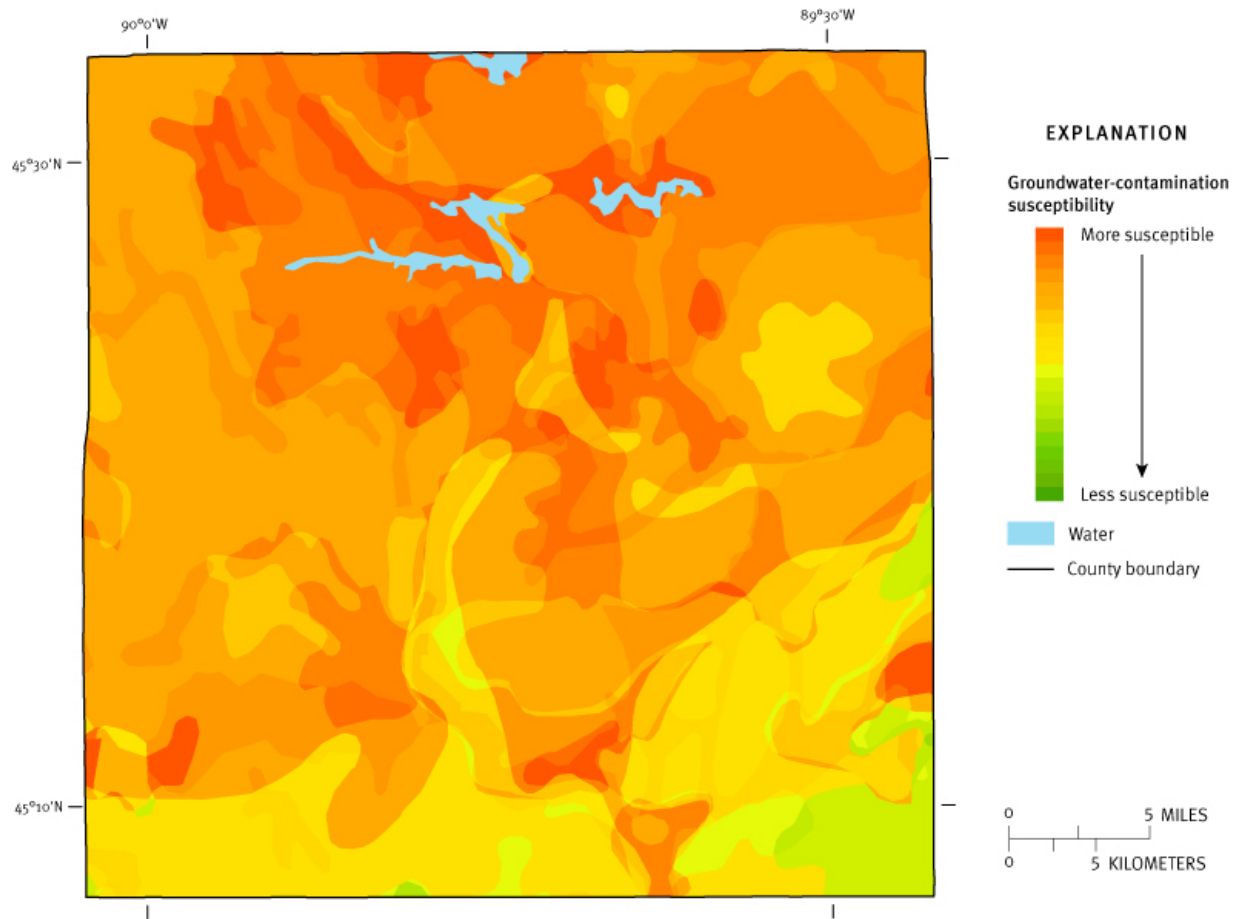
See Figure 16 to see how susceptible Lincoln County's soils are to being polluted by surface application (due to spills or direct application) of chemicals and nutrients.

Non-point source pollution, also known as polluted runoff, is a leading cause of water quality problems in Wisconsin. Polluted runoff is caused by rainfall or snowmelt moving over and through the ground picking up natural and human-made pollutants, depositing them into rivers, lakes, wetlands and groundwater. Pollutants include fertilizers, nutrients, oil, grease, sediment and bacteria from agricultural, urban and residential areas.

- There are 17 open-status sites in Lincoln County (as of 2016) that have contaminated groundwater and/or soil. These sites include 5 Leaking Underground Storage Tank (LUST) sites, 12 Environmental Repair (ERP) sites.
- There are no concentrated animal feeding operations (CAFO) in Lincoln County.
- There are no atrazine prohibition areas in Lincoln County.
- There are no Superfund sites in Lincoln County.
- There are 2 licensed landfill in Lincoln County:

- Lincoln County Landfill, N4750 Landfill Ln, Merrill; and
- Packaging Corp of America-Tomahawk, N9090 CTH E, Bradley.

Figure 16 Lincoln County – Groundwater Contamination Susceptibility Analysis



This map is a composite of five resource characteristic maps, each of which was derived from generalized statewide information, and cannot be used for any site specific purposes.

Source: DNR PUBL-WR-177-87, 27p.

F. Geology

Lincoln County is in the Northern Highland physiographic region of Wisconsin, which has some of the highest elevations in the state. Elevations range from about 1,910 feet above sea level on a hill bordering the east side of Ament Lake in the northeastern part of the County, to about 1,220 feet as the Wisconsin River leaves the County, south of Merrill. Tomahawk is about 1,450 feet, and Merrill is about 1,300 feet.

Overall, the topography of Lincoln County is gently rolling. The northeast and east-central portions of the County contain hilly areas with steep slopes and many small lakes. The western part is relatively level with few hills and lakes, more gentle slopes and numerous area of water at or near the surface. The northwestern portion is generally flat with large swamp and marshy areas. The southern portion contains gently rolling hills and a well developed branch-like drainage pattern.

The physiography, relief, and drainage of Lincoln County are primarily the result of glaciation. They are modified by ridges of hard bedrock in the southern part of the County. The Harrison Hills and the Underdown Hills are typical morainic hills and ridges interspersed with many bogs, swamps, ponds, and lakes in kettles that resulted from the melting of buried ice blocks. Most of the kettles have no outlet. Slopes are short and complex in these areas. Other parts of the landscape, such as the Nine Mile, Irma, and Chase Hills, are distinct ridges or hills of bedrock that are covered by glacial drift. These bedrock areas commonly do not have wet depressions.

A large outwash plain with low relief dominates the north-central part of the County. The topography is mostly flat, except for a few morainic mounds. Streams, lakes, swamps, bogs, and marshes are in these flat areas.

G. Mineral Resources

There are a number of top soil, sand, gravel and other aggregate mines throughout the County that are often referred to as pits or quarries. Sites are currently producing unconsolidated material such as sand or gravel. Rock, sand, and gravel pits may be found in a variety of locations in the County.

Metallic Minerals

Metallic mineral deposits are defined as naturally occurring, local concentrations of metal-bearing minerals.

Lincoln County contains no useful deposits of metallic mineral ore per the DNR list of recent and potential metallic mining projects in Wisconsin.

Sand

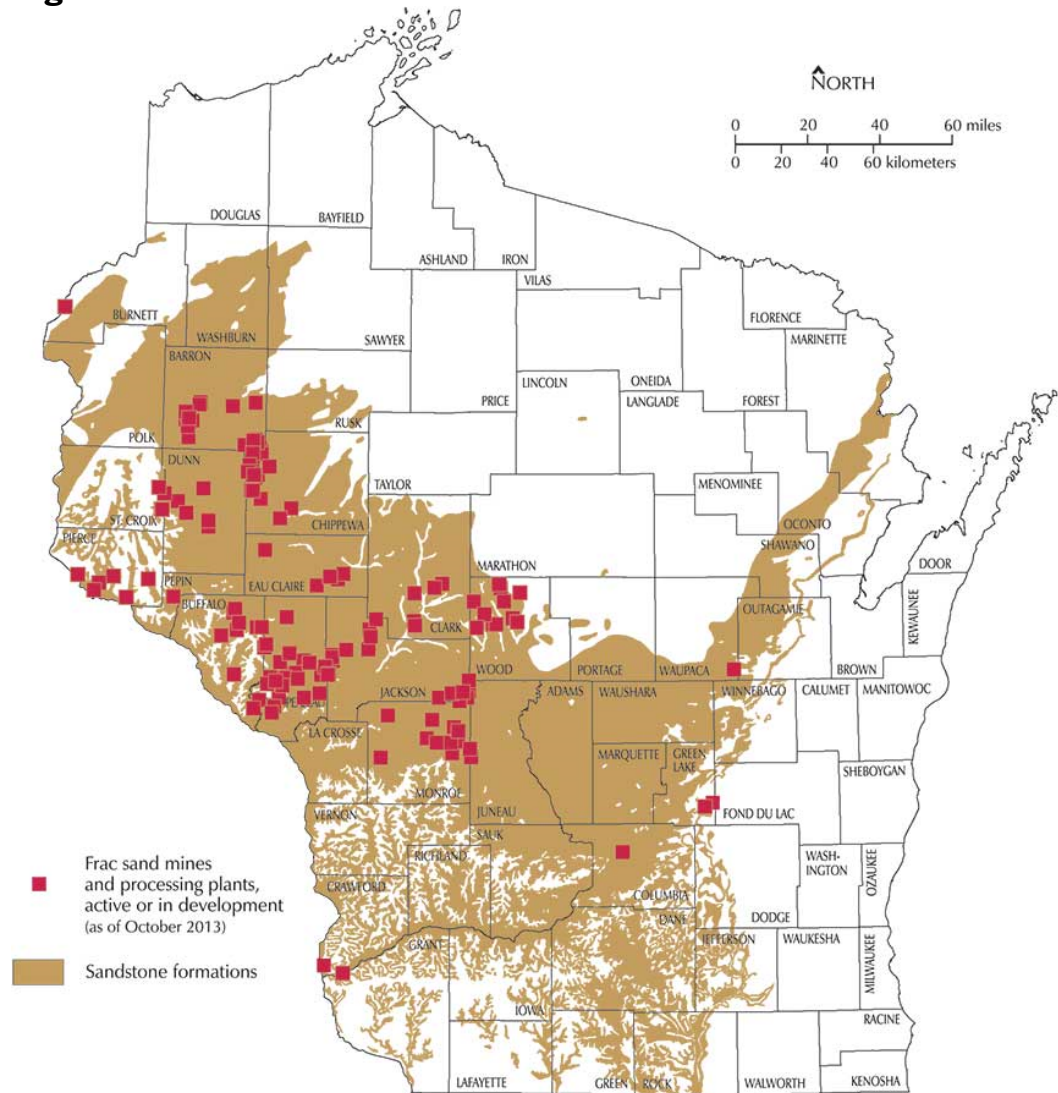
Sand mining has occurred in Wisconsin for more than 100 years. Fracking has been used by our domestic oil and gas industry for the past 75 years. Recently, the development of new horizontal drilling technology using hydraulic fracturing has made possible production of previously unrecoverable natural gas resources in the eastern, western, and southwestern United States. See Figure 17 for the extent of frac sand deposits in Wisconsin.

Frac Sand

A type of sand perfect for fracking. Characteristics of frac sand include: spherical shape, high silica (quartz) content, hardness (can withstand high pressure), uniform particle shape and size.

Source: UWSP CLUE.

Figure 17 Frac Sand in Wisconsin



Source: WGNHS, 2014.

Wisconsin’s sands, especially from the bedrock of western and central Wisconsin, have all the right characteristics in addition to being near the surface and easy to mine.

Glaciation in Wisconsin led to the deposition of sand as melting and glacial retreat occurred, but those sands are too impure to make frac sand. The frac sand industry in Wisconsin involves removal of the sand and processing it. The map in Figure 17 shows where sandstone formations are located.

H. Soils

The majority of the soils in Lincoln County result from glaciation. The soil erosion problem areas in Lincoln County contain unvegetated soils that are located on slopes that are prone to water erosion.

Soils are classified based upon physical characteristics between the soils and the topography of the area. The U.S. Natural Resources Conservation Service (NRCS) has grouped Lincoln County soils into 11 associations.

Magnor-Freeon-Capitola Association underlies most of the southern and western portions of the County (Towns of Somo, Corning, Harding, Scott, Pine River, and Schley). This association is characterized in nearly level to sloping topography with moderately well-drained silty soils on moraines. Bedrock is close to the surface on slopes that are adjacent to major river valleys. Most of the areas in Lincoln County with this soil association are used for farming and are some of the most intensively farmed areas in the County. Septic systems, building sites, and roadways are generally limited due to wetness, ponding, slope, and restricted permeability.

Ossmer-Minocqua-Sconsin Association underlies much of the eastern part of the County within the Prairie River and Pine River drainage basins, and in the western portion of the County within the Copper River and Newwood River drainage basins. This association is characterized by moderately well-drained silty and mucky soils on outwash plains. Most of the acreage in Lincoln County with this soil association is used for permanent pasture. Woodlands, including wooded swamps, are found in this soil association. The use of these soils for septic systems, building sites and roadways is generally limited due to wetness or ponding.

Magnor-Lupton-Capitola Association underlies most of the west central and northwestern portion of the County (Towns of Somo, Tomahawk, and northern Harding). This association is characterized in nearly level to gently sloping topography with somewhat poorly drained silty and mucky soils on moraines and drumlins. Most of the areas in Lincoln County with this soil association are woodlands including many wooded swamps.

Sarona-Keweenaw-Goodman Association underlies much of the Harrison Hills area of the County, and is characterized by steep topography with loamy and silty soils on moraines. This well drained soil association also covers much of the central part of the County, especially the Towns of Rock Falls, and Birch. Most of the acreage with this soil association is wooded, interspersed with many small kettles and lakes that contain bogs or swamps. Generally, these soils have few limitations affecting septic systems or building site development,

except for slope. This soil association has more potential sites for landfills than the other associations in the County.

Newood-Magnor-Freeon Association underlies much of the west-central part of the County in the Towns of Harding and Corning, and is characterized by moderately well drained loamy and silty soils on glacial moraines. Most of the acreage in the County with this soil is wooded. Septic systems, building sites, and roadways are generally limited in most areas by wetness, slope, and restricted permeability.

Sarwet-Moodig-Lupton Association underlies part of the northwest-northcentral part of the County in the Towns of Bradley, Tomahawk, and Somo, and is characterized by moderately well drained, somewhat poorly drained loamy and mucky soils on glacial moraines and drumlins. Most of the acreage in the County with this soil is wooded with many wooded swamps.

Vilas-Croswell-Markey Association underlies much of the Town of Bradley, the Wisconsin River drainage basin in the Town of King, and the Somo River drainage basin in the Town of Wilson. This soil is characterized by moderately well drained to very poorly drained sandy and mucky soils on outwash plains. Most acreage in the County with this soil is wooded, particularly used for pine plantations. The use of these soils for septic systems, building sites, and roadways are generally limited due to ponding and wetness.

Lupton-Padwet-Minocqua Association underlies a small area in the north central part of the County in the Towns of Bradley, Skanawan, and King. This soil is characterized by very poorly drained and moderately well drained mucky and loamy soils on outwash plains. Most acreage in the County with this soil is wooded, with many wooded swamps.

Pence-Padus-Antigo Association underlies a small area in the northeastern area of the County, and is characterized by nearly level to very steep topography with well drained loamy and silty soils on outwash plains. Most of the acreage with this soil association is wooded with a few wooded swamps.

Vilas-Sayner-Keweenaw Association underlies a small area in the northeastern area of the County, and is characterized by rolling to very steep topography with excessively drained to well drained sandy and loamy soils on outwash plains and moraines. Most of the acreage with this soil is wooded, with a few wooded swamps.

Croswood-Lupton-Augwood Association underlies a small area in the north central/northwestern area of the County, and is characterized by nearly level and gently sloping sandy and mucky soils on outwash moraines and drumlins. This moderately well drained, very poorly drained to somewhat poorly drained

soil covers about half of the Town of Wilson. Most of the acreage with this soil is wooded, with a few wooded swamps.

Map 4 shows the general soil mapping units for Lincoln County. For more detailed soils information, see the Soil Survey of Lincoln County Wisconsin.

I. Previous Reports Summarized

Plans that were used to make this LWRM Plan are summarized below:

Lincoln County Land & Water Resource Management Plan, 2010
<http://www.co.lincoln.wi.us/services/1/?service=c492658772a2>

This Plan provides a framework for local/state/federal conservation program implementation efforts. Implementation of this plan will help protect and improve the valuable land and water natural resources in Lincoln County. A copy is available in the Lincoln County Land Services Department.

Protecting Wisconsin's Groundwater Through Comprehensive Planning
(<http://wi.water.usgs.gov/gwcomp/>)

USGS, UW Extension, and WDNR developed this web site as an inventory of groundwater data from a variety of public sources.

NRCS Soil Survey for Lincoln County, 1996

The Natural Resource Conservation Service (NRCS) is a federal agency that prepared the Lincoln County, Wisconsin Soil Survey. The survey contains predictions of soil behavior for selected land uses and also highlights the limitations and hazards inherent in the county's soil. A series of detailed maps identifying the location of soil types in Lincoln County accompanies the survey.

The *Geology & Soils* section of the LWRM Plan was based on the Soil Survey, and several other sections also took material from this survey.

Wisconsin Land Legacy Report 2006-2056
A copy is available at WDNR Service Centers or online at:
http://dnr.wi.gov/Master_Planning/land_legacy.

This report is a comprehensive inventory of the special places that will be critical to meet future conservation and outdoor recreation needs for the next

fifty years. Some of the questions asked to guide creation of this report were: Which lands and waters remain unprotected that will be critical for conserving our plants and animals and their habitats? What gaps exist now (and will likely emerge in the future) in providing abundant and satisfying outdoor recreation? How can we most effectively build upon the state's existing investment in protected lands to fill conservation and recreation gaps? What special places will our children and grandchildren wish we had protected? The study focused on identifying what of our state or regionally significant green infrastructure remains to be protected.

The report recommends protection of these lands by using federal, state, and local funding opportunities; along with possibly creating new kinds of incentives for landowners, working to draft comprehensive plans, or offering different types of technical assistance.

Each Lincoln County Legacy Area is summarized below. 5 stars represents the highest level:

SO Somo River

Size	Medium
Protection Initiated	Moderate
Protection Remaining	Moderate
Conservation Significance	☆
Recreation Potential	☆☆

UW Upper Wisconsin River

Size	Large
Protection Initiated	Moderate
Protection Remaining	Moderate
Conservation Significance	☆☆☆
Recreation Potential	☆☆☆

HH Harrison Hills

Size	Medium
Protection Initiated	Substantial
Protection Remaining	Limited
Conservation Significance	☆☆☆
Recreation Potential	☆☆☆

MW Middle Wisconsin River

Size	Large
Protection Initiated	Limited
Protection Remaining	Substantial
Conservation Significance	☆☆☆
Recreation Potential	☆☆☆☆

PR Prairie River

Size	Medium
Protection Initiated	Moderate
Protection Remaining	Substantial
Conservation Significance	☆☆☆☆
Recreation Potential	☆☆☆

Another Area of Interest includes:

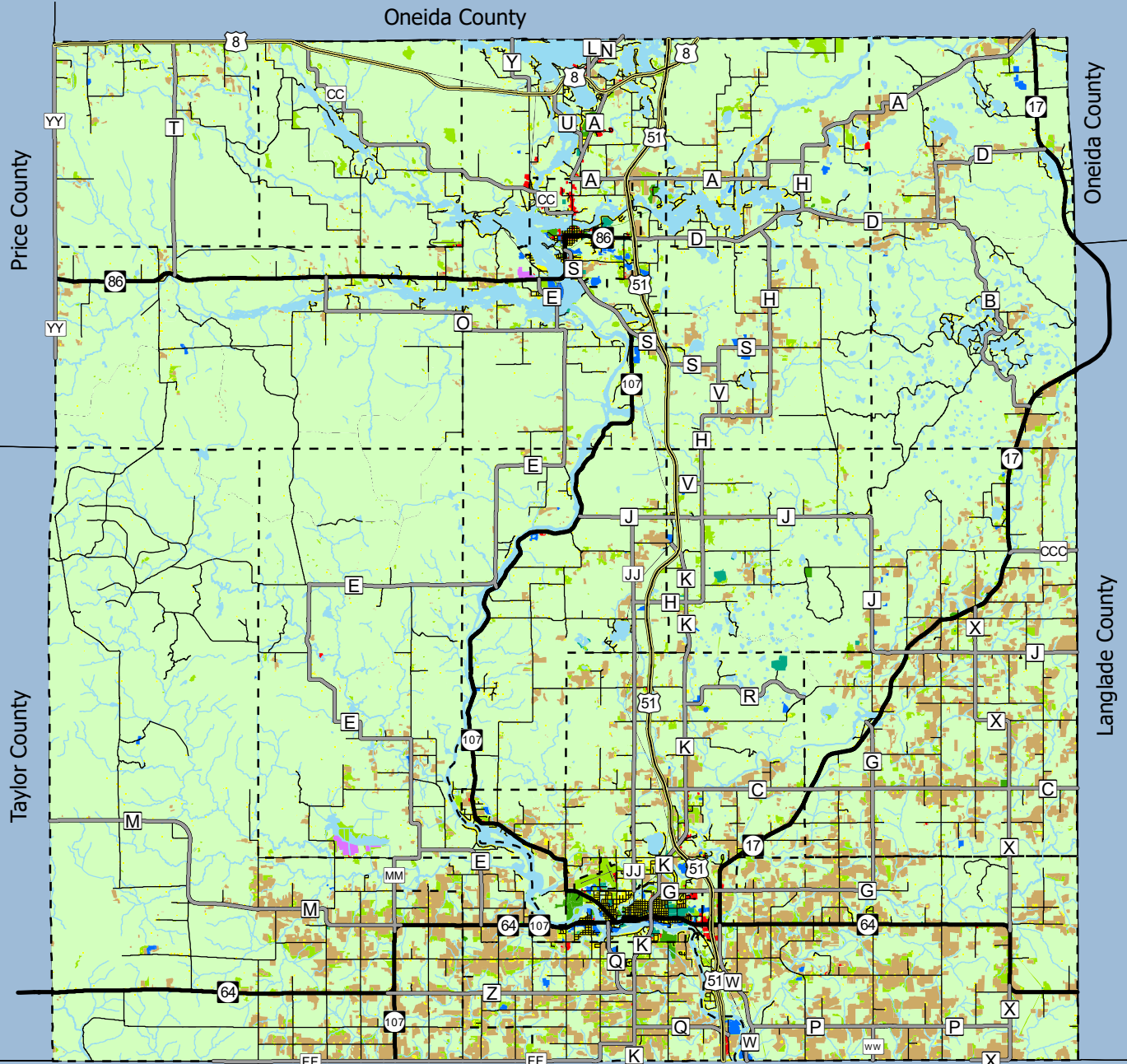
- Big Pine Creek

Wisconsin River TMDL: A Framework for Water Quality Improvement
(<http://dnr.wi.gov/topic/tmdls/wisconsinriver/>)

The Wisconsin River TMDL study area spans Wisconsin's central corridor from the headwaters in Vilas County to Lake Wisconsin in Columbia County, covering 9,156 square miles, approximately 15 percent of the state.

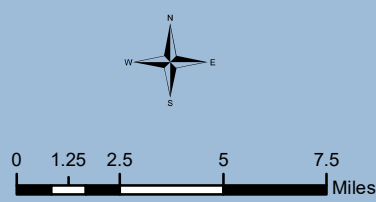
Lincoln County Comprehensive Plan, 2012-2021
(<http://www.ncwrpc.org/lincoln/lincoln-comp.html>)

The *General Land Use* section of the LWRM Plan was based on the Comprehensive Plan, and several other sections also took material from this plan.



- Legend**
- - - Minor Civil Divisions
 - US Highway
 - State Highways
 - County Highways
 - Agriculture
 - Commercial
 - Cranberry Bog
 - Governmental / Institutional
 - Industrial
 - Multi-Family
 - Open Lands
 - Outdoor Recreation
 - Residential
 - Transportation
 - Water
 - Woodlands

Marathon County



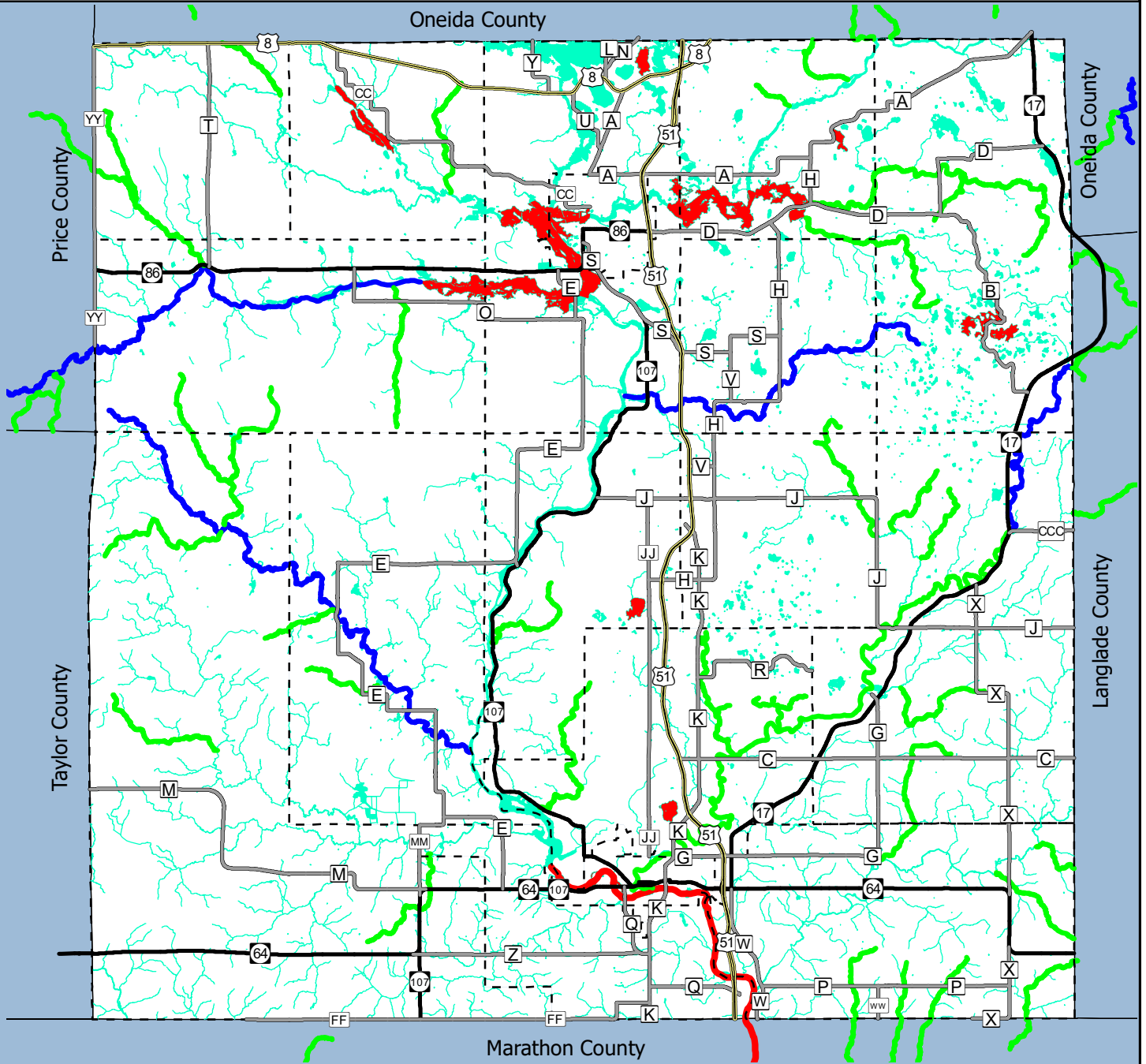
SOURCE: NCRPC, WIDNR, Lincoln County 2015 Airphoto Interpretation

This map is neither a legally recorded map nor a survey of the actual boundary of any property depicted. This drawing is a compilation of records, information and data used for reference purposes only. NCRPC is not responsible for any inaccuracies herein contained.



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Legend

- - - Minor Civil Divisions
- US Highway
- State Highways
- County Highways
- Water
- 303D
- Exceptional Streams
- Outstanding Streams



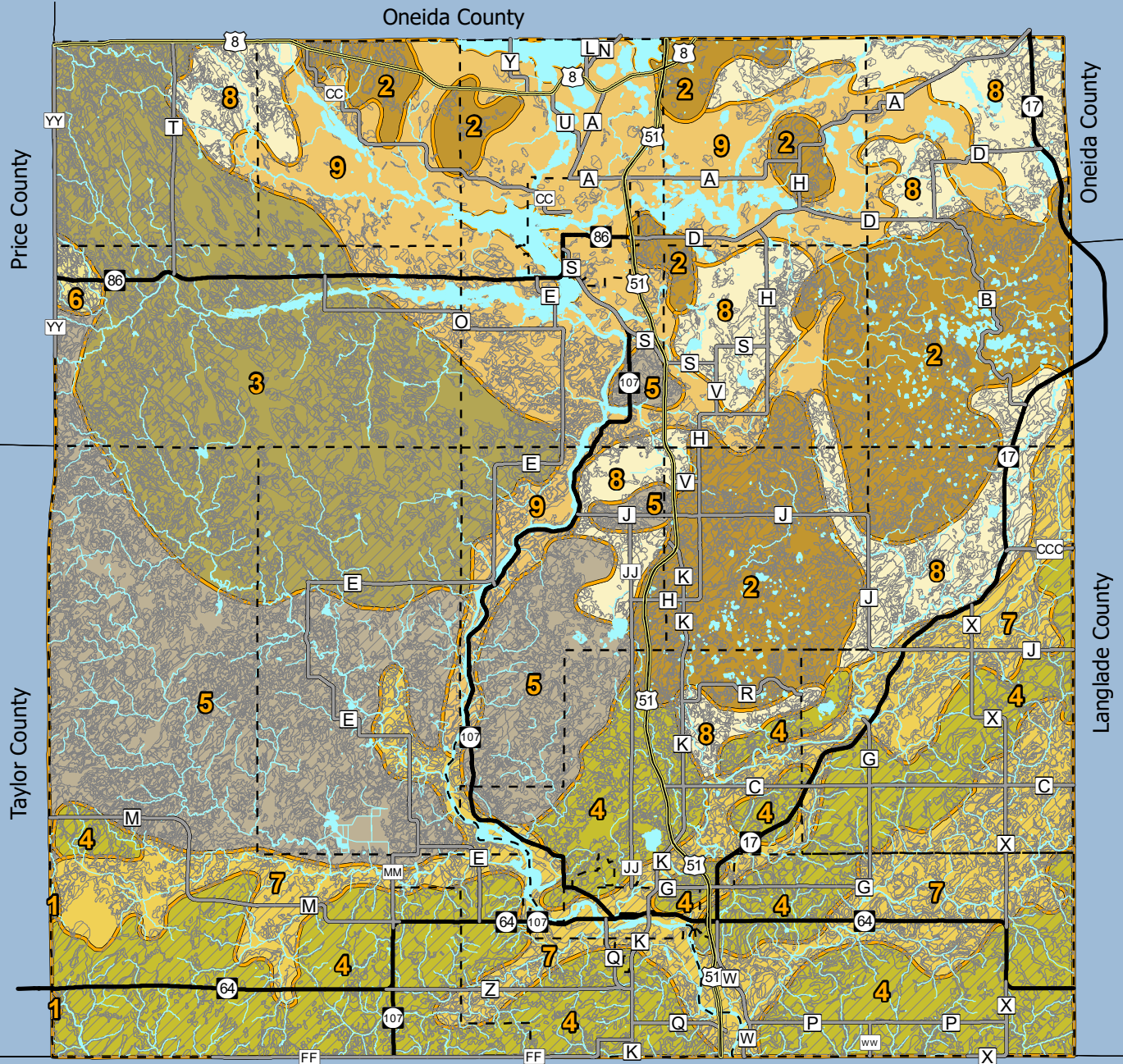
SOURCE: NCRPC, WIDNR, Lincoln County

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Legend

- Minor Civil Divisions
- US Highway
- State Highways
- County Highways
- 1 ANTIGO-ROSHOLT-LANGLADE (WI007)
- 2 KEWEENAW-SARONA-KARLIN (WI016)
- 3 MAGNOR-CABLE-AUBURNDALE (WI021)
- 4 MAGNOR-FREEON-AMERY (WI015)
- 5 NEWOOD-NEWOT-AMERY (WI022)
- 6 NEWOT-PENCE-GREENWOOD (WI020)
- 7 OESTERLE-SCOTT LAKE-ANTIGO (WI023)
- 8 PADUS-PENCE-GREENWOOD (WI006)
- 9 SAYNER-RUBICON-OMEGA (WI005)
- Water
- Prime Farmland Areas

Marathon County



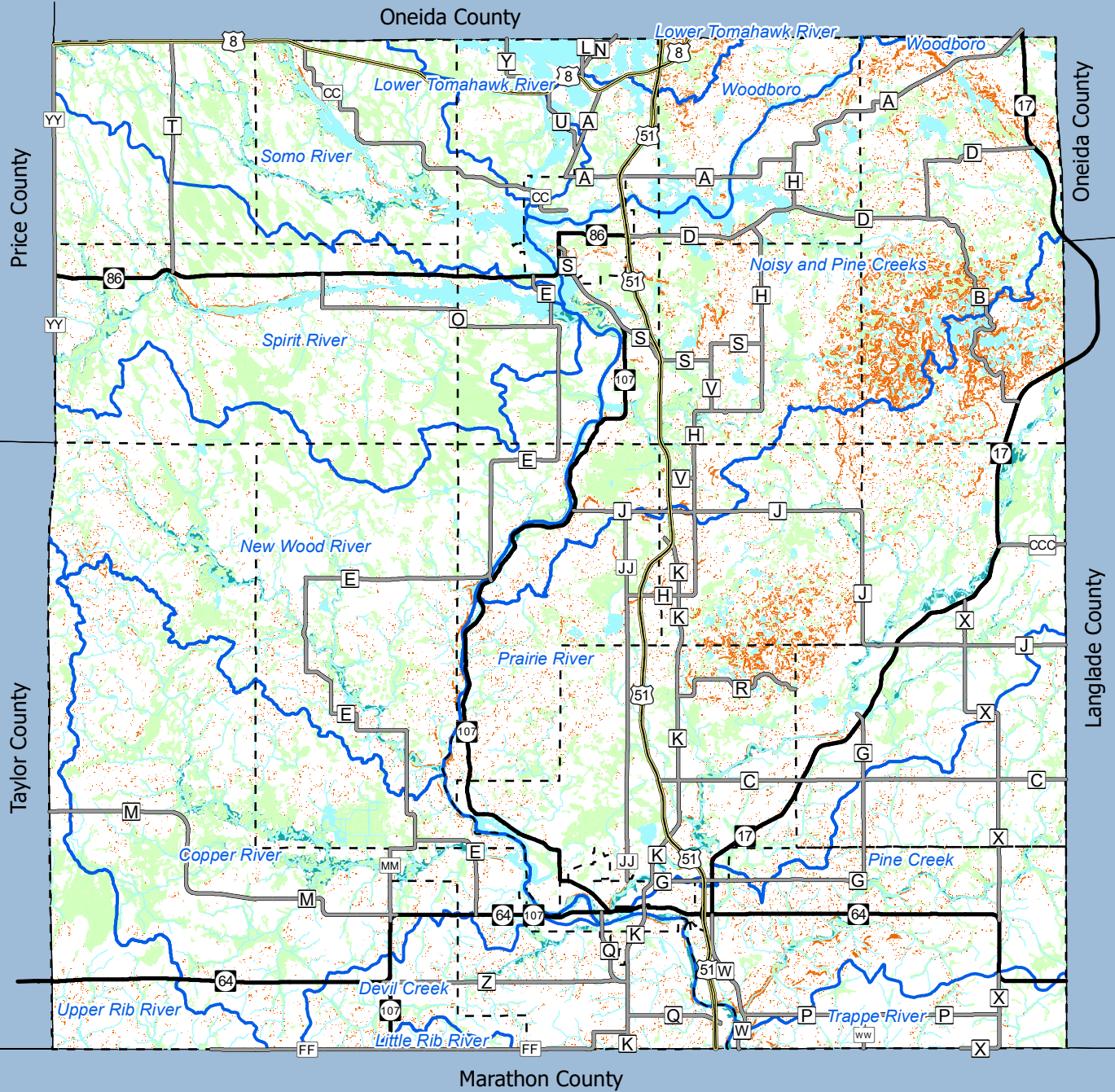
SOURCE: NCRWPC, WIDNR, Lincoln County, NRCS

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Legend

- - - Minor Civil Divisions
- US Highway
- State Highways
- County Highways
- Watershed Boundaries
- Steep Slopes
- Wetlands
- Floodplains
- Water



SOURCE: NCWRPC, WIDNR, Lincoln County
FEMA

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PERFORMANCE STANDARDS AND PROHIBITIONS

Chapter 3

The County land and water resource management plans are the local mechanism to implement performance standards and prohibitions. Through Wisconsin Act 27, the Wisconsin Legislature amended State statutes to allow LWCCs to develop implementation strategies for addressing local water quality priorities related to controlling erosion, sedimentation, and nonpoint source water pollution. Wisconsin DNR Rule NR 151, sub-chapter II – Agricultural Performance Standards and Prohibitions became effective October 1, 2002, revised in 2010 and became effective January 1st, 2011. These rules are the premise for which this plan will be implemented to address agricultural runoff and aid in the reduction of Nitrogen and Phosphorous to ground and surface waters. Administrative Rule ATCP 50 is DATCP’s rule that establishes the guidelines to implement Wisconsin’s Soil and Water Resource Management program as specified in state statute 92.14. Lincoln County LSD will utilize NR151, ATCP 50 along with Lincoln County’s Ordinances to enforce prohibition standards. Lincoln County will cooperate with the DNR and DATCP for enforcement of the performance standards. Enforcement will be utilized as a last resort if non-compliance is not achieved through voluntary conditions.

Implementation strategies for each part of the Agricultural Performance Standards (NR 151):

NR 151.02 Sheet, rill and wind erosion: All land where crops or feed are grown shall be cropped to achieve a soil erosion rate equal to, or less than, the “tolerable” (T) rate established for that soil. A snapshot of soil loss due to water erosion calculated by RUSLE 2 from 43,614 acres tabulated in SNAP Plus V2 for 2015 came up with an average soil loss of .5 Tons/Acres. Wind erosion calculations are needed to be updated and this will be a priority in this plan. Livestock pastures and winter grazed areas will also need to meet tolerable soil loss as of July 1, 2012.

Conservation practices that will achieve compliance with this standard are: contour farming; cover and green manure crop; crop rotation; diversion; field windbreaks; residue management; strip cropping; grassed waterways; filter strips and terrace systems.

NR 151.03 Tillage Setback: The purpose of this standard is to prevent tillage operations from destroying stream banks and depositing soil directly in surface waters.

Conservation practices that will achieve compliance with this standard are: filter strips, buffers and tillage set-backs greater than 5 feet but no more than 20 feet. 70% ground cover is required. Lincoln County is applying for CREP eligibility where/when applicable.

NR 151.04 Phosphorus Index: Cropland, pastures and winter grazing areas shall average a phosphorus index of 6 or less over the accounting period and may not exceed a phosphorus index of 12 in any individual year within the accounting period.

Conservation practice that will achieve compliance with this standard are: nutrient management plan.

NR 151.05 Manure storage facilities: All livestock producers building new manure storage facilities, substantially altering existing manure storage facilities, or choosing to abandon their manure storage facilities shall comply with this standard. If a facility is altered or built after January 1, 2011 the storage shall be capable of containing the volume of a 25 year, 24 hour storm. Manure storage volume cannot exceed the margin of safety level or Maximum Operating Level (MOL) identified at any time during the year.

Compliance shall be achieved by meeting USDA-NRCS design, construction and maintenance standards for waste storage facility, closure of waste impoundments and manure transfer.

NR 151.055 Process Waste Water Handling: All livestock producers shall comply with this section. There may be no significant discharge of process wastewater, defined by NR 243.03(53) to waters of the state.

Compliance shall be achieved by meeting USDA-NRCS design, construction and maintenance standards for process waste water systems.

NR 151.06 Clean Water Diversions: All livestock producers within a Water Quality Management Area shall divert clean water from feedlots, manure storage areas and barnyard areas. A Water Quality Management Area is: land within 1,000 feet from the ordinary high water mark of a lake, pond or flowage; land within 300 feet from the ordinary high water mark of a navigable stream or river; land susceptible to groundwater contamination or land with potential to be a direct conduit for contamination to reach groundwater

Conservation practices that will achieve compliance with this standard are: diversion; roof runoff system; subsurface drains and underground outlets.

NR 151.07 Nutrient Management: All livestock and crop producers that apply manure, commercial fertilizers and/or other forms of nutrients to agricultural fields shall control nutrient runoff into the waters of the state.

Compliance shall be achieved by implementing a nutrient management plan that meets USDA-NRCS Nutrient Management standard.

NR 151.08 Manure Management Prohibitions: All livestock producers shall comply with no overflow from manure storage facilities, no unconfined manure stacks within Water Quality Management Areas, no direct runoff from feedlots

and manure storage facilities and no unlimited access of livestock to state waters preventing maintenance of adequate sod cover on the shoreland area.

Compliance shall be achieved by meeting USDA-NRCS design, construction and maintenance standards for waste storage facility, closure of waste impoundments and manure transfer, barnyard runoff system, roof runoff system, sediment basin, subsurface drains, underground outlets, wastewater treatment strip, fencing, access road, cattle crossing, livestock watering facility, prescribed grazing.

Identification of Priority Farms: Administrative Code ATCP 50.12(2)(f) requires Lincoln County to identify farms located in the county requiring priority assistance. The Lincoln County Land Services Department (LSD) shall pick priority farms per the following ranking: (1) landowners who allow unfiltered stormwater runoff into state waters; (2) those farms that have converted forested areas into agricultural crop production; (3) newly developed farms, irrigated fields; (4) farms in high nitrate well contamination areas; and (5) Farmland Preservation Program participants that come out of compliance with pollution controls.

Newly converted, irrigated agricultural fields will be another area of focus due to the intensive tillage and crop management that has contributed to wind erosion issue. As per NR 151.09 implementation and enforcement procedures for cropland performance standards the newly converted cropland will require a nutrient management plan which will need to be updated annually to meet compliance standards. Nutrient management plans will also be identified as a priority for CAFO's as developed. CAFO nutrient management plans fall within NR243 for the years manure is applied and then NR 151 Agricultural Performance Standards specifically NR 151.02 and NR 151.07 will be areas of emphasis for the years when manure is not being applied to reduce the impact of nutrients reaching the ground water and surface waters in Lincoln County. High nitrate well contaminations areas will be an area of focus.

Compliance Determination: Lincoln County LSD has established working relationships with agricultural interests throughout Lincoln County. The strength of these relationships in preventing violations is key in compliance determination in Lincoln County.

Complaints filed stating a farm is in violation of the NR 151 Performance Standards will become priority and an on-site visit to determine compliance will occur immediately.

After completing a visit, the producer will receive from the Lincoln County LSD a letter containing the status of compliance, instructions for appeals and suggested measures needed for compliance. Lincoln County LSD goal is to utilize our Global Position System (GPS) to record compliance. The Department staff will record data on the GPS and transfer the data to a geo-database to produce reports and maps.

Utilizing current staff and meeting other department workload demands, we anticipate contacting 50 landowners per year to determine compliance. We estimate it will take 5 years to inventory all the agricultural producers in Lincoln County.

Compliance Assistance: Lincoln County LSD will provide technical and financial assistance to landowners for the purpose of installing hard and soft practices to meet NR151 requirements. Lincoln County LSD will utilize financial assistance from DATCP, WDNR and USDA-NRCS to provide the landowners with an offer of cost-share.

Enforcement: Enforcement will be coordinated with the Wisconsin DNR Non-point Source Coordinator for Lincoln County. A working agreement will be developed with the WDNR to implementation strategies for the performance standards and prohibition implementation to ensure a seamless and efficient approach. This agreement will eliminate duplication of efforts and develop a line of communication for managing violations. If an agricultural producer chooses to remain in noncompliance or refuses financial assistance for compliance, the Lincoln County LSD will forward all violation information to DATCP and WDNR and will notify the agricultural producer that they are subject to an enforcement action pursuant to NR 151.09.

Lincoln County has adopted Animal Waste Management and Stormwater Management Ordinances. The Animal Waste Management Ordinance pertains to NR151.09, NR151.095 and ATCP 50.08. The Stormwater Runoff Ordinance will define the regulation of cropland erosion such as sheet, rill and gully erosion due to concentrated storm events. This ordinance will provide NR151 compliance for NR 151.02 for Sheet, rill and gully erosion. NR 151.03 - tillage setback will be addressed by the Stormwater Runoff Ordinance as well as NR 151.06 clean water diversions.

2010-2016 WORK PLAN ACCOMPLISHMENTS

Chapter 4

This chapter is a summary of how each of the Work Plan goals was accomplished. Actions for each goal are described. Knowing what has occurred helps to determine which actions to continue with when creating the next 10-year Work Plan. Goals are not arranged in importance or priority.

Goal 1: Implement NR151 Agricultural Performance Standards.

Goal was partially met by the Lincoln County Land Services Department (LSD) by completing compliance inventories on agricultural producers located in watersheds that drain to 303(d) water bodies.

Goal 2: Implement Farmland Preservation Program.

Goal was partially met by the Lincoln County Land Services Department (LSD) by completing reviews on all existing participants. New FPP update is in process.

Goal 3: Implement Soil and Water Resource Management Program.

Goal was successfully met by the Lincoln County Land Services Department (LSD) by completing the DATCP annual allocation requesting \$100,000 cost-share annually. While we were never allocated the full amount requested, we successfully entered into cost-share agreements with landowners to spend all our annual cost-share while providing design and installation assistance for conservation practices. Conservation compliance is monitored for the duration of the contracts as required by the WDNR and DATCP. Lincoln County is currently looking into developing a tracking system within the GIS (WEB Map Update) software to ensure conservation compliance is maintained for the duration of the project cost share requirements.

Goal 4: Provide assistance to non-ag. Landowners to install conservation practices.

Goal was successfully met by the Lincoln County Land Services Department (LSD) by providing design assistance to non-agricultural producers located in Lincoln County for shoreland buffer restoration.

Goal 5: Inform contractors, developers and citizens about construction site erosion control.

Goal was successfully met by the Lincoln County Land Services Department (LSD) by completing a Stormwater Runoff Ordinance. The LSD reviewed and issued permits and provided assistance to landowners to correct Stormwater Runoff Ordinance violations.

Goal 6: Control Invasive Species.

Goal was successfully met by the Lincoln County Land Services Department (LSD) who provided a Lake Specialist and Lumberjack RC&D employee who together with others organized and coordinated citizen volunteers on many lakes within Lincoln County and surrounding counties for the purpose of monitoring and controlling aquatic invasive species. Biological methods were established on lakes, while several others were inventoried for the ability to establish biological control methods. WDNR support was provided for technical and financial assistance.

Goal 7: Provide landowners reimbursement for wildlife damage.

Goal was successfully met by the Lincoln County Land Services Department (LSD) by providing assistance and education to 80 landowners. Work with APHIS and WDNR partnership to assist landowners for technical and financial support.

Goal 8: Participate in Lumberjack RC&D.

Lincoln County Land Services Committee participated in just about every Council meeting as the representative for Lincoln County. The County Conservation Program Manager or Lake Specialist participated as the LSD representative for Lincoln County.

Goal 9: Provide educational and information to residents of Lincoln County.

Goal was successfully met by the Lincoln County Land Services Department (LSD) by providing education and information to people while participating in WLWCA, school activities and lake meetings; attending Town and County Board meetings and answering phone calls and walk-in visits.

Goal 10: Minimize impacts of nonmetallic mining reclamation on the natural resources.

Goal was successfully met by the Lincoln County Land Services Department (LSD) by reviewing and issuing 2 new permits while reviewing and renewing 11 permits.

Goal 11: Minimize impacts of animal manure storage on the natural resources.

Goal was successfully met by the Lincoln County Land Services Department (LSD) by completing a revision of the Animal Waste Storage Ordinance in 2010. The Ordinance was renamed Animal Waste Management Ordinance and provided standards for the land application of animal waste for the purpose of providing nutrients to crops.

GOALS, OBJECTIVES, AND BUDGET

Chapter 5

Based upon the resource concerns identified by the Advisory Committee, the goals and objectives were created. Goals & objectives are listed in priority order.

The LWCD along with agency partners will implement the action items listed in the Work Plan as staff and funding become available.

The goals are listed below in order of priority as determined by the Lincoln County Land Services Committee in association with recommendations from the Advisory Committee.

2017-2026 Goals and Objectives:

1. Improve soil health.

Anticipated outcome: Healthy soil continues to produce food and fiber.

Objective:

- Promote soil health activities (e.g. rotational cropping, establishment of shoreland buffers, grazing, improved plant diversity)

2. Protect and improve groundwater quality and surface water quality.

Anticipated outcome: Reduced soil erosion and less nutrient loading of waterbodies.

Objectives:

1. Promote best management practices to restore and maintain riparian habitat.
2. Promote shoreland stewardship.
3. Reduce phosphorus from septic systems.
4. Reduce phosphorus pollution from lawns.
5. Control soil erosion.

3. Control the spread of terrestrial and aquatic invasive species.

Anticipated outcome: Stabilize the current ecosystem from further advancement of non -native species, terrestrial and aquatic.

Objectives:

1. Control terrestrial, non-native, invasive species.
2. Control aquatic, non-native, invasive species.
3. Prevent introduction of new non-native invasive species.

4. Improve forest silviculture for multiple uses.

Anticipated outcome: Maintain a healthy vigorous forest, while also providing for wildlife habitat, water quality, and recreation.

Objectives:

1. Improve forest management to control sediment, erosion and protect habitat cover types.
2. Reduce erosion and habitat degradation caused by trail use.

5. Promote well planned development.

Anticipated outcome: Protect property values of privately owned land in Lincoln County.

Objective:

- Keep the County Comprehensive Plan current.

BUDGET ESTIMATE: An annual estimated budget for the 2017-2026 time frame is outlined here. In estimating the budget, it is presumed that the county will continue to staff the Land Services Department at its current level of 4.5 persons. It is further presumed that DATCP and WDNR will meet their financial obligations for staffing of local conservation personnel and projects.

YEAR	COUNTY	DATCP	WDNR	COST SHARE	TOTAL ESTIMATE
2017	\$81,839	\$53,300	\$0	\$85,000	\$220,139
2018	\$100,000	\$60,000	\$0	\$85,000	\$245,000
2019	\$100,000	\$60,000	\$0	\$85,000	\$245,000
2020	\$100,000	\$60,000	\$0	\$85,000	\$245,000
2021	\$110,000	\$70,000	\$35,000	\$85,000	\$300,000
2022	\$110,000	\$70,000	\$35,000	\$85,000	\$300,000
2023	\$110,000	\$70,000	\$35,000	\$85,000	\$300,000
2024	\$110,000	\$70,000	\$35,000	\$85,000	\$300,000
2025	\$110,000	\$70,000	\$35,000	\$85,000	\$300,000
2026	\$110,000	\$70,000	\$35,000	\$85,000	\$300,000

REGULATIONS

Chapter 6

Regulation Types

Lincoln County has relied on the following State regulations for the protection of natural resources:

- Department of Natural Resources – Chapter 30, Wisconsin Statutes – Navigable Waters.
- Department of Natural Resources – Wisconsin Pollution Discharge Elimination System Permits.
- Department of Natural Resources – Performance Standards - Administrative Code NR 151.
- Department of Natural Resources – NR 216, Stormwater Discharge Permits and Construction Site Erosion Control.
- Department of Agriculture, Trade & Consumer Protection – ATCP 50, Soil and Water Resources Management Program.
- Department of Natural Resources – NR 115.

Local regulations used to protect natural resources in Lincoln County are:

- Animal Waste Management Ordinance(368-2001).
- Stormwater Runoff Ordinance(28-2007).
- Shoreland Protection Ordinance(21-2016).
- Non-Metallic Mining Ordinance(374-2001).

Enforcement Process

A landowner who is out of compliance with state performance standards and prohibitions and refuses technical and financial assistance from the LSD will be notified by mail that they are subject to enforcement actions. A copy of the enforcement letter will be sent to the Department of Agriculture, Trade, and Consumer Protection. Landowners who are in violation of the Lincoln County Ordinances will be notified and informed of the issue and provided technical and financial assistance. If the landowner refuses to cooperate, they shall be referred to Lincoln County Corporation Counsel.

MONITORING AND EVALUATION

Chapter 7

Introduction

This chapter addresses both water quality monitoring and briefly summarizes the plan for progress and evaluating the effectiveness of the LWRM plan.

The Lincoln County LWRM plan is intended to be a working document that will be reviewed annually by the LSC and LSD to track progress in accomplishing the goals and actions of the Work Plan. Monitoring and evaluation of specific resource issues can be accomplished in many different ways. Some of the methods to track the progress of the LWRM plan are:

1. Performance Standards and Prohibitions Monitoring and Evaluation

Ongoing Compliance Monitoring: LSD is committed to assisting landowners with maintaining practices to meet NR151 Performance Standards. Lincoln LSD goal is to monitor 20% of the total number of non-FPP landowners previously determined to be in compliance. Current FPP participants will have status reviews conducted and monitored.

GIS technology will be used as a tool to track and monitor landowner compliance with the performance standards and prohibitions. In addition, all data regarding landowner compliance with the performance standards and prohibitions will be kept in hard copy format in the landowner file.

2. Phosphorus Loading

Nutrient loading can adversely affect water quality by promoting excessive plant and algae growth. In order to reduce nutrient loading by animal waste, all newly installed barnyard systems will be evaluated to ensure compliance with the Wastewater Treatment Strip Standard, which requires phosphorus reduction. The Wastewater Treatment Strip and program spreadsheet will be used to determine compliance with the standard.

3. Nutrient Management

In cooperation with DATCP, Lincoln County will monitor and measure nutrient management progress by tracking nutrient management plan checklists for the acreage with the planner, and by performing periodic plan reviews to monitor compliance with soil test levels. Farmer trainings will be conducted for landowners to develop their own nutrient management plans on the most current SNAP Plus version. One-on-one farmer training will also be conducted to update farmer developed plans.

4. Annual Reporting/Spot checks

As required, Lincoln County will report to DATCP and DNR on progress towards implementation of the performance standards and prohibitions as well as other

soil and water resource activities. In addition, DATCP and NRCS conduct annual engineering and conservation planning spot checks to ensure compliance with all applicable technical standards. If 8 projects are completed in one year then 25% or more of projects completed, or 2 of the 8 projects will be inspected for compliance each year for the maintenance life of the project.

5. Lake Management

Lincoln County LSD Lumberjack RC&D to monitor the presence of AIS within the lakes, assist in developing and updating lake management plans that cover topics such as: aquatic plant management recommendations and goals, AIS determinations, recreational management, shore land and buffer management, educational efforts and other environmental concerns. It also attends RC&D meetings to address lake-related and environmental concerns. LSD performs pre and post evaluations of AIS control measures and assists in developing harvesting maps.

INFORMATION AND EDUCATION STRATEGY

Chapter 8

Information and education strategies are an integral part of this plan and Lincoln County's conservation programs. Educational opportunities for youth and property owners are necessary to heighten awareness about protecting and enhancing the land and water resources they enjoy daily.

Based upon limited success of various educational strategies in the 2007-2011 Work Plan, a different educational strategy will be utilized, such as working with the UW-Extension office to provide articles and promote conservation practices; presenting informational sessions on the local radio station; participating in local lake district/association meetings, watershed group meetings and town meetings to inform them of resources the LSD can provide. The information will explain cost share opportunities that are broadly available to all types of landowners, including hobby farmers and riparian landowners. Newsletters and information packets may be mailed out to those that are interested in environmental issues throughout the county, inserted into widely distributed newspapers, or posted on town bulletin boards and lake organizations web sites. Other possible educational strategies include posting information on the Internet, creating new brochures, holding workshops, continuing group presentations and developing environmental field days for school aged children in the Merrill and Tomahawk School Districts. As plan implementation proceeds and as groups meet to determine how to solve a resource concern, the LSD will further define how to create additional information and education strategies and other public presentations.

There are several additional general activities that are not listed in this Work Plan, but are regularly performed by LSD staff, including: working with Area and State conservation associations to coordinate a multi-County and/or State approach to conservation programming; planning and coordinating the public information and educational programs of the LSD and LWCC, attending and participating in Lumberjack Resource Conservation and Development (RC&D) council meetings; supporting and attending Wisconsin Land & Water Conservation Association (WLWCA) meetings; attending Wisconsin Land and Water Conservation Association (WLWCA) annual conference; participate in Wisconsin River TMDL; attending GrassWorks annual Grazing Conference; attending NRCS trainings and meeting, UWEX, DNR and AIS trainings.

Technical assistance requested by any of these organizations, towns, and lake organizations is provided by LSD when needed.

COORDINATION

Chapter 9

Coordination

The LSD staff seeks input from and works closely with a diverse group of agencies, associations, and organizations involved in resource management and protection in Lincoln County. Federal, State and Local organizations and programs will be utilized to implement the Lincoln Land and Water Resource Management Program. Some organizations and programs provide both technical and financial assistance while others provide only technical assistance or financial assistance. It is the goal of the Lincoln County Land and Water Conservation Department to utilize the following organizations and programs:

Federal Organizations and Programs

USDA - Natural Resources Conservation Service: Works with landowners on private lands to conserve natural resources. Nearly three-fourths of the technical assistance provided by the agency goes to helping farmers and ranchers develop conservation systems uniquely suited to their land and individual ways of doing business. The agency also provides assistance to other private landowners and rural and urban communities to reduce erosion, conserve and protect water, and solve other resource problems. **Lincoln LSD goal is to annually coordinate with NRCS staff for engineering, planning and financial assistance.**

Conservation Compliance Plan: In order to participate in USDA farm programs, Federal law requires that all persons that produce agriculture commodities must protect their highly erodible cropland from excessive erosion. In addition, anyone participating in USDA farm programs must certify that they have not produced crops on converted wetlands and did not convert a wetland.

Conservation Stewardship Program (CSP): The Conservation Stewardship Program (CSP) is a voluntary NRCS program that provides financial and technical assistance for the conservation, protection, and improvement of soil, water, air, energy, plant and animal life, and other conservation purposes on Tribal and private lands. The program provides payments for producers who practice good stewardship on their agricultural lands and incentives for those who want to do more. The program is designed to reward the best conservation stewards of the most environmentally sensitive areas in targeted watersheds. **Lincoln LSD goal is to promote and request on an annual basis a CSP for the Region.**

Conservation Reserve Program (CRP): A voluntary Farm Service Agency program for agricultural landowners. Through CRP, you can receive annual rental payments and cost-share assistance to establish long-term, resource-conserving covers on eligible farmland.

The Environmental Quality Incentives Program (EQIP): A voluntary NRCS conservation program. It supports production agriculture and environmental quality as compatible goals. Through EQIP, farmers may receive financial and technical help with structural and management conservation practices on agricultural land. **Lincoln LSD goal is to utilize EQIP to provide funding for Nutrient Management, Grazing and other Conservation practices. Estimate 3-5 agricultural producers per year to sign up for EQIP.**

Wetlands Reserve Program (WRP): a voluntary NRCS program to restore and protect wetlands on private property. It is an opportunity for landowners to receive financial incentives to restore wetlands that have been drained for agriculture. **Lincoln LSD goal is to utilize WRP to provide funding to restore wetlands on cropland.**

Wildlife Habitat Incentives Program (WHIP) is a voluntary NRCS program for people who want to develop or improve wildlife habitat on private lands. The WHIP Program offers technical and financial assistance to help establish and improve wildlife habitat. **Lincoln LSD goal is to utilize WHIP to provide funding to establish and improve wildlife habitat on private lands.**

U.S. Fish and Wildlife Service: Their mission is, working with others, to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.

Partners for Fish and Wildlife Program: A US Fish and Wildlife Service program that assist in wetland restoration, fish and wildlife habitat improvement and restoration of habitats of special concern. **Lincoln LSD goal is to utilize Partners for Fish and Wildlife Program to provide funding to restore wetlands on cropland, fish and wildlife habitat improvement and trout stream habitat.**

State Organizations and Programs

WI Land+Water (WIL+W): [formerly called: Wisconsin Land & Water Conservation Association (WLWCA)] is a nonprofit organization representing Wisconsin's County Board Land Conservation Committees and Departments. WIL+W assists LWCCs and LSDs with their work to protect and sustain Wisconsin's natural resources through education and governmental interaction." **Lincoln LSD goal is to support WIL+W by paying annual dues with the County Conservation Program Manager serving as a WIL+W Board Advisor. Lincoln County will participate annually in the WIL+W State Conference.**

University of Wisconsin-Extension (UWEX): Through their mission, Access and lifelong learning, all Wisconsin people can access university resources and engage in lifelong learning, wherever they live and work. **Lincoln LSD goal is to utilize University of Wisconsin-Extension staff for educational assistance for nutrient management, grazing education and other agronomic practices.**

Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP): A state agency that inspects and license more than 100,000 businesses and individuals, analyze millions of laboratory samples, conduct hundreds of hearings and investigations, educate businesses and consumers about best practices, adopt rules that have the force of law, and promote Wisconsin agriculture at home and abroad. **Lincoln LSD goal is to utilize DATCP staff for engineering, planning and regulatory assistance.**

Soil and Water Resource Management Program (SWRMP): DATCP is authorized by s. 92.14, Wis. Stats., to award annual grants to eligible county Land & Water Conservation Committees (LWCCs) and other cooperators to support conservation activities. DATCP awards grants to counties to pay for county conservation staff and to finance landowner cost sharing. **Lincoln LSD goal is to contribute tax levy funding approximately equal to the SWRMP funding received for conservation staff and to request \$65,000 per year to finance landowner cost sharing. Lincoln County will allocate cost-share funds based on a policy developed annually by the Land Services Committee.**

Wisconsin Farmland Preservation Program (FPP): Created in 1977, the program preserves agricultural resources by supporting local government efforts to manage growth. Eligible farmland owners receive a state income tax credit. To participate in the program, the county must have an agricultural preservation plan that meets the standards of Chapter 91, Wisconsin Statutes, and has been certified by the state Land and Water Conservation Board (LWCB). **Lincoln LSD goal is to update and maintain its FPP plan as required.**

Wisconsin Department of Natural Resources (WDNR): is dedicated to the preservation, protection, effective management, and maintenance of Wisconsin's natural resources. It is responsible for implementing the laws of the state and, where applicable, the laws of the federal government that protect and enhance the natural resources of our state. **Lincoln LSD goal is to utilize WDNR staff for engineering, planning and regulatory assistance.**

WDNR Aquatic Invasive Species Control Grants: funding for an aquatic invasive species control project for any waters of the state including lakes, rivers, streams and the Great Lakes. **Lincoln LSD goal is to utilize these grants for staff support and to assist with implementing watershed and lake management plans through the Lumberjack RC&D.**

WDNR County Conservation Aids: provides financial assistance to enhance county fish and wildlife programs. **Lincoln LSD goal is to utilize these grants to assist with implementing watershed and lake management plans as appropriate.**

WDNR Nonpoint Targeted Runoff Management Program (TRM): funding up to 70 percent of eligible costs associated with installing Best Management Practices (BMP) to limit or end nonpoint source (run-off) water pollution. **Lincoln LSD goal is to utilize this program to obtain funding to implement NR151 Performance Standards and other nonpoint sources of water pollution.**

WDNR Urban Nonpoint Source and Storm Water Grants (UNPS and SW): funding to improve urban water quality by limiting or ending sources of urban nonpoint source (run-off) pollution. Funded projects are site-specific and targeted to address high-priority problems in urban project areas. **Lincoln LSD goal is to utilize this program to obtain funding to protect shorelines, restore riparian buffers and address storm water runoff.**

WDNR Small and Abandoned Dam Removal Grant Program: funds to remove small or abandoned dams. Small dams are those with a hydraulic height of less than 15 feet and an impoundment of 100 surface acres or less at normal pool. Abandoned dams are those declared abandoned using the process under s. 30121(4), Wis. Stats. The DNR will fund 50% of eligible project costs, with a maximum grant award of \$50,000. Eligible project costs include labor, materials, and equipment directly related to planning the actual removal, the dam removal itself, and the restoration of the impoundment. **Lincoln LSD goal is to utilize this program to provide funding for removing nonfunctioning small dams or dams that have been abandoned or in disrepair in Lincoln County.**

WDNR Wildlife Damage Abatement and Claims Program: funding is available to establish a county-administered wildlife damage abatement and claims program to assist landowners that have excessive levels of agricultural crop damage from deer, bear, geese, wolves, or turkeys. **Lincoln LSD goal is to participate in the program and provide financial assistance to agricultural producers that have excessive levels of agricultural crop damage from wildlife.**

WDNR Wisconsin Forest Landowner Grant Program (WFLGP): funding to assist private landowners protect and enhance woodlands by installing best management practices. Emerald Ash Borer concerns need to be identified and information needs to be passed on to landowner and foresters to reduce the potential of its spread. **Lincoln County LSD goal is to promote the program, direct landowners to the WDNR and provide technical assistance for installing best management practices.**

UW-Extension Lakes/WDNR Citizen Lake Monitoring Program: This program supplies equipment and lab testing for water quality monitoring. Lincoln LSD serves as the coordinator and training of lake citizens on more than 20 lakes in the county on an annual basis. **Lincoln LSD goal is to continue to coordinate and train citizens, using the program's assistance, and to provide technical assistance to the lakes in evaluating lake water quality and taking necessary steps for protection or improvement of the lake water quality.**

Clean Boats, Clean Waters: This program, through UW-Extension Lakes and WDNR, helps in the education about and prevention of aquatic invasive species. Lincoln County LSD provides the training, coordination and information for the paid and volunteer watercraft inspectors on at least 12 lakes in the county with public access. **Lincoln LSD goal is to continue this program, assisting lakes in obtaining funding if necessary, and continuing to train and coordinate.**

Other Organizations and Programs

Lumberjack Resource, Conservation and Development (RC&D): Their mission is to manage natural and human resources in ways consistent with sound conservation principles by working across county lines to address local concerns. **Lincoln LSD goal is to utilize Lumberjack RC&D staff for providing Aquatic Invasive Species technical assistance and grazing resources.**

Lincoln Water Action Volunteer Program: a group of volunteers coordinated by the Lincoln LSD whose purpose is to monitor stream water quality and identify stream protection issues. **Lincoln LSD goal is to create a volunteer network to monitor water quality issues as the Lincoln Water Action Volunteer Program.**

Lincoln County Shoreland Protection: Lincoln County Planning and Zoning Department administers an ordinance that regulates activities within shore lands (areas within 1,000 feet of lakes, ponds, flowages and areas within 300 feet of navigable rivers and streams). **Lincoln LSD goal is to provide technical assistance for installing best management practices for ordinance violations, special exceptions and ordinance variances.**

Lincoln County Animal Waste Management: Lincoln LSD administers an ordinance that regulates the location, design, construction, installation, alteration, operation, maintenance and use of animal waste and manure storage facilities and the application of waste and manure from all storage facilities covered by this ordinance. **Lincoln LSD goal is to administer the ordinance and provide technical assistance to livestock producers who need to comply with the ordinance.**

Lincoln County Nonmetallic Mining Reclamation: Lincoln Planning and Zoning Department administers an ordinance that ensures the effective reclamation of nonmetallic mining sites. **Lincoln LSD goal is to aid in administer the ordinance and provide technical assistance for reclaiming nonmetallic mining sites.**

Erosion Control and Stormwater Management: Is designed to reduce soil erosion, sediment transport, improve water quality and limit the quantity of stormwater runoff. **It is the goal of Lincoln LSD to administer and provide technical assistance for the Stormwater Management Ordinance.**

GLOSSARY

Chapter 10

303(d) Waters – Also called **List of Impaired Waters**. This list identifies waters that are not meeting water quality standards, including both water quality criteria for specific substances or their designated uses. It is used as the basis for development of Total Maximum Daily Loads (TMDLs) under the provisions of section 303(d)(1)(C) of the Clean Water Act, U.S. Environmental Protection Agency (EPA). The EPA requires that the DNR update its list every 2 years.

Animal Waste Management Program – This regulatory program, administered by the DNR via NR 243, seeks to identify and correct animal waste-related water quality problems.

Animal and Plant Health Inspection Service – Wildlife Services (APHIS-WS) – Part of USDA, APHIS-WS provides assistance to manage animal damage.

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

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

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

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 in certain areas of the State.

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.

Cooperator – A landowner or operator who is working with, or has signed a cooperative agreement with, a County LWCC.

County Conservation Program Manager – County Land Services Department employee, responsible for implementing programs assigned to the LSD and for supervising LSD conservation programs.

Critical Sites – Those sites that are significant sources of nonpoint source pollution upon which best management practices shall be implemented as described in s. 281.65(4)(g) 8.am., WI stats.

Crop Consultants (CCA) – Independent Crop Consultants provide services to growers in integrated crop and farm management programs, working directly with farmers, and advising them in areas such as watershed management, integrated nutrient and pest management, and animal waste management. Their primary purpose is implementing scientific and technological advances to enhance environmental sustainability and profitability on clients' farms.

Department of Administration (DOA) – The State agency responsible for establishing the comprehensive planning grant program.

Department of Safety and Professional Services (DSPS) – The State agency responsible for statewide standards for erosion control at building sites, and for private on-site wastewater treatment systems.

Department of Agriculture, Trade, and Consumer Protection (DATCP) – The State agency responsible for establishing Statewide soil and water conservation policies and administering the State's soil and water conservation programs. The DATCP administers State cost-sharing funds for a variety of LWCC operations, including support for staff, materials and conservation practices. Referred to in the LWRM plan guidelines as the “department”.

Department of Natural Resources (DNR) – The State agency responsible for managing State owned lands and protecting public waters. DNR also administers programs to regulate, guide and assist LWCCs, LWCDs and individual land users in managing land, water, fish and wildlife. The DNR administers State cost-sharing funds for priority watershed projects, Targeted Runoff Management (TRM) grants, and Urban Nonpoint Source Construction and Planning grants.

District Conservationist (DC) – NRCS employee responsible for administering federal conservation programs at the local level.

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

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

Farm Service Agency (FSA) – 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, Wisconsin Statutes, that helps preserve farmland through local planning and zoning, promotes soil and water conservation, and provides State tax relief to participating landowners.

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 geographically based data layers improve the ability to analyze complex data for decision making.

Health & Human Services – The Health Department of Lincoln County. This term is used in the Work Plan.

Highway – The Highway Department of Lincoln County. This term used in the Work Plan.

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

ITS – Information Technology Department in Lincoln County. This term used in the Work Plan.

Land and Water Conservation Board (LWCB) – This Statewide board is composed of three local elected officials, four appointed by the Governor (one shall be a resident of a city with a population of 50,000 or more, one shall represent a governmental unit involved in river management, one shall be a farmer, and one shall be a member of a charitable corporation, charitable association or charitable trust) and leaders from DNR, DATCP, and DOA. The LWCB oversees the approval of County land and water management plans (s.92.04, stats.).

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

LSC (Land Services Committee) – The unit of county government empowered, by Chapter 92 of the Wisconsin Statutes, to conserve and protect the County’s soil, water and related natural resources. Referred to in the LWRM guidelines as the “committee.”

Land Services Department (LSD) – The department of county government responsible for administering the conservation programs and policies of the Land and Water Conservation Committee.

List of Impaired Waters – Also called **303(d) Waters**. This list identifies waters that are not meeting water quality standards, including both water quality criteria for specific substances or the designated uses. It is used as the basis for development of Total Maximum Daily Loads (TMDLs) under the provisions of section 303(d)(1)(C) of the Clean Water Act, U.S. Environmental Protection Agency (EPA). The EPA requires that the DNR update its list every 2 years.

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

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

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

North Central Conservancy Trust (NCCT) – The North Central Conservancy Trust is a non-profit organization whose mission is to protect the worthy, scenic, working lands and environmental resources for the benefit of the people of Central Wisconsin. The NCCT is based in Stevens-Point, WI.

NR 151 – DNR’s administrative code that establishes runoff pollution performance standards for non-agricultural facilities and transportation facilities and performance standards and prohibitions for agricultural facilities and practices designed to meet water quality standards.

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

ORW/ERW – DNR classifies streams as Outstanding Resource Waters (ORW) and Exceptional Resource Waters (ERW) as listed in NR 102.10 and NR102.11. ORW waters have excellent water quality and high-quality fisheries and do not receive wastewater discharges. ERW waters have excellent water quality and valued fisheries but may already receive wastewater discharges.

Priority Farms – Farms identified by the County for having excessive runoff from soil erosion, wind erosion and/or manure resulting in existing or potential water quality problems.

RC&D – Resource Conservation and Development. Lincoln County is one of 9 counties in the Lumberjack RC&D Council. This term used in the Work Plan.

Shall – The term “shall” in the guideline represents components of a LWRM plan that are required in law and rule.

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

Soil Loss Tolerance (“T”) – Erosion rate in tons per acre per year of soil that a field could lose and still maintain productivity.

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

Surface Water Integrated Monitoring System (SWIMS) – SWIMS is the WDNR’s repository for water and sediment monitoring data collected for Clean Water Act work and is the source of data sharing through the federal Water Quality Exchange Network.

Technical Advisory Committee (TAC) – Technical Advisory Committee is a person who has technical background related to environmental issues and has volunteered to aid the county in providing input for conservation needs identified in the Land and Water Resources Management Plan.

TIP – Terrestrial Invasive Plants. A term used in the Work Plan.

United States Department of Agriculture (USDA) – Branch of federal government with responsibilities in the areas of food production, inspection, and storage. Agencies with resource conservation programs and responsibilities, such as FSA, NRCS, APHIS-WS, 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.

Water Quality Management Area (WQMA) – The area within 1,000 feet from the ordinary high water mark of navigable waters that consist of a lake, pond or flowage, except that, for a navigable water that is a glacial pothole lake, the term means the area within 1,000 feet from the high water mark of the lake; the area within 300 feet from the ordinary high water mark of navigable waters that consist of a river or stream; and a site that is susceptible to groundwater contamination, or that has the potential to be a direct conduit for contamination to reach groundwater.

Watershed – The geographic area that drains to a particular river, stream, or water body providing its water supply.

Wellness – A county committee that develops, implements, and monitors wellness activities for all of Lincoln County’s government employees. A term used in the Work Plan.

Wetlands Reserve Program (WRP) – A provision of the federal Farm Bill that compensates landowners for voluntarily restoring and protecting wetlands on their property.

Wildlife Habitat Incentives Program (WHIP) – Federal program to help improve wildlife habitat on private lands.

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

Work Plan – A 5-year plan of federal/State/local agency activities based upon Citizens Advisory Committee, and Technical Advisor Committee developed goals, and objectives.

ATTACHMENT A

Impaired Waters List – 303(d) Waters

2016 Impaired Waters in Lincoln County (303D Listed Waters)

LOCAL							
WATERBODY	START	END					
NAME	MILE #	MILE #	COUNTY	POLLUTANT	IMPAIRMENT	STATUS CODE	TMDL PRIORITY
Bass Lake			Lincoln	Mercury	Contaminated Fish Tissue	303d Listed	Low
Deer Lake			Lincoln	Mercury	Contaminated Fish Tissue	303d Listed	Low
				BOD, sediment load (Sediment Oxygen Demand)			
Lake Alice			Lincoln		Low DO	303d Listed	Low
Lake Alice			Lincoln	Mercury	Contaminated Fish Tissue	Pollutant Removed	Delisted 2008
Clara Lake			Lincoln	Mercury	Contaminated Fish Tissue	303d Listed	Low
				BOD, sediment load (Sediment Oxygen Demand)			
Lake Mohawksin			Lincoln		Low DO	303d Listed	Low
Lake Mohawksin			Lincoln	Mercury	Contaminated Fish Tissue	Pollutant Removed	Delisted 2008
Lake Nokomis			Lincoln, One	Mercury	Contaminated Fish Tissue	Water Delisted	Delisted 2010
Pesabic Lake			Lincoln	Mercury	Contaminated Fish Tissue	303d Listed	Low
Long Lake			Lincoln	Mercury	Contaminated Fish Tissue	303d Listed	Low
Merrill Flowage			Lincoln	Unknown Pollutant	Chronic Aquatic Toxicity	303d Listed	Low
Seven Island Lake			Lincoln	Mercury	Contaminated Fish Tissue	Water Delisted	Delisted 2014
Somo Lake			Lincoln	Mercury	Contaminated Fish Tissue	303d Listed	Low
Spirit River Flowage			Lincoln	Mercury	Contaminated Fish Tissue	303d Listed	Low
Spirit River Flowage			Lincoln	Total Phosphorus	Impairment Unknown	TMDL Development	High
Tug Lake			Lincoln	Mercury	Contaminated Fish Tissue	303d Listed	Low
Wisconsin River	268	289.17	Lincoln, Mar	Mercury	Contaminated Fish Tissue	303d Listed	Low
Wisconsin River	268	289.17	Lincoln, Mar	PCBs	Contaminated Fish Tissue	303d Listed	Low
Wisconsin River	289.17	293.67	Lincoln	Unknown Pollutant	Chronic Aquatic Toxicity	303d Listed	Low
				BOD, sediment load (Sediment Oxygen Demand)			
Wisconsin River	304.23	324.68	Lincoln		Low DO	Water Delisted	Delisted 2008
Wisconsin River	304.23	324.68	Lincoln	Mercury	Contaminated Fish Tissue	Water Delisted	Delisted 2008
Wisconsin River	324.68	347.81	Lincoln, One	Mercury	Contaminated Fish Tissue	Water Delisted	Delisted 2008
				BOD, sediment load (Sediment Oxygen Demand)			
Wisconsin River	324.68	347.81	Lincoln, One		Low DO	Water Delisted	Delisted 2008

ATTACHMENT B

Outstanding and Exceptional Resource Waters

LINCOLN COUNTY

<u>Waterbody Name</u>	<u>Portion Within ORW/ERW Classification</u>	<u>Status</u>
Center Fork New Wood Creek	All	ORW
Little Pine Creek	All	ORW
Prairie River	Above Dudley	ORW
Armstrong Creek	All	ERW
Big Cain Creek	All	ERW
Big Pine Creek	All	ERW
Black Alder Creek	All	ERW
Brant Creek	All	ERW
Cain Creek	All	ERW
Camp 26 Creek	All	ERW
Creek 16-1 T32N R7E	All	ERW
Creek 16-2 T32N R7E	All	ERW
Creek 16-4b T32N R7E	All	ERW
Creek 16-4d T32N R7E	All	ERW
Creek 17-7 T32N R7E	All	ERW
Creek 2-12 T31N R5E	All	ERW
Creek 2-5 T33N R7E	All	ERW
Creek 21-15 T35N R8E	All	ERW
E Fork New Wood Creek	All	ERW
Flanigan Creek	All	ERW
Green Meadow Creek	All	ERW
Hay Creek	All	ERW
Joe Snow Creek	All	ERW
Kippenberg Creek	All	ERW
Krueger Creek	All	ERW
Little Cain Creek	All	ERW
Little Oxbo Creek	All	ERW
Little Trappe River	All	ERW
Manacke Creek	All	ERW
N Branch Prairie River	From headwaters to CTH "J" to T33N R8E S19	ERW
Oxbo Creek	All	ERW
Prairie River	Below Dudley	ERW
Prast Creek	All	ERW
Rajek Creek	All	ERW
Ripley Creek	All	ERW
Shea Creek	All	ERW
Spring Creek (S10 T35N R7E)	All	ERW
Spring Creek (S21 T32N R7E)	All	ERW
Squaw Creek	All	ERW
Trout Creek	All	ERW
Wedlers Creek	All	ERW
Wolf Creek	All	ERW

ATTACHMENT C

Public Hearing Notice

ATTACHMENT D

Conservation Practices and Cost-Share Rates

**Lincoln County
Conservation Practices and Cost-Share Rates**

Lincoln County promotes the following practices and maximum cost share rates:

Wisconsin Department of Agriculture Funding: ATCP 50 SWRMP

Practices – ATCP 50.61 through ATCP 50.98

Maximum Cost Share Rates - ATCP 50.42

Wisconsin Department of Natural Resources Lake Protection Grant

Practices – Riparian Buffer, Biological Shoreline Erosion Control Practices, Rain Gardens and necessary storm water conveyance systems.

Maximum Cost Share Rate – 75%

ATTACHMENT E

Watershed Strategies for Improving Impaired Water Quality

This attachment is a placeholder to provide convenient space for plan revision when Lincoln County has determined all nine key elements to solving specific water pollution issues on a watershed basis.

ATTACHMENT F

Notes from Advisory Committee issues and trends development.

**Lincoln County
Land and Water Resource Management Discussion**

A. Are there significant anticipated changes in local land use in the future?

1a. Housing developments coming to Merrill

Hundreds of housing units are anticipated in the Merrill area to serve existing employees that are commuting from out of Lincoln County.

2a. Major employers retaining employees

Merrill area employers are having difficulty finding employees to fill their jobs, and would like to expand their operations if the workforce existed.

3a. Gleason area getting large chicken farm (200 animal units)

This is a large farm for Lincoln County, but does not qualify as a CAFO, because it will be less than 1,000 animal units.

4a. Lincoln Hills School – what is its future?

With all the news about the School, will the facility remain in existence in a decade?

**Lincoln County
Land and Water Resource Management Discussion**

C. What trends exist in farming practices?

- 1c. Less dairy
- 2c. More cash cropping (beans and corn)
- 3c. More small farming
 - CSAs, road side stands, strawberry farm, blueberry farm,
 - bee keepers, flowers
 - sugar bush, with a major supply store just north of Merrill
- 4c. Cranberries – not expanding, but farming remaining constant
- 5c. Over half of farmers are employed off the farm
- 6c. Average age of farmer is 57
- 7c. Much less farming

**Lincoln County
Land and Water Resource Management Discussion**

C. What trends exist in forestry management?

- 1c. Standing timber is cut for pulp wood in Lincoln County
- 2c. Parcelization is an issue; parcels less than 10 acres are out of production
 - 10 acres is necessary for timber clear cutting
 - 15-20 acres needed for timber thinning
- 3c. Terrestrial invasives (e.g. plants, bugs, disease, & fungus)
 - affect season of timber harvest, reduces when you can cut
 - human, economic, and environmental health are affected
- 4c. Deer
 - deer are increasing in part due to lower hunting pressure.
 - general decline in the number of loggers.
- 5c. Harvesting is reduced when soil does not freeze
- 6c. Lincoln County has one of the highest amounts of non-commercial forest MFL enrollments; and has the highest amount of open designated land overall.

**Lincoln County
Land and Water Resource Management Discussion**

D. What issues and/or concerns do you have regarding the above trends (see “A” and “C”) and how they may affect land & water resources?

- 1d. Water quality decreasing
 - aquatic invasive species
 - algae growth
- 2d. Wisconsin River TMDL for phosphorus
- 3d. Access to local non-metallic mining needs to be maintained

Other Trends happening in Lincoln County (not good or bad)

- 4d. County is aging.
- 5d. Retirees continue to move into Lincoln County (from Chicagoland and Milwaukee areas) and create their own rural home.
- 6d. Conservation work (e.g. removing invasives from forests, and grazing) will improve soil and water quality (USDA-NRCS addition)

**Lincoln County
Land and Water Resource Management Plan**

Goals / Priorities

As identified by the Advisory Committee

- A. Water quality
- B. Land use balance, farmer / *rural* homeowner *interests*
- C. Blight elimination *in rural areas*
- D. Terrestrial invasives
- E. *Aquatic invasives* (NCWRPC addition)
- F. *Conservation education & outreach* (USDA-NRCS addition)
- G. *On-farm conservation planning* (USDA-NRCS addition)
- H. *Evaluating & improving awareness and management of woodlots*
(USDA-NRCS addition)
- I. *Promoting soil health activities*
(USDA-NRCS addition)
- J. *Supporting all conservation activities to improve soil & water quality*
(USDA-NRCS addition)

