

**CLARK COUNTY
LAND & WATER RESOURCE
MANAGEMENT PLAN 2020-2029**



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Plan Summary

In 1997, Wisconsin act 27, chapter 92.10 of the Wisconsin Statutes was amended, creating a county land and water resource management planning program. The law has required each county to have a land and water resource management plan (LWRM) which the Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP) approves. The intent of the law was to give each county a sense of direction for protecting the land and water resources and a mechanism for stream-lining, improving decision-making, and making better use of local, state, and federal funds. The Land and Water Conservation Board reviews plans and recommends action to DATCP. The board approves plans for a ten-year period, with a review by the board in year five. Clark County drafted its last LWRM plan for the period of 2012-2017. The board granted Clark County an extension to 2019.

The goals and objectives in the Clark County LWRM plan reflect the current and potential conservation issues the county is and will be facing for the next ten years. The LWRM plan needs to take into account more than just environmental issues in the county; it also needs to take into account the trends, climate, economy, and the communities that make up the county. Clark County is home to several diverse communities including a growing Amish and Mennonite community that includes a significant population of the so-called “English” residing within it. Also, intertwined within agriculture production are important manufacturing industries. All of these will need to work together if the county is to realize the goals set forth in the LWRM plan.

Like any government agency, the Land Conservation Department is limited in staff, resources, and money. Much of the funding the department receives comes through DATCP and includes staff support and cost sharing for projects. Over the last 15 years, the state’s budget allocations have undergone reprioritization, and conservation departments have had to do more with less staff support and less money for projects. With that said, the LWRM is the plan for the next ten years, and whether it can follow and meet its goals can sometimes be dependent on things outside of the department’s or county’s control.

Information in the LWRM plan is a combination of both historical and current sources. This plan relies heavily on outside professionals from the Wisconsin Department of Natural Resources (DNR), University of Wisconsin-Extension (UW-Extension), and USDA Natural Resources Conservation Service (NRCS)-Technical Advisory Council (TAC). In addition, the public was encouraged to voice their opinions and recommendations in a mailed survey and through the Citizens Advisory Council (CAC). The idea of the LWRM plan is not to make management of the county’s resources so restrictive that we run businesses and farmers out of the county. The idea is to work with these entities on how to use the best technologies and practices currently available that will protect and improve the natural resources in the county, while at the same making it economically viable for businesses to survive. For example, ten years ago, most farmers had not heard of cover crops. Now, it is the buzzword in the conservation world. It takes time for farmers to adopt new technologies and ideas. The Land Conservation Department’s responsibility is not only to enforce ordinances but also to educate and encourage Best Management Practices (BMPs) that save soil and protect water resources.

Over the last 30 years, significant changes have occurred that have an impact on soil resources in the county. In 1992, farmers grew only 4,844 acres of soybeans in Clark County; in 2012, there

were 45,485 soybean acres, and the trend is continuing upward. Unless managed correctly, soybeans will allow the soil to be more prone to erosion. In 1992, Clark County did not have any 1,000-cow dairies; we now have several, and before long, we may have a 5,000-cow herd. Large poultry and hog operations were non-existent in Clark County in the past, while today there are several. Managing the volumes of manure generated by these large operations is going to be crucial to protecting surface and groundwater in Clark County.

Land Conservation Committee

Fritz Garbisch - Committee Chair
Bryce Luchterhand – Supervisor
Dan Clough - Supervisor
Marty Nigon - FSA Representative
Don Koerner - Citizen-At-Large

Land Conservation Staff

Jim Arch – County Conservationist
Sheri Denowski - Conservation Engineer
Amanda Kasparek - Conservation Agronomist
Shirley Iwanski - Conservation Program Assistant

Advisory Committees & Partners

Land & Water Resource Management Plan Technical Advisory Committees

Andrew Craig - DNR Water Resource Management Specialist
Richard Halopka – UW-Extension Ag Agent
Mark Hazuga - DNR Natural Resource Supervisor
David Hon - DNR Water Regulations and Zoning
Terry Kafka - DNR Runoff Specialist
Jodi Lepsch - DNR Lake Biologist
Deb Marg - County FSA Director
Carrie Morrell - County Planning & Zoning GIS Specialist
Jane Reigel - NRCS County District Conservationist
John Wendorski - County Parks & Forestry
Derek Weyer - County Planning & Zoning Director
Chris Willger - DNR Water Quality Biologist

Land & Water Resource Management Plan Citizen Advisory Committee

Dan Clough - Land Conservation Committee
Matt Grajkowski - Town of Reseburg Chairman
Ralph Johnson - Lake Arbutus Association Member
Enos Martin – Mennonite Dairy Farmer
Josh Meissner – CAFO Dairy Farmer
Bryce Luchterhand - Land Conservation Committee
Art Petke.- Grain Farmer
Darla Sikora - Ag Lender
Eric Totzke - Sportsman Club President
Amos Yoder - Amish Dairy Farmer
Sylvia Oberle - Citizen

Mapping Preparation

Carrie Morrell – County Planning and Zoning Department

Other

Maggie Denowski – Editor

Chapter 1: Introduction

Background

Work on the county LWRM plan began in the spring of 2018. In keeping with the guidelines set forth by DATCP, the LWRM Plan needed to incorporate the advice from a Technical Advisory Committee that was made of professionals from the DNR, NRCS, UW-Extension, Forestry, Planning, and Zoning; and USDA-Farm Services Agency (FSA). The second Advisory Committee was a Citizens Advisory Committee that was made of farmers, lake association members, a town chairman, Land Conservation Committee members, concerned citizens, a banking official, and Sportsman Club President. The committees met separately three times spread out over 1 1/2 years. The Advisory Committee held its first meeting in the spring of 2018, and held its second meeting in the fall of 2018. The Advisory Committee held its final meeting in the spring of 2019 to review the LWRM Plan draft and make recommendations.

Public Participation

In June of 2018, Land Conservation mailed the Opinion Survey out to 1,571 persons, and 207 responded for a 14% return rate. During the 2019 June Land Conservation Committee meeting, the Land Conservation Committee had an opportunity to review the draft of the LWRM Plan and provide feedback and recommendations to the County Conservationist. In October 2019, Clark County Land Conservationist and Land Conservation Committee Head presented the LWRM Plan to the Land and Water Conservation Board for approval.

Relationship to Other Plans

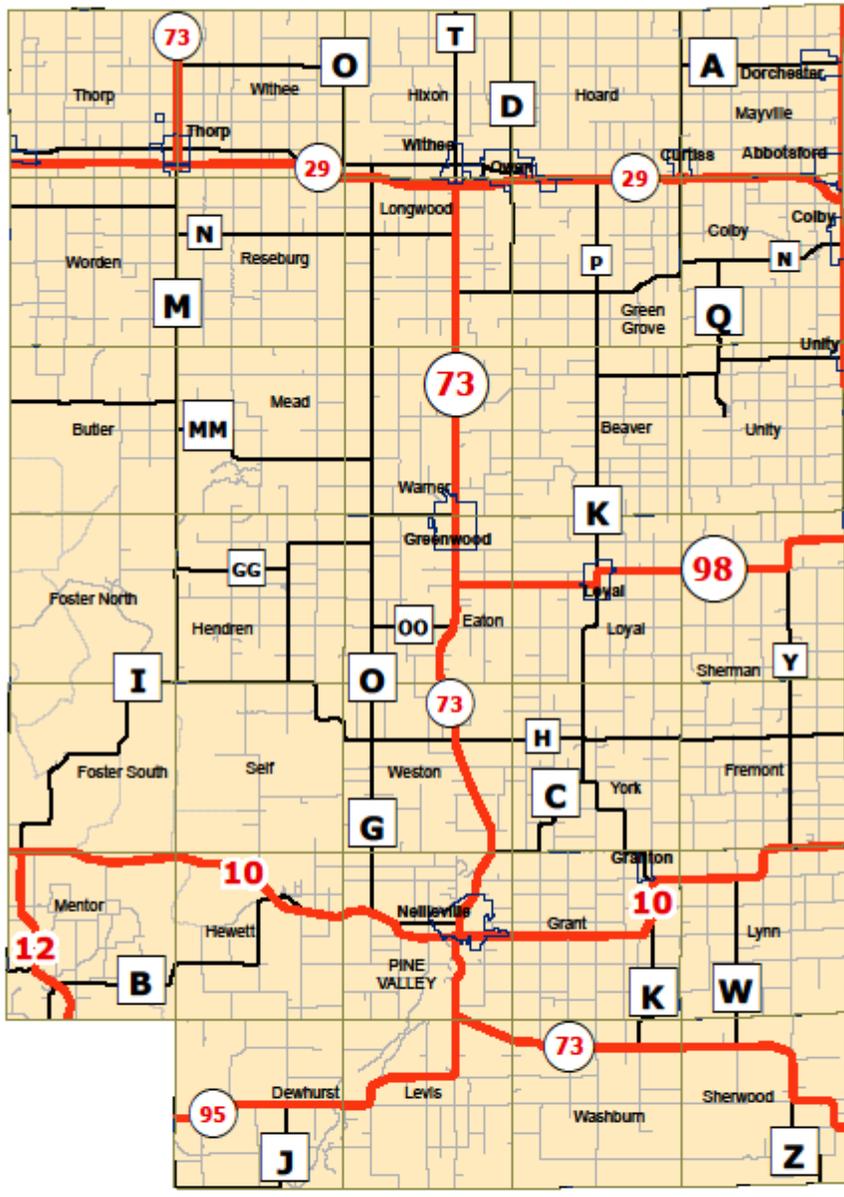
Clark County used information from other plans and a variety of sources in the writing of LWRM Plan: including prior completed county LWRM Plans, The Mead Lake TMDL (Total Maximum Daily Load), Lake Management Plans, Eau Claire River Watershed Nine Key Element Plan, and the Clark County Farmland Preservation Plan and Clark County Outdoor Recreation Plan.

County Approval

The Clark County Land Conservation Committee held a public hearing on the Clark County LWRM plan on August 15th, 2019. The Clark County Board of Supervisors reviewed and approved the Clark County Land and Water Resource Management Plan in November, 2019.

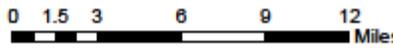
Chapter 2: *County Characteristics*

Map 1 Transportation



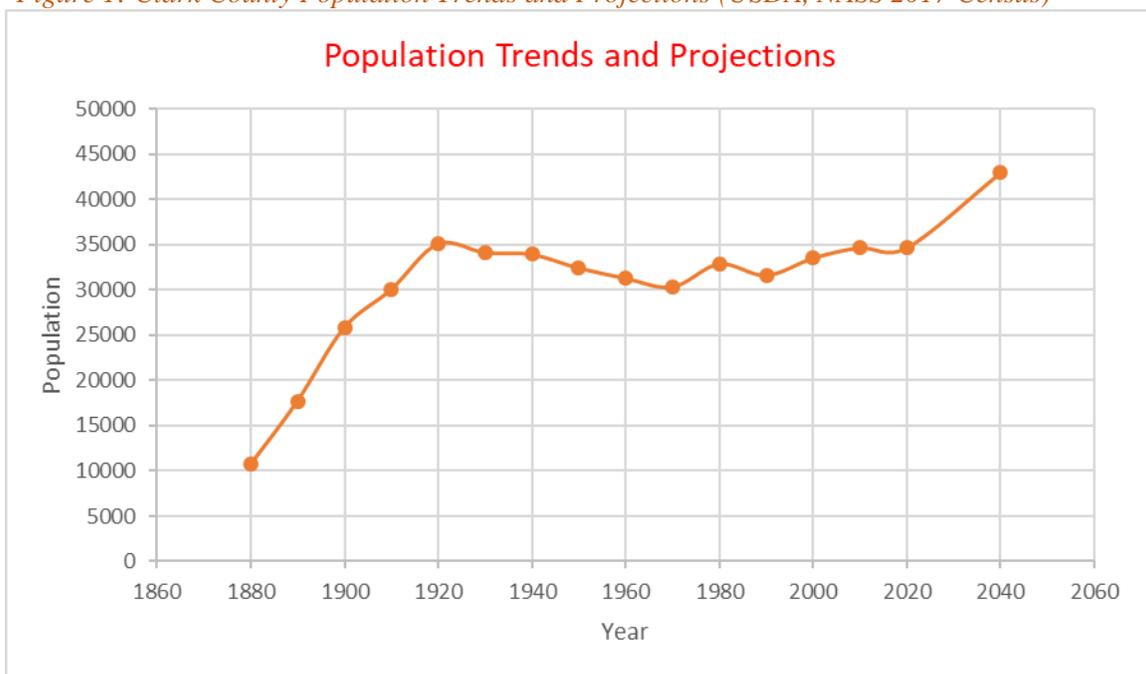
Clark County Land & Water Resource Management Plan

- | | |
|-------------------------|----------------------|
| Township Boundary | Federal or State Hwy |
| City & Village Boundary | County Rd |
| County Boundary | Forest Rd |
| | Town Rd |



Clark County is in Central Wisconsin. It has a total land area of 777,600 acres. The county has a north-south length of 42 miles and an east-west width of 30 miles. Taylor County borders Clark County on the North, on the East by Marathon County, on the South by Jackson County, and on the West by Jackson, Eau Claire, and Chippewa Counties. The county divides into 33 towns, 5 villages, and 8 cities. Neillsville is the County Seat of Clark County, has a population of 2,463, and is the largest city in Clark County. The total Clark County population, according to the 2017 census, is 34,679 and has remained mostly stable over the last nine years. Clark County is projected to have a strong natural increase in population from 2020 – 2040. At approximately 28.7 persons per square mile on average, Clark County is quite rural, with about 65 percent of the county’s population residing in unincorporated towns. For the past 40 years, the villages have been the fastest growing municipalities in the county. However, over the past decade, the unincorporated towns have been growing fastest, and statistics predict this trend to continue based on the State of Wisconsin official projections. About 44 percent of the county’s population is located within six miles of State Highway 29 in the northern part of the county, though this area only represents about 30 percent of the county’s total area.

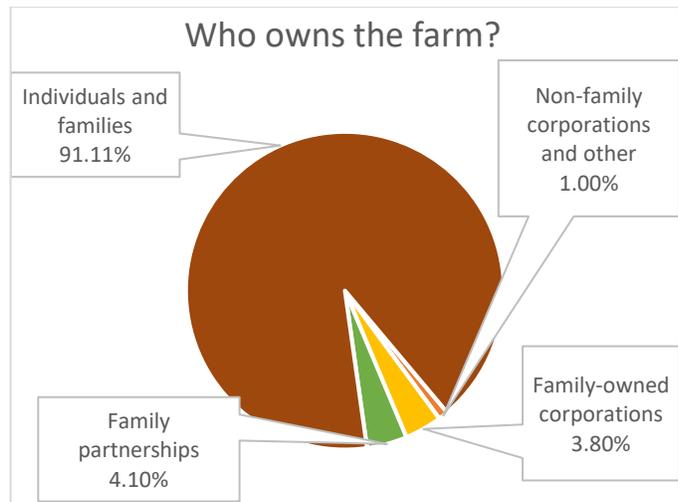
Figure 1: Clark County Population Trends and Projections (USDA, NASS 2017 Census)



The economy in Clark County revolves around agriculture, with dairy being the most significant. In recent years, the trend has been that circumstances eliminate smaller dairy farms from the landscape as older farmers retire with no heirs willing to take over the operation. The larger dairy farms and grain farms bring up or rent acres from some of these smaller farms.

However, family farms are still the norm in Clark County, with an average herd size being 80 cows. Amish, Mennonite, German Baptist, and Dutch farmers make up a large proportion of the dairy farms in the county. Clark County leads the state in milk production, the number of dairy cows, and the number of dairy farms. Clark County ranks among the top 20 dairy-producing counties in the nation. Having 15 processing plants, 5 feed suppliers, 3 milking equipment dealers, and a host of other support industries, Clark County boasts an unparalleled infrastructure for dairy farming. Clark County farmers own and manage 458,221 acres, or 58.6 percent, of the county's land. This includes cropland, rangeland, pasture, tree farms, and farm forests. According to 2014 University of Wisconsin-Extension data, agriculture in Clark County accounts for \$2 billion in economic activity, supplies 8,446 jobs or 46.7 percent of the county's workforce, and contributes \$581 million to the county's total income.

Figure 2: Farm Ownership in Clark County



Clark County is in two physiographic regions. About 95 percent of the county is in the Central Plain region, and the rest is in the Northern Highland region (Finley, 1965). The Northern Highland region makes up a narrow strip in the northern and northeastern parts of the county along the Taylor and Marathon County lines. The Central Plain region makes up the rest of the county.

Cambrian sandstone underlays the Central Plain. South of Neillsville and in the Southwestern part of the county, the Central Plain is mostly driftless, and thus the sandstone is near the surface. The landscape is mostly level and gently sloping and has many wet areas and some sandstone mounds or monadnocks (isolated mountains) that range from a few feet to several hundred feet above the plain. Along the Black River, the underlying Precambrian igneous and metamorphic rocks expose themselves where the Cambrian sandstone has eroded away. North of Neillsville, the Central Plain consists mostly of glacial drift over Cambrian sandstone. The landscape consists mainly of level and gently sloping ground moraine with many areas of moderately well-drained and somewhat poorly-drained soils and a few monadnocks.

The Northern Highland region is an asymmetrical dome dominated by Precambrian igneous and metamorphic bedrock. In most places, glacial drift overlies the bedrock. The landscape is mostly a level or gently-sloping ground moraine.

Relief in Clark County is the result of glacial processes on the bedrock. The highest elevation, 1,460 feet, is northeast of Dorchester in the northeast corner of the county. The lowest elevation, about 883 feet, is along the shore of Lake Arbutus in the southwestern part of the county. Most of the county ranges from about 1,100 to 1,200 feet in elevation. Local differences in elevation are generally less than 100 feet. The greatest local difference in elevation is between the top of Bruce Mound (1,355 feet) and the nearby shore of Lake Arbutus (about 883 feet).

Most of Clark County is in the Black River drainage basin. The Black River flows south through the central part of the county and is part of the Mississippi River drainage system. The northwestern and west-central parts of the county drain to the Eau Claire River, which is part of the Chippewa River drainage system. The Eau Pleine and Yellow Rivers drain the Eastern edges of the county, which are part of the Wisconsin River drainage system.

History and Development

The area now known as Clark County was common ground for the Chippewa, Menomonie, Winnebago, and Sioux Indians. By 1837, all Indian Lands had ceded to the United States. In the mid 1800's, logging and lumber-making activities within the present-day boundaries of Clark County were started by the Mormons, in part due to the abundance of White Pine along the Black River. As logging grew, others joined in the activity, and it remained popular until the turn of the 19th century, when they logged off most of the prime pine. In 1853, Clark County was created from part of Jackson County and was given its name in the honor of General George Rogers Clark of Revolutionary War fame. The railroads that began in the mid-late 1800s hastened the development of the county. European immigrants started many of the farms in the early 1900s. Many bought the land unseen and were disappointed when they saw the condition of the land they purchased.

Through the hard work of these immigrants, a good portion of the land was cleared and broken for farming. Some of the land that was broken was marginal at best for farming and eventually was abandoned and converted back into wilderness. Cheese factories sprouted up every couple of miles, because in the early days of the county, roads and transportation modes were very limited, and the fresh milk needed to be turned into cheese before it could spoil.

Natural Settings

Clark County has a rolling topography. The county splits pretty much down the center by the Black River, which runs the entire length, North to South. The Black River starts up in Taylor County and eventually meets up with the Mississippi River in La Crosse, WI. The Black River is the largest watershed in the county. The county has a mix of wood lots and cropland that are scattered throughout the county. A large portion of the County Forest is located in the southwest quarter of Clark County. Much of the soil in this area is on the lighter side and is better suited to growing

Logging in Clark County, circa 1890s



Clark County Historical Society

Threshing oats circa 1930s



Clark County Historical Society

pine, with higher ground able to support oak, poplar, and ash. This County Forest area is very popular with hunters, horseback riders, and ATV and Snowmobiling enthusiasts. In addition, Bruce Mound in the southwest corner of the county offers excellent skiing and tubing at affordable rates.

The county relies on the County Forest for managing the county's budget through timber sales.

Clark County has six man-made lakes: Snyder Lake six miles west of Neillsville, Sherwood Lake in the southeast corner of the county, Sportsman Lake in the northern part, Rock Dam Lake and Mead Lake in the western part, and a portion of Lake Arbutus in the south. These lakes provide excellent opportunities for water recreation and fishing year-round.



Vic Staut Aerial Photography

Climate

The climate in Clark County classifies as mid-latitude continental. Warm, humid summers and cold, snowy winters are the main characteristics (*Clark County Outdoor Recreation Plan*). At the NOAA weather station in Neillsville, the average monthly temperature since 1990 ranges from 14.6 degrees Fahrenheit in January to 68.1 degrees Fahrenheit in July. Annual precipitation averages 31 to 34 inches, with the wettest months—May through September—averaging between 3.8 to 4.8 inches. Seasonal snowfall averages 40.6 inches but can vary dramatically from year to year, with a 73-inch snow depth being the deepest ever recorded in 1901, followed by 44 inches in 1971.

Clark County in general is experiencing warmer winters that can lead to less precipitation in the form of snow and more falling as rain or sleet. Weather experts predict that the weather in WI will become wetter over the next decades; this may relate to the phenomenon known as Global Warming. This could have a negative impact on crops and forests, as the cold is less likely to kill off pests. In addition, winter recreation activities could suffer in the county, as snowmobiling and skiing require having several inches of snow for the majority of the winter.

In the last few years, Clark County has also been experiencing an increase in flash rain events, which have dumped several inches of rain in very short periods of time. This can have significant implications for soil conservation, causing severe gully erosion and sheet erosion. Sometimes these rain events occur early in the growing season when fields are devoid of vegetation from tillage and planting. Flash rain events of this magnitude and timing can cause catastrophic soil erosion and nutrient runoff that can have detrimental effects on surface water quality. Clark County anticipates increased frequency of flash rain events in future years.

The average relative humidity in midafternoon in Clark County is 60 percent. Humidity is higher at night, and the average at dawn is about 80 percent. The sun shines about 60 percent of the time possible in summer and in winter. The average wind-speed is generally highest in the spring, at 11 miles per hour.

The median first frost period in Clark County is around October 2nd. The median last frost period in the county is around May 6th. Soils occasionally freeze to a depth of several feet when very cold weather occurs before the snow (appreciably) covers the ground. More typically, however, the soil freezes only in the top few inches, except where snow has been removed.

Growing degree units are shown in table 2. They are equivalent to “heat units.” During each month, growing-degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in the spring and the first freeze in the fall.

Table 2: Growing degree Units in Clark County (Clark County Soil Survey, 1993)

Element	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
GDD Base 40	0	2	29	186	461	732	877	817	530	225	37	2	3898
GDD Base 45	0	0	13	105	317	582	722	662	386	128	15	1	2931
GDD Base 50	0	0	5	50	192	434	567	507	253	63	5	0	2076
GDD Base 60	0	0	0	7	40	168	262	210	68	8	0	0	764
MGDD* Base 50	0	1	24	133	287	458	568	520	323	141	23	1	2480

*Modified Growing Degree Days: Base 50 Ceiling 86.

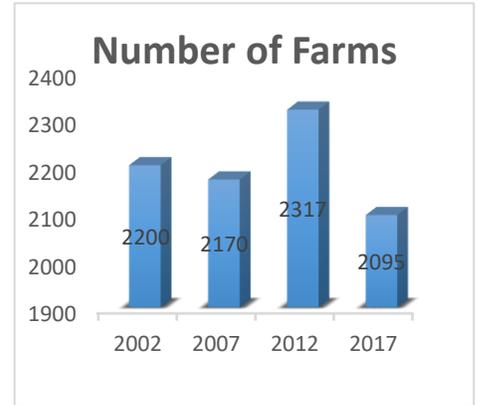
Land Use and Trends

Clark County has been and will remain a major player in agriculture in the state. According to the National Agricultural Statistics Service (NASS) 2017 Ag Census (the most recent available), the value of agricultural products sold from Clark County was \$404,103,000. That is a 1% increase over the 2012 numbers. The census definition of a farm is any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year.

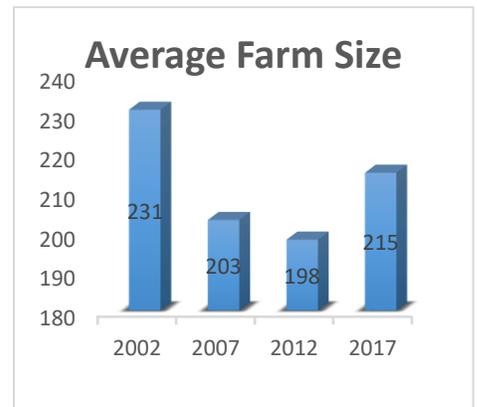
Clark County ranks fourth in the state in the total value of all agricultural products sold. Based on acres grown, Clark County ranks number eight in hay forage production, number twenty in corn production, number six in oats for grain production, and number twelve for soybean production. Clark County is number two in milk production in the state.

Clark County has suitable soils and climate for growing grains and forages. Because it lacks the growing degree days of southern counties, the cost per acre of agricultural land in Clark County has not yet risen to the levels seen in other parts of the state. The Ag Census from 2017 states that 41.9% of Clark County is cropland and 7.2% is pastureland. According to the NASS statistics, in 2017, the average price of agricultural land in Clark County sold for \$5,234 per acre, while at the same time in Dane County, WI, the average was \$12,507 per acre.

The current bear market that has been affecting milk and grain prices the last several years could have a significant impact on agriculture in the Clark County, as it will on other Counties. It is hard to predict what prices farmers will receive for their products in the next ten years. The prices farmers receive is dependent on geo-political decisions, weather, and consumer choices. The only certainty is that prices will continue to be cyclical as they have been in the past.



USDA NASS Census Report

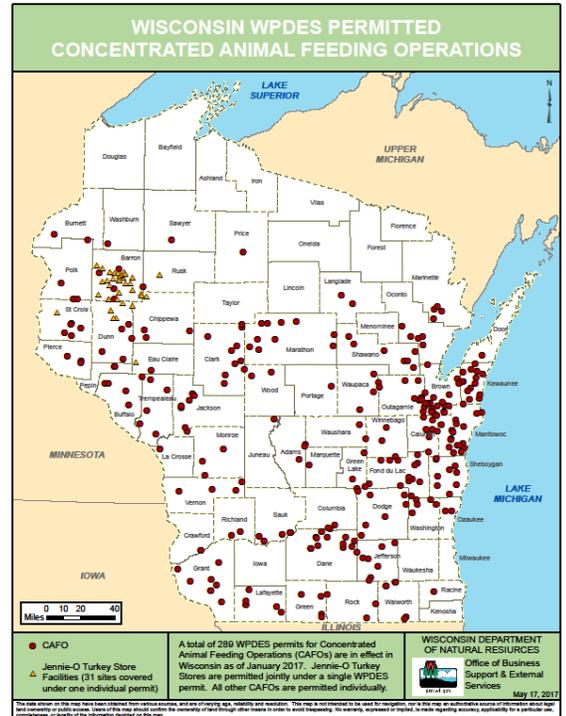


USDA NASS Report

Table 3. Changes in crop acres for Clark County-USDA NASS Report

Year	Acres				
	Corn Grain	Corn Silage	Soybeans	Oats	Hay
1992	44,802	41,220	4,844	17,434	135,662
1997	59,499	30,531	11,753	12,649	141,297
2002	62,560	31,135	26,994	10,366	133,795
2007	69,621	34,131	29,484	8,419	120,340
2012	76,552	51,962	45,485	9,187	104,220
2017	63,646	50,900	65,625	5,802	103,434

According to the USDA Census taken every five years, in 2017, Clark County had 9,680 more acres of corn silage and 60,781 more acres of soybeans planted than it did in 1992. Having more row crops usually results in more erosion on cropland unless soil conservation practices are implemented. It will be imperative with the level of agriculture in Clark County presently and in the future that conservation measures are used to protect the soil from erosion, thus protecting ground and surface waters and wetlands. Nutrient Management, no-tilling, and cover cropping are practices the Clark County Land Conservation Department is already promoting through cost sharing and farmer meetings. There is a growing interest among farmers, especially the younger ones, in dabbling in reduced or no-till planting and cover cropping. If these practices can improve a farmer's return on investment (ROI), then they should become popular in the county.



Clark County does have a growing number of larger dairy farms. The county currently has 10 permitted Concentrated Animal Feeding Operations (CAFO). As defined by the United States Department of Agriculture (USDA), a CAFO is a confinement-raised animal farm that has over 1000 "animal units" confined for over 45 days a year. An animal unit is not a 1:1 number; for instance, an adult dairy cow is 1.4 animal units, while a calf under 400 lbs. is 0.2 animal units. Several dairy farms in Clark County are close to CAFO numbers, but for a number of reasons, they have decided not to exceed 1,000 animal units.

In the 25 years between 1992 and 2017, Clark County lost 36% of its dairy farms, while milk cow numbers during that same period have increased almost 11% according to the USDA Census.

Table 4. Changes in Milk Cows & Dairy Farms-USDA NASS Report

Year	Dairy Herds	Milk Cows
1992	1,302	59,518
1997	1,119	59,752
2002	1,088	63,306
2007	995	64,438
2012	948	71,641
2017	830	66,655

In 2016, a large out-of-state hog operation began building farrowing and nursing operations in the county. Currently, there is only one farrowing and nursing barn, but the operation constructed

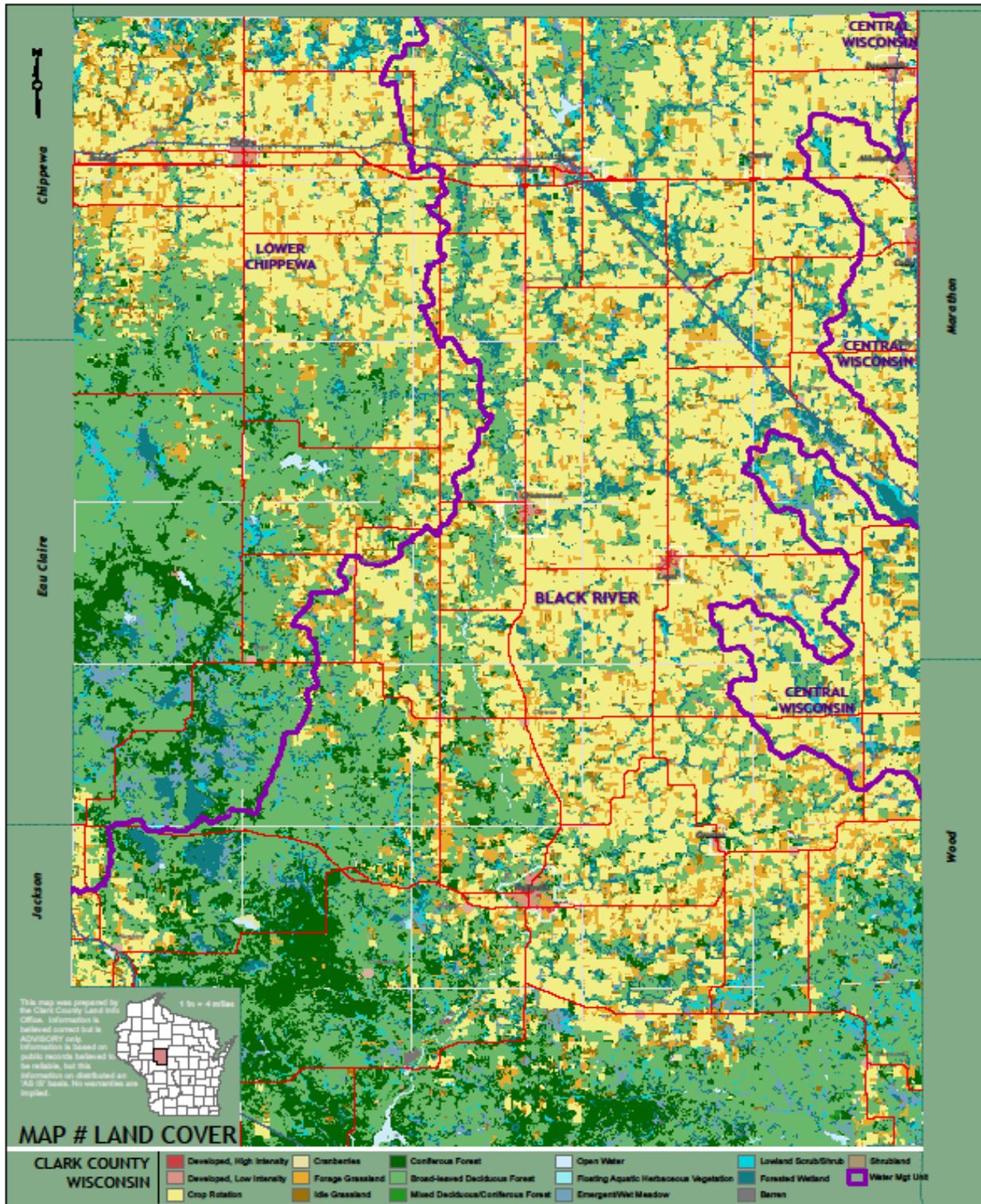
several finishing barns to raise the piglets from the farrowing and nursing barn. These finishing barns generally have 2,200 finishing pigs and are just below animal unit numbers that would require becoming a permitted CAFO Farm. In addition, several large poultry egg-laying operations have been built in the last couple of years. These poultry operations generally have around 25,000 birds or 250 animal units.

Industrial Hemp is a crop that has recently gained interest. Industrial Hemp thrived throughout the state until 1948 when lawmakers banned the crop because it looked very similar to its cousin, marijuana. In 2018, lawmakers again legalized the growing of Industrial Hemp, but only under strict regulation by the state. Growing industrial hemp requires a license; it also requires a yet-to-be-defined market. Throughout the state, Industrial Hemp has generated a lot of interest, as farmers are looking to diversify from growing soybeans and corn. Predictions are unclear as to whether Industrial Hemp has any promise, but one thing is sure: it will take a number of years before Industrial Hemp will supplant corn or soybean acres.

Land Cover

The two most prevalent land uses in Clark County are agriculture and forest. Forest and wetlands dominate much of the southern and western parts of Clark County, while agriculture is the dominant land use elsewhere in Clark County. According to the 2016 Clark County Outdoor Recreation Plan, the county considers almost 64 percent of the assessed agricultural, and 21 percent forest. Land assessed as “undeveloped” accounts for another 11 percent of the assessed land. In all, Clark County assessed over 566,000 acres for property tax purposes. This leaves about 210,000 acres of non-taxable lands, which include government-owned properties, certain charities and non-profit institutions, certain utilities, and public surface waters. The largest part of the non-taxed acreage is the over 135,000 acres of public resource lands, mostly in County Forest. When including public natural resource lands, over 90 percent of Clark County is agricultural, forest, wetlands, surface waters, or otherwise undeveloped.

Map 2: Land Cover in Clark County



Non-Metallic Mines

Nonmetallic mining is the extraction of stone, sand, rock, or similar materials from natural deposits. The most common examples of nonmetallic mines are quarries and pits. Non-Metallic mines support a number of industries in Clark County and out of the state:

- aggregate for construction
- gravel and crushed stone for road construction
- industrial sand for export out of state for the oil industry
- Sand that is used for bedding dairy cattle

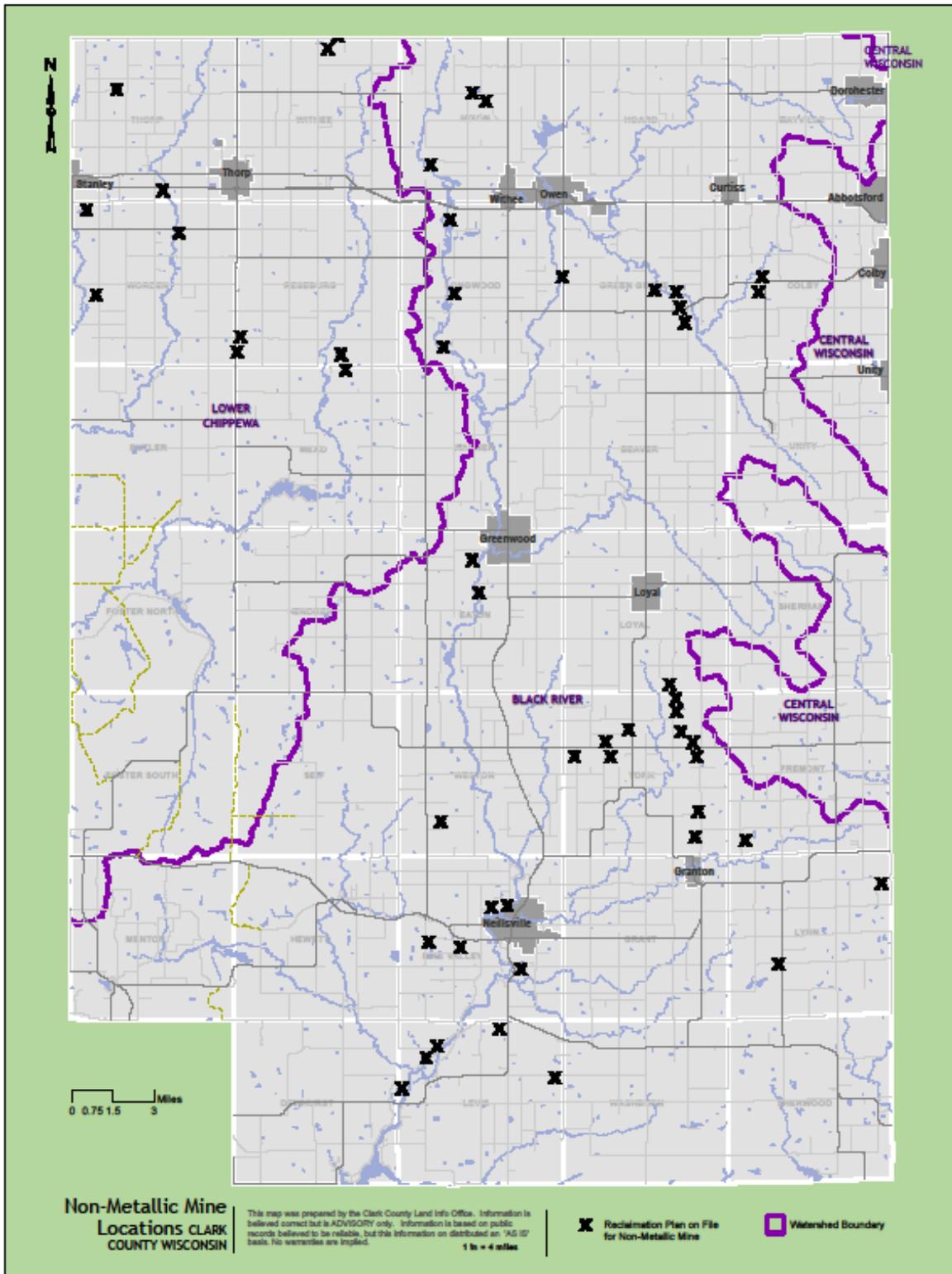
Nonmetallic mining does not include extraction of metallic mineral deposits containing metals such as copper, lead, or zinc. Currently, Clark County does no metallic mining.

Clark County currently has 50 registered non-metallic mines throughout the county. Clark County Planning and Zoning and Wisconsin Department of Natural Resources (WDNR) provide oversight of these mines to make sure they are consistent with NR135 and NR340 statutes.

All mines in Clark County need to have a Reclamation plan for post mine activities. Reclamation Plans protect the environment through reduced soil erosion, improved wildlife habitat, the allowance of productive end land uses, and the potential to increase land values and tax revenues. The statewide reclamation standards are performance-based rather than prescriptive, and they address the salvage and protection of topsoil, revegetation and other site stabilization methods, and control of erosion.

The WDNR Storm Water Management Program may require mine operations to have Wisconsin Pollution Discharge Elimination Systems (WPDES) permits. Some mining operations will need to obtain air permits from the DNR Air Management Program as well.

Map 3: Non-Metallic Mines in Clark County



Nutrient Management Planning

Nutrient management refers to the use of manure and other fertilizers to meet crop nutrient needs while reducing the potential for these nutrients to run off fields into lakes, streams, and groundwater. It helps assure that crops receive the correct amount of nutrients -- nitrogen, phosphorus, and potassium, often referred to as N-P-K at the right time and place. This benefits the farmer by improving crop yields and reducing costs, and it benefits the environment by keeping nutrients on fields and preventing them from running off into streams or leaching down into groundwater.

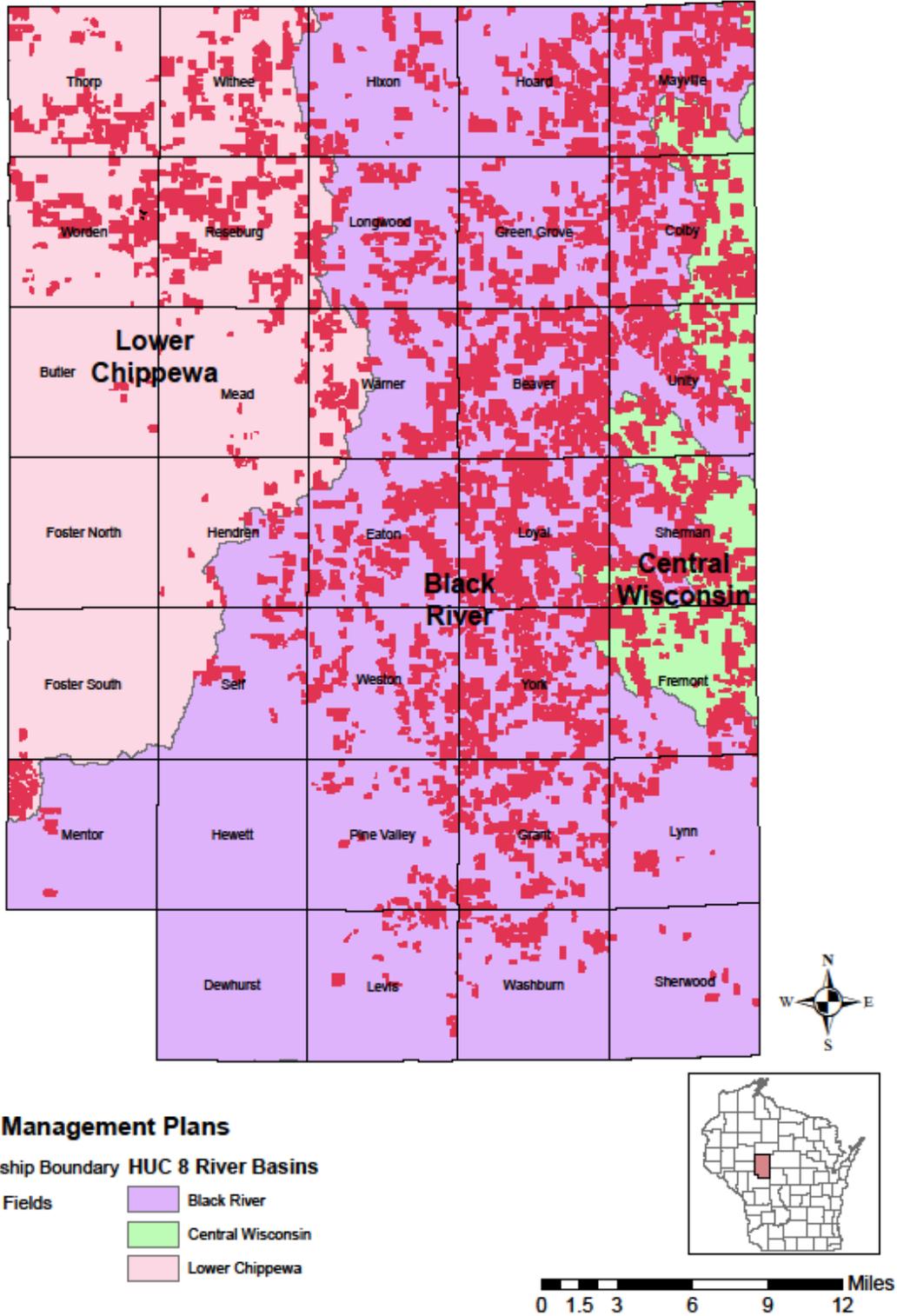
The Clark County Land Conservation Department, along with UW Extension and NRCS, has been active in promoting nutrient management planning (NMP) in the county. NMPs, when followed correctly, will reduce over-application of nutrients from both on- and off-farm sources. An NMP will also provide maps that have setbacks from surface waters, wetlands, wells, plus slope restrictions for winter spreading. The Land Conservation Department uses several tools to encourage NMPs:

- All manure storage permits issued require development of a NMP
- All Farmland Preservation acres need to be covered by an NMP if the landowner wishes to receive a tax credit
- Offer cost-sharing assistance for NMP development
- Offer training to farmers so that they can qualify to write their own NMP
- Can require farmers to develop a NMP if there are repeated runoff violations

According to Department of Trade and Consumer Protection (DATCP), Clark County currently has 124,600 acres covered under NMPs, or around 42% of the cropland acres in the county. DATCP is offering \$40.00 per acre to develop a NMP; this amount will usually more than cover the amount required to pay a certified planner to write the plan. Currently, Clark County is receiving \$80,000 in funds (labeled “SEG” funds) from DATCP every year, which is used to pay farmers to develop NMPs. As a routine, Clark County Land Conservation Department has to offer other counties’ unspent SEG funds because of lack of local interest from farmers to use NMP funding. There may be several reasons for lack of interest in SEG funding for NMPs. One may be that the plain faith farmers (Amish and Mennonites) shy away from any form of government funding, and Clark County has a high number of plain faith farmers. Two, some farmers are still not convinced that a NMP can save them money. Three, once funded, a farmer needs to maintain into perpetuity, and the county only offers funding once per parcel. CAFO farms do not qualify for SEG funding and must fund their own NMP development.

Professional certified planners (independent or from a private agronomy company) write the majority of nutrient management plans developed in Clark County. As profit margins become tighter, interest in nutrient management planning should increase. It used to be standard practice to apply 1.2 lbs. of nitrogen per bushel of predicted corn yield, but when using current yield potential and nitrogen costs, the farmer would be putting on at least 60 lbs. of nitrogen than would be needed. That is a waste of \$23.40 per acre, and this is only looking at nitrogen costs.

Map 4: Areas under Nutrient Management Plans in Clark County



Soils

Clark County has a variety of soils that are sufficient for raising good crops, building infrastructure, and filtering our drinking water. That stated, the soils in the county are a finite resource and should be managed as such. Most topsoil in the county was only 7-8" thick when the land was cleared in the early 1900s. After decades of intensive tillage, the topsoil thickness in some areas is significantly less.

Water erosion is the major management concern on about 50% of the cropland in Clark County. When part of the surface layer is lost through erosion, several kinds of damage can occur. First, productivity is reduced, as the surface layer (the nutrient rich topsoil which contains more organic matter than lower layers) is lost and part of the subsurface layer or subsoil is incorporated into the plow layer. Second, the incorporation of material from the subsurface layer or subsoil can result in poor tilth and the formation of crust. Third, erosion results in the pollution of streams, lakes, and wetlands by sediment, agricultural nutrients, and pesticides.

Wetness is major management concern on about 25 percent of the acreage used for crops or pasture in the county. Some soils are naturally so wet that farmers generally cannot use them for the crops commonly grown in the county unless drained. These poorly-drained soils include Auburndale, Barronett, Capitola, Marshfield, Rib, and Veedum soils. Unless drained, Almena, Comstock, Fallcreek, Magnor, Merrilan, and Withee are also naturally wet. Many of these soils are in wetlands protected by the state and federal laws that prevent them from being drained by ditches and tilling.

The general definition of Prime Farmland is soil that has the best combination of physical and chemical characteristics for producing food, fiber, and oil seed crops. About 498,964 acres in Clark County, or nearly 64 percent of the total land area, is prime farmland. Most of this land is in the northern and eastern parts of the county.

The fertility of the soils in Clark County varies, depending on natural fertility and cropping history. Most soils in the county are naturally acidic. These soils commonly need applications of lime to neutralize the acidity to the level required for good crop production. Available phosphorous and potassium levels are naturally low or medium in most soils.

According to the 1993, Clark County Soil Survey, most of the soils in Clark County formed partially in glacial till or glacial outwash. Many formed partially in residuum derived from the underlying sandstone or interbedded sandstone and shale bedrock. Some soils formed in lacustrine deposits, alluvium, or organic material.

Glacial till is un-stratified, unsorted glacial debris consisting of clay, silt, and sand. It may contain gravel, cobbles, stones, or boulders. There were three or more glacial ice advances into Clark County. Glacial ice advances are distinguishable by at least three different tills of different textures and slightly different landforms with drainage patterns in different states of development. These tills are the parent material for different soils.

The USDA – Natural Resources Conservation Service (NRCS), formerly known as the Soil Conservation Service (SCS), has grouped the soils of Clark County into eleven major soil associations. Please refer to Map 5 for their location.

1. Freeon-Newood-Barronett Association

Deep and very deep, nearly level to moderately steep, poorly drained and moderately well-drained, loamy and silty soils on moraines, glacial lake plains, and stream terraces.

◆ Current land cover: One may find these soil types, primarily used as farmland, in the northwestern reaches of Clark County.

◆ Other important features: Areas of prime agricultural soils may be included within this association where steep slopes are not limiting.

2. Loyal-Withee-Marshfield Association

Very deep, nearly level to sloping, poorly drained to moderately well-drained, silty soils on ground moraines.

◆ Current land cover: One may find these soil types, primarily used as farmland, extensively throughout the northern and eastern portions of Clark County.

◆ Other important features: Areas of prime agricultural soils can be found within this association where steep slopes and excessive wetness are not limiting features.

3. Withee-Kert-Hiles Association

Moderately deep and very deep, nearly level to sloping, somewhat poorly-drained and moderately well-drained, silty soils on ground moraines and pediments.

◆ Current land cover: One may find these soil types, primarily used as farmland, extensively throughout the east-central portions of Clark County.

◆ Other important features: Prime agriculture soils are dominant within this association.

4. Fairchild-Elm Lake-Ludington Association

Moderately deep, nearly level to moderately steep, poorly-drained to moderately well-drained, sandy and mucky soil on pediments. These sandy soils formed from residuum derived from the underlying sandstone and shale.

◆ Current land cover: One may find these soil types, predominantly forested, throughout western and southwestern Clark County.

◆ Other important features: Native forest species were mixed coniferous and deciduous including oak, aspen, birch, and pine.

5. Simescreek-Rock Dam Association

Very deep, nearly level and gently sloping, moderately well-drained to excessively drained, sandy soils on pediments and stream terraces.

◆ Current land cover: One may find these soil types, mostly forested, in western Clark County.

◆ Other important features: Very droughty soils best suited for coniferous trees.

6. Boone-Elevasil-Tarr Association

Moderately deep and very deep, nearly level to very steep, well-drained to excessively-drained, sandy soils on pediments and stream terraces. These sandy soils formed from residuum derived from the underlying sandstone.

- ◆ Current land cover: One would find these soil types, primarily used as cropland, in southwest Clark County.
- ◆ Other important features: Very sandy and steep soils are erosion-prone and best suited to woodland.

7. Hiles-Kert-Veedum Association

Moderately deep, nearly level and gently sloping, poorly-drained to moderately well-drained, silty and mucky soils on pediments. These silty soils formed from residuum derived from the underlying sandstone and shale.

- ◆ Current land cover: One would find these soil types, used for both farmland and forest, in southeastern portions of Clark County.
- ◆ Other important features: Areas of prime agriculture soils can be found within this association where excessive wetness is not a limitation.

8. Flambeau-Merrillian-Fallcreek Association

Moderately deep and very deep, nearly level to moderately steep, somewhat poorly-drained and moderately well-drained, loamy soils on ground moraines and pediments.

- ◆ Current land cover: One would find these soil types, currently used for the farmland and forest, throughout northwestern and west-central Clark County.
- ◆ Other important features: Prime agriculture soils are dominant within this association.

9. Almena -Spencer Association

Very deep, nearly level to sloping, somewhat poorly-drained to moderately well-drained, silty soils on ground moraines.

- ◆ Current land cover: One would find these soil types, primarily used as farmland, in northwestern Clark County.
- ◆ Other important features: Areas of prime agriculture soils can be found within this association where excessive wetness is not a limitation.

10. Merrillan-Veedum-Humbird- Association

Moderately deep, nearly level to moderately steep, poorly-drained to moderately well-drained, sandy and mucky soils on pediments. These loamy and silty soils formed from residuum derived from the underlying of sandstone and shale.

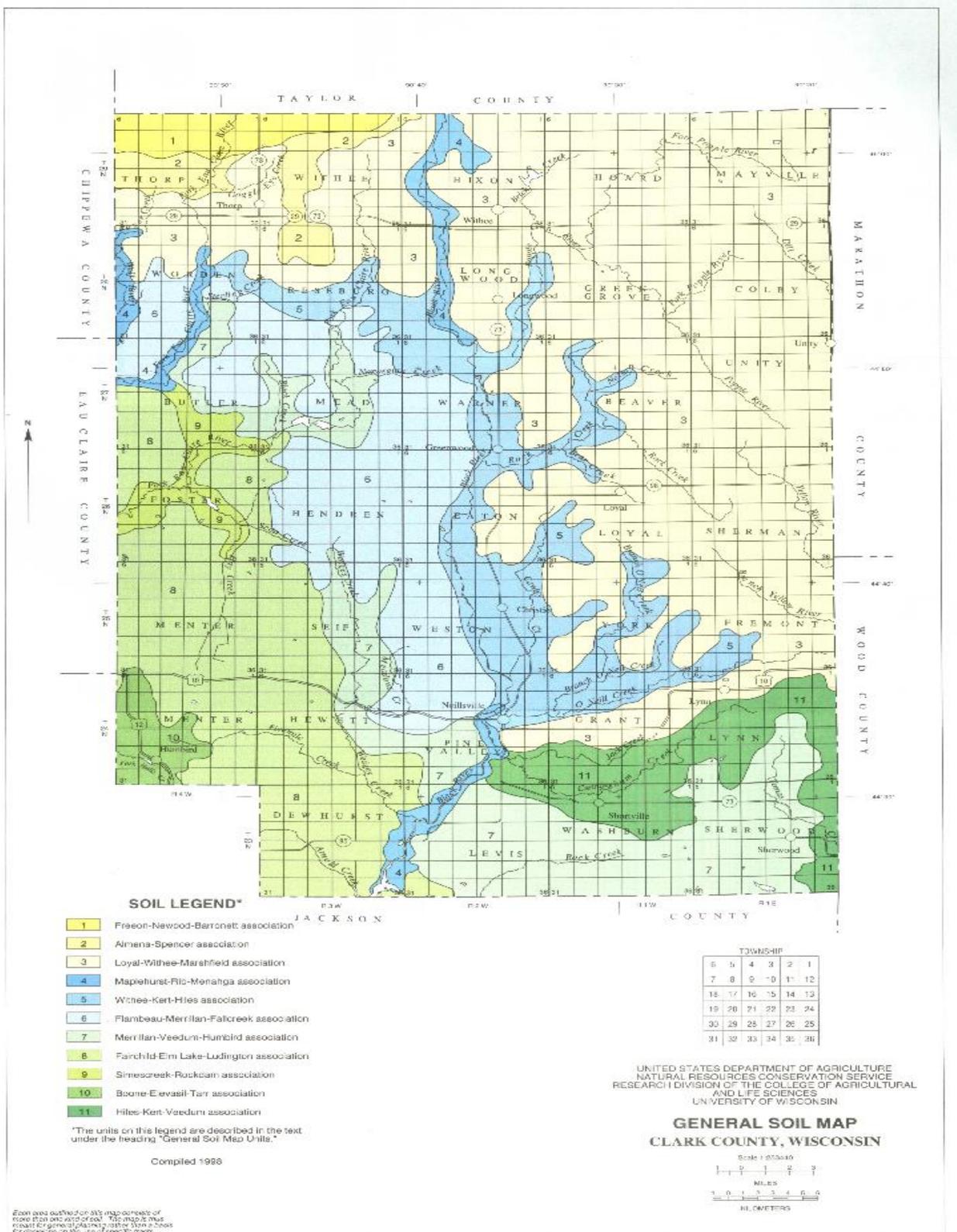
- ◆ Current land cover: One would find these soil types, predominantly forested, throughout southern Clark County.
- ◆ Other important features: Native forest species were mixed coniferous and deciduous including oak, birch, and pine.

11. Maplehurst-Rib-Menahga Association

Very deep, nearly level and gently sloping, poorly drained to somewhat poorly drained to excessively drained, sandy and silty soils on stream terraces and within glacial landforms known as outwash plains.

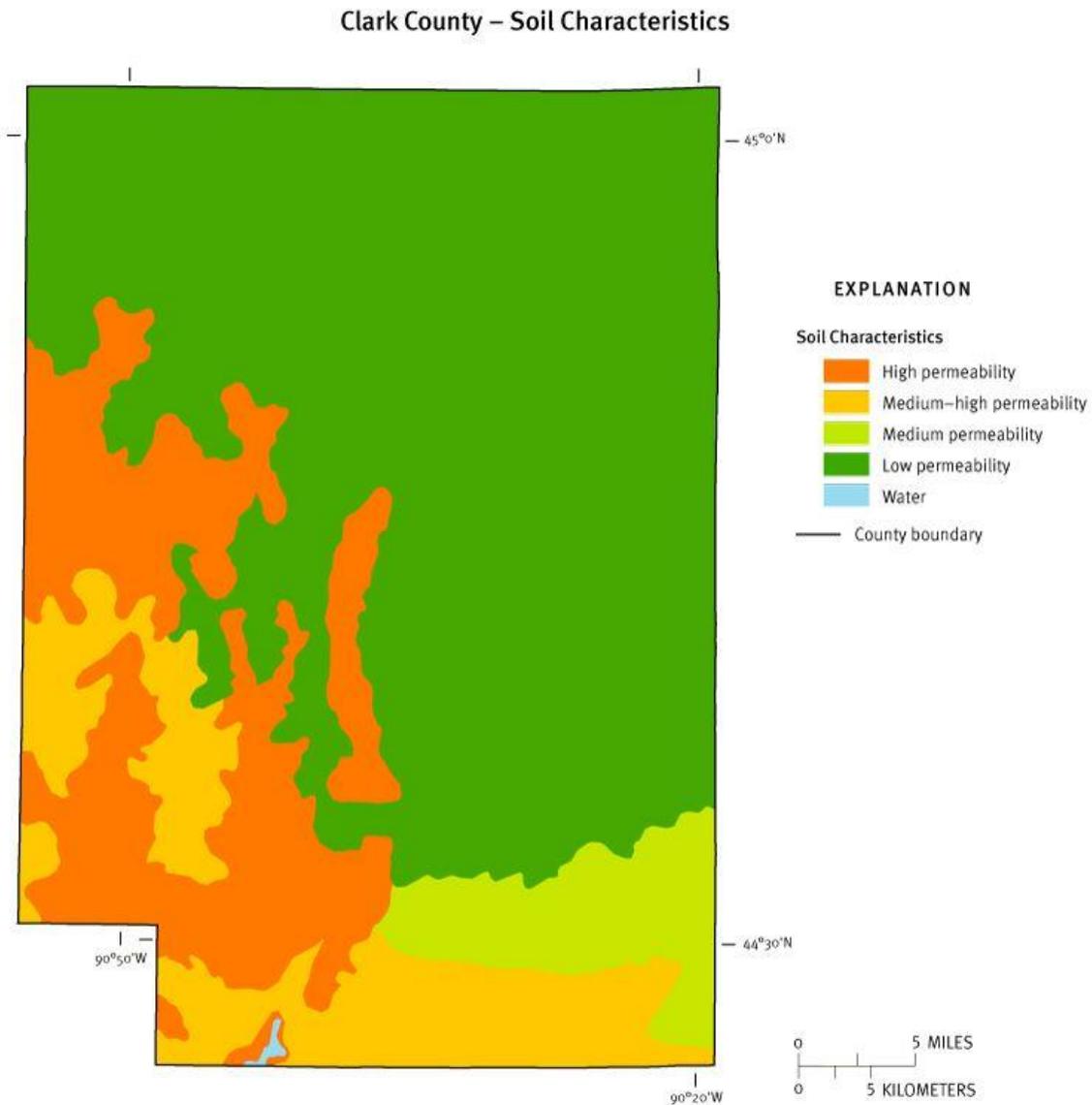
- ◆ Current land cover: One would find these soil types, predominantly forested, in west-central Clark County.
- ◆ Other important features: Native forest species were mixed hardwoods and conifers, including oak and pine.

Map 5: Major Soil Association Map of Clark County



Each area depicted on this map consists of more than one kind of soil. This map is thus really a generalization of the soil types for use in planning and zoning.

Map 6: Soil Permeability Map of Clark County



This resource characteristic map was derived from generalized statewide information at small scales, and cannot be used for any site-specific purposes.

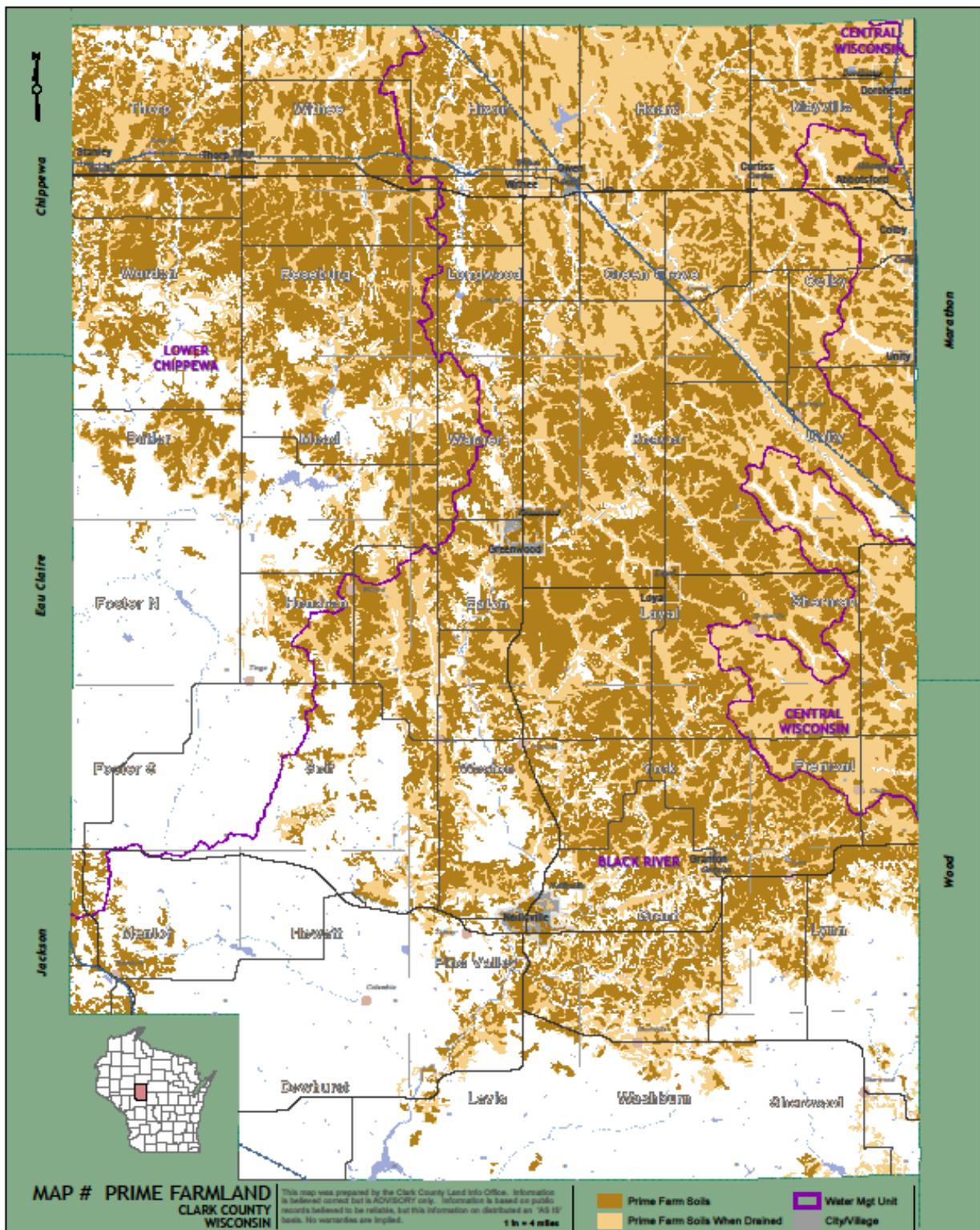
Map source: Schmidt, R.R., 1987, Groundwater contamination susceptibility map and evaluation: Wisconsin Department of Natural Resources, Wisconsin's Groundwater Management Plan Report 5, PUBL-WR-177-87, 27 p.

Figure created for the "Protecting Wisconsin's Groundwater Through Comprehensive Planning" web site, 2007, <http://wi.water.usgs.gov/gwcomp/>

Clark County Planning and Zoning Department

The majority of soils in Clark County have a low permeability rating. Soils in the west, southwest, and south have moderate to high permeability ratings.

Map 7: Prime Soils Map of Clark County



Surface Water Resources

In Wisconsin, watersheds vary in scale from major river systems to small creek drainage areas, and they typically range in size from 100 to 300 square miles. River basins encompass several watersheds. According to the Wisconsin Department of Natural Resources (WDNR). There are 32 river basins in Wisconsin, which range in size from 500 to over 5,000 square miles. Wisconsin then divides its 32 river basins into 23 geographic management units (GMUs). These units are the basis for the DNR Watersheds and form the land unit around which the state implements and funds many conservation cost-share programs.

Both river basins and watersheds are areas of land that drain to a particular water body, such as a lake, stream, river, or estuary. In a river basin, all the water drains to a large river. The term watershed describes a smaller area of land that drains to a smaller stream, lake, or wetland. There are many smaller watersheds within a river basin.

Basins and Geography

Clark County consists of three major drainage basins: the Black-Buffalo-Trempealeau River Basin, the Lower Chippewa River Basin, and the Central Wisconsin River Basin. Clark County has traditionally managed its natural resources by drainage basins and watersheds. This approach has been successful in developing working relationships with adjoining counties and their conservation staff. It has also spearheaded a coordinated effort in resource management with state agencies such as the Wisconsin Department of Natural Resources and Department of Agriculture, Trade, and Consumer Protection. These agencies have used the basin approach of natural resource management for many years. The following is a list of the Clark County River Basins and their watersheds:

Black-Buffalo-Trempealeau Basin

- BR06 – Halls Creek Watershed
- BR07 – East Fork Black River Watershed
- BR08 – Five Mile and Wedges Creeks Watershed
- BR09 – O’Neill and Cunningham Creeks Watershed
- BR10 – Cawley and Rock Creeks Watershed
- BR11 – Popple River Watershed
- BR 12 – Trappers Creek and Pine Creeks Watershed

Lower Chippewa River Basin

- LC15 – Black and Hay Creek Watershed
- LC16 – South Fork Eau Claire River Watershed
- LC17 – North Fork Eau Claire River Watershed

Central Wisconsin River Basin

- UW14 – Little Eau Pleine River Watershed
- UW18 – Upper Big Eau Pleine River Watershed
- UW05 – Upper Yellow River Watershed

Table 5: Watershed Summary for Clark County

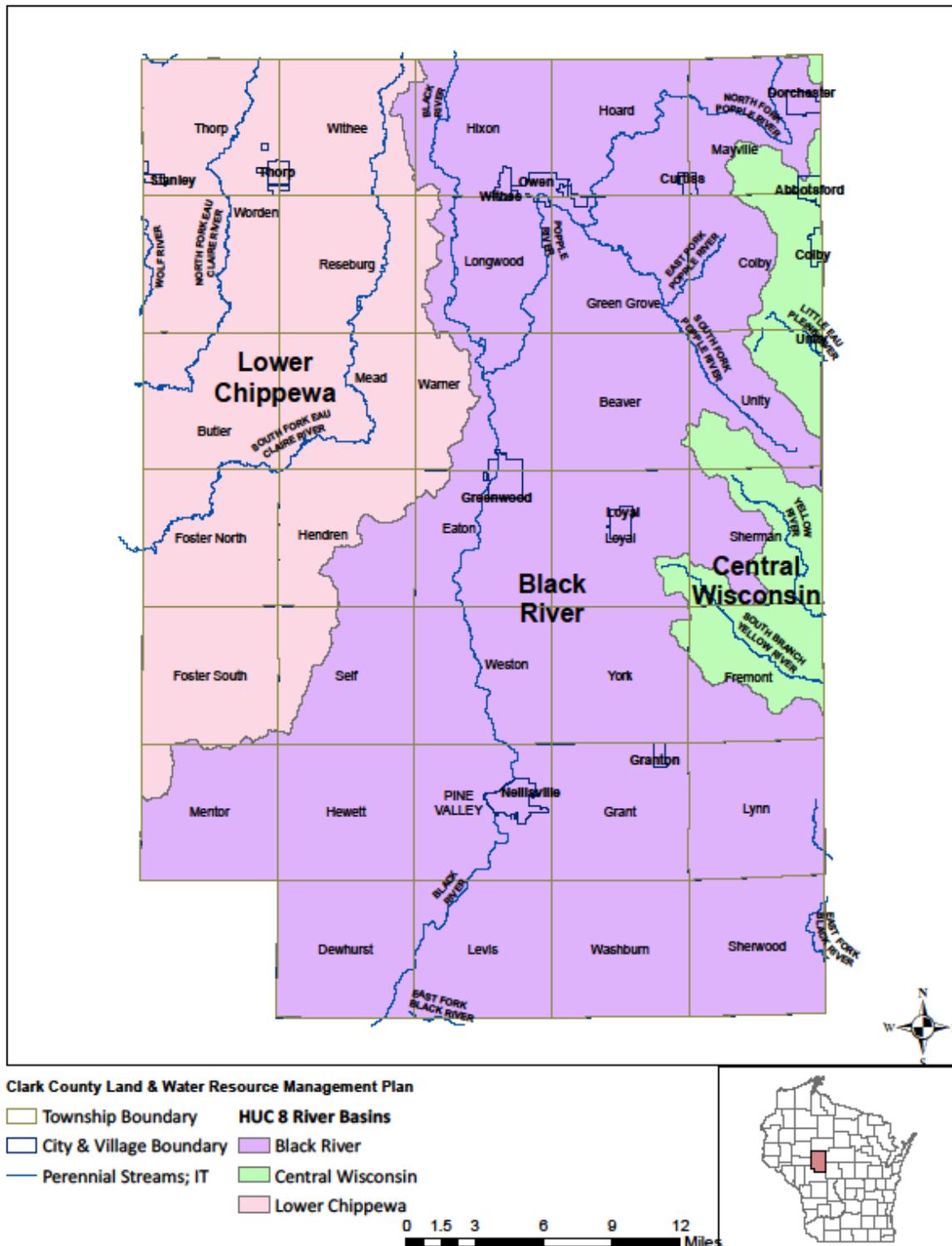
	Watershed	Stream miles	Watershed area	Class II trout (miles)	% of watershed in county	% of county comprised of watershed
	Cawley & Rock Creeks (BR10)	343	169 mi ²	0	100.00%	13.70%
	East Fork Black River (BR07)	540	306 mi ²	0	30.16%	7.46%
	Fivemile & Wedges Creeks (BR08)	244	143 mi ²	2	99.99%	10.01%
	Halls Creek (BR06)	214	115 mi ²	54.8	14.81%	1.09%
	O'Neill & Cunningham Creeks (BR09)	329	162 mi ²	2.7	92.36%	15.49%
	Popple River (BR11)	386	217 mi ²	0	95.28%	13.06%
	Trappers & Pine Creek (BR12)	181	134 mi ²	0	30.11%	4.22%
	Little Eau Pleine River (CW14)	N/A	263 mi ²	0	5.27%	1.09%
	Upper Big Eau Pleine River (CW18)	N/A	220 mi ²	0	8.88%	1.60%
	Upper Yellow (Wood Co.) River (CW05)	N/A	213 mi ²	3	24.24%	4.31%
	Black & Hay Creeks (LC15)	289	160 mi ²	47.8	8.48%	1.11%
	North Fork Eau Claire River (LC17)	412	206 mi ²	21.9	53.55%	9.06%
	South Fork Eau Claire River (LC16)	422	299 mi ²	23.5	94.14%	17.80%

Wisconsin Department of Natural Resources

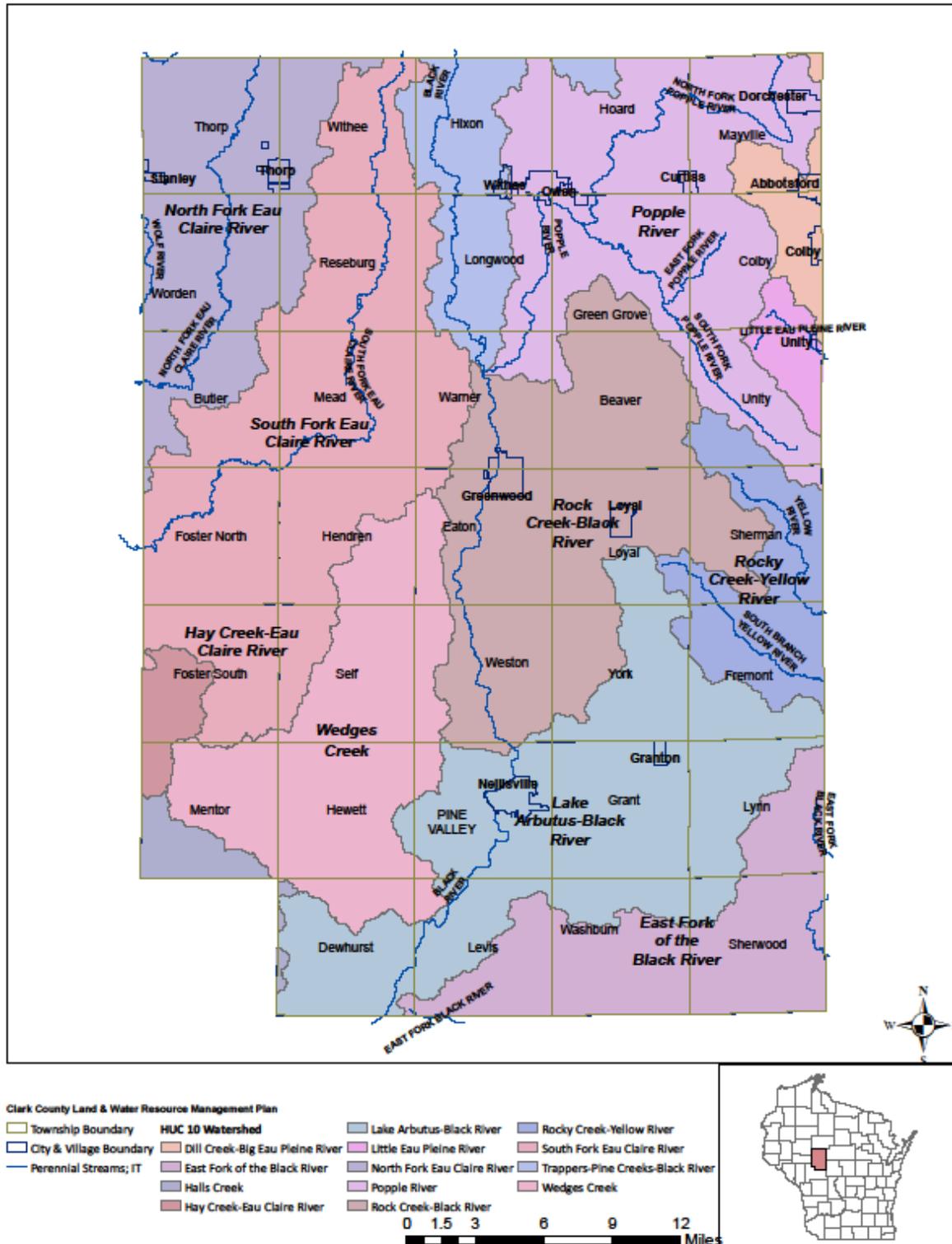
Watersheds are categorized by Hydrologic Unit Code (HUC); the higher the number, the smaller the watershed.

- 2-digit HUC first-level (region)
- 4-digit HUC second-level (subregion)
- 6-digit HUC third-level (accounting unit)
- 8-digit HUC fourth-level (cataloguing unit)
- 10-digit HUC fifth-level (watershed)
- 12-digit HUC sixth-level (subwatershed)

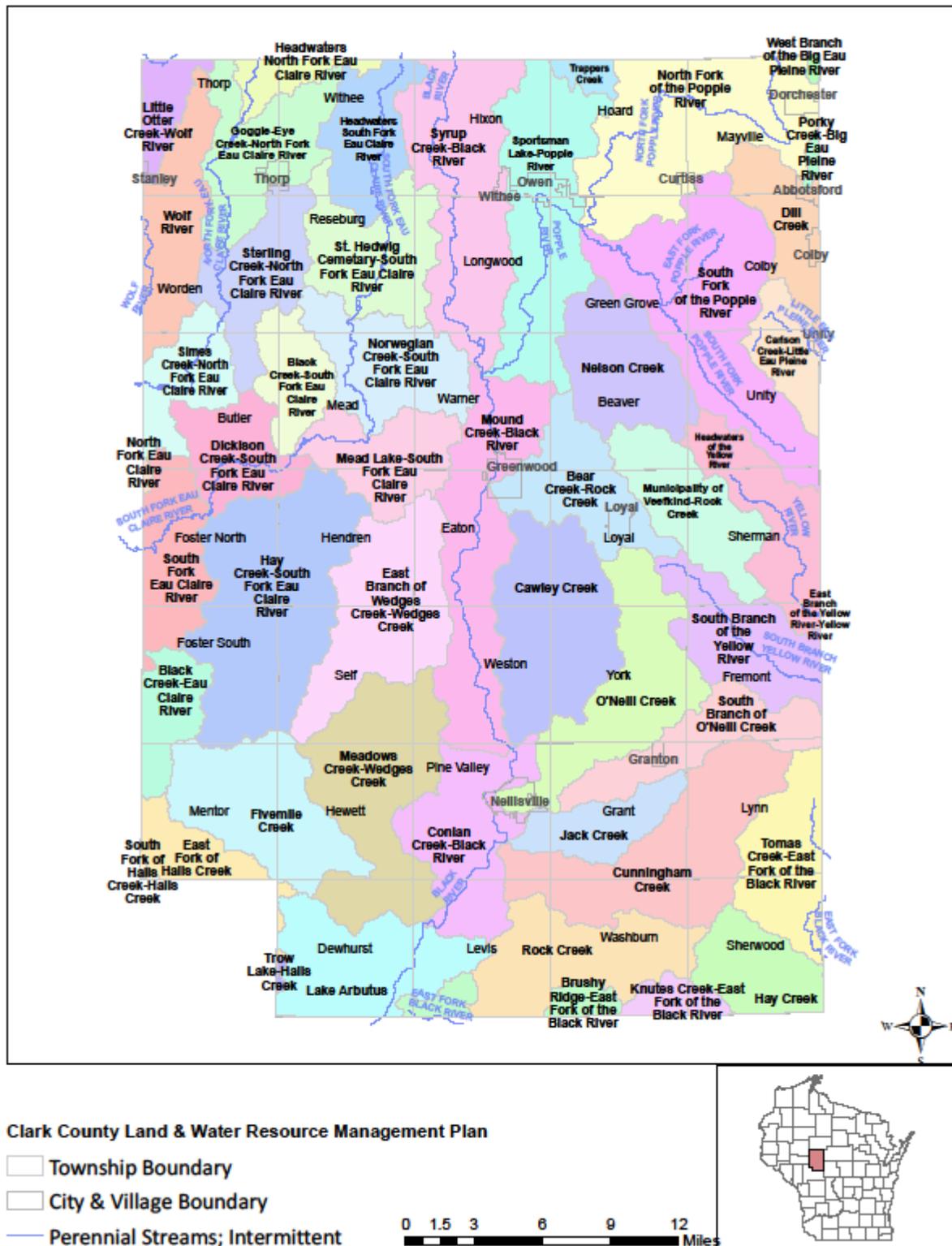
Map 8: HUC 8 River Basins in Clark County



Map 9: HUC 10 Watersheds in Clark County



Map 10: HUC 12 Watersheds in Clark County



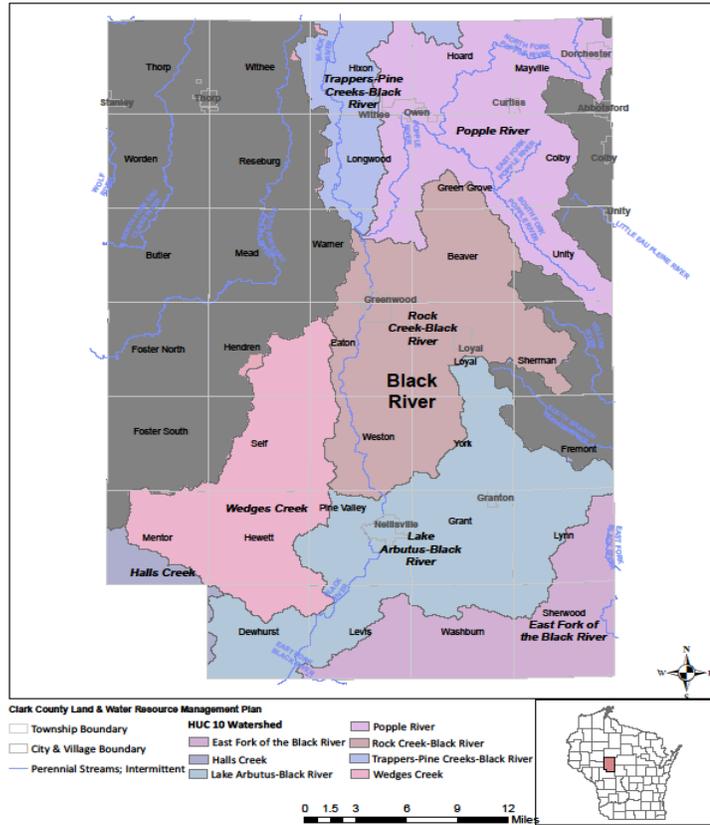
Map 11: Black River Watershed Basin

Watersheds:

- Cawley & Rock Creeks (BR10)
- East Fork Black River (BR07)
- Fivemile & Wedges Creeks (BR08)
- Halls Creek (BR06)
- O'Neill & Cunningham Creeks (BR09)
- Popple River (BR11)
- Trappers & Pine Creek (BR12)

General Concerns for all Watersheds:

- The watersheds have been ranked as a medium priority because the stream habitats are impacted by agricultural, nonpoint pollution.
- The streams are primarily low-gradient, warm-water streams with base flows largely influenced by rainfall amounts.
- Poor soil infiltration results in rapid runoff of rain and snowmelt as well as minimal groundwater influence on stream flows.



Specific Concerns:

- Runoff from agricultural fields and barnyards is considered the major source of nonpoint pollution.
- Over-grazing of stream banks, which results in trampled banks, exposed eroding banks, streams becoming wider and shallower, and stream water warming.
- Direct discharge from barnyards is a major source of nutrient loading to surface waters.
- Drainage from cropland to streams carries eroded sediments, which affects in-stream habitat and fish spawning areas. Nutrients, fertilizers, and pesticides attach to soil particles and can further pollute streams.

Cawley & Rock Creeks (BR10) Municipal and industrial point source discharges have historically degraded water quality in the streams of this watershed. Wastewater treatment plant upgrades and relocation of discharges have improved water quality in some of the degraded streams. Nonpoint sources of pollution are known to impact Cawley Creek; however, direct knowledge of impacts to other streams is unknown at this time. Because of the high percentage of land in cultivation, the likelihood is quite high that nonpoint source impacts are affecting many streams in this watershed¹.

East Fork Black River (BR07) – The East Fork of the Black River is in the extreme southern area of Clark County. The water in this watershed is generally characterized as dark and infertile but largely free of sediment. We expect many streams (though not surveyed recently) to contain forage fish. The major limiting factor for many streams in this watershed is lack of streamflow due to natural causes or agricultural use².

Fivemile & Wedges Creeks (BR08) - The Fivemile and Wedges Creeks Watershed is located in Clark County and is approximately 143 square miles in size. There are 244 miles of streams and rivers, 266 acres of lakes, and 10,418 acres of wetlands in this watershed. The watershed, dominated by forest (65%), agriculture (12%), and wetlands (11%), ranks low for nonpoint source issues affecting streams and groundwater in the watershed³.

Halls Creek (BR06) - A recent water resource survey of the streams in this watershed revealed that several streams rank high regarding problems associated with nonpoint pollution. However, many more stream miles in this watershed rank low or medium⁴.

O'Neill & Cunningham Creeks (BR09) - Low base flow and gradient, as well as flashy flows during rain events, characterize the streams in the O'Neill and Cunningham Creeks watershed. These conditions greatly influence the fisheries in these streams. All streams support at least a forage fishery. Some streams can support a sport fishery, if water levels are adequate. Agriculture converted a majority of the original forested areas⁵.

Popple River (BR11) – Agriculture and forest dominate the Popple River watershed. The streams of the Popple River watershed characteristically have low flows and low gradients. Lack of groundwater recharge to surface water contributes to this condition. Historically, many of the streams have degraded due to point-source discharges⁶.

Trappers & Pine Creek (BR12) - Trappers and Pine Creeks watershed is located in southeastern Taylor County, with a small section in Clark County. Woodlands and wetlands, with substantial areas of agricultural land concentrated in the southeastern two-thirds of the watershed, comprise the major land uses. Research identifies streambank pasturing and barnyard runoff as the primary causes of reduced in-stream habitat and water quality degradation⁷.

Central Wisconsin Basin

Map 12: Central Wisconsin River Basin

Watersheds:

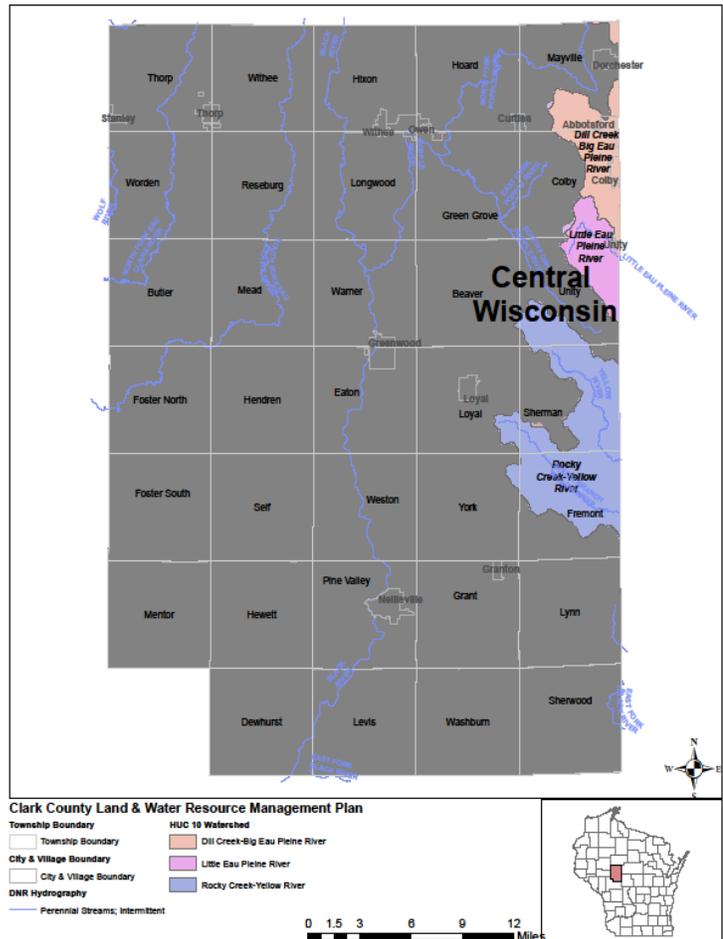
Little Eau Pleine River (CW14)

Upper Big Eau Pleine River (CW18)

Upper Yellow (Wood Co.) River (CW05)

General Concerns for all Watersheds:

- Most of the watersheds have been ranked as high priority due to agricultural nonpoint pollution.
- The basin is characterized by agricultural activity throughout the basin, with intensive row cropping taking place in portions of the region.
- The glaciers created a network of warm- and coldwater streams fed by surface and groundwater sources, making it one of the largest and most diverse array of surface water systems in the state.



Specific Concerns

- Drainage from cropland to streams carries eroded sediments, which affects in-stream habitat and fish spawning areas. Nutrients, fertilizers, and pesticides attach to soil particles and can further pollute streams.
- Runoff from farmsteads is a major source of nonpoint pollution.
- Over-grazing of stream banks, which results in trampled banks, exposed eroding banks, streams becoming wider and shallower, and stream warming.
- High-quality streams in nonagricultural areas need protection from poor development practices.
- Potential for groundwater contamination due to shallow groundwater tables.

Little Eau Pleine River (CW14) – The Little Eau Pleine River Watershed is located in the counties of Clark, Portage, Marathon, and Wood. Based on surface and groundwater data, the overall ranking is low. A shallow groundwater table allows unused herbicides, pesticides, and fertilizers to leach into the groundwater without filtering them out in the soil profile. High rates of surface run-off due to the silty soils intensify water quality problems.

Upper Big Eau Pleine River (CW18) – The Upper Big Eau Pleine River Watershed is located in Marathon, Clark, and Taylor Counties. The streams in this watershed classify as warm-water game

fish, warm-water forage, and marginal-variance streams. Because the watershed is "flashy," nutrients, sedimentation, bacteria, and turbidity affect the majority of the streams, resulting in fish habitat destruction, algae blooms, and diurnal shifts in dissolved oxygen levels. The major concern with this watershed and the surrounding watersheds is the nonpoint pollution that is occurring from poor agriculture and development practices⁹.

Upper Yellow (Wood Co.) River (CW05) – The Upper Yellow River Watershed is located in the counties of Wood, Clark, and Marathon. The Upper Yellow River Watershed includes the upper reaches of the Yellow River to the Dexter Lake Dam. Research ranked this watershed using the Nonpoint Source Priority Watershed Selection Criteria. Based on surface and groundwater data, the overall ranking is high. The heavy silt loam soils and steep slopes promote rapid runoff¹⁰.

Map 13: Lower Chippewa River Basin

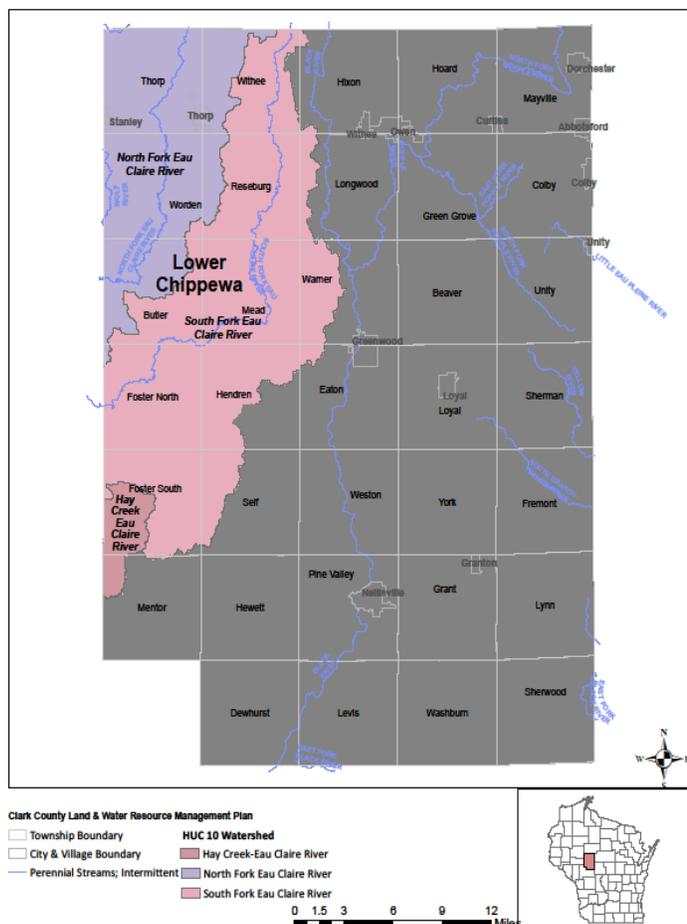
Lower Chippewa Basin

Watersheds:

- Black & Hay Creeks (LC15)
- North Fork Eau Claire River (LC17)
- South Fork Eau Claire River (LC16)

General concerns for all watersheds:

- Phosphorous and sediment loading due to agriculture.
- Streams are primarily low-gradient and warm-water.
- Poor water quality entering Mead Lake is causing eutrophication.



Black & Hay Creeks (LC15) – The Black and Hay Creeks watershed is located primarily in Eau Claire County, but it is also in parts of Chippewa, Clark, and Jackson Counties. The watershed is approximately 102,328 acres in size and consists of 289 miles of streams and rivers, 1,005 acres of lakes, and 19,248 acres of wetlands. Forests (49%) and agriculture (21%) dominate this watershed, and it ranks medium for nonpoint source issues affecting groundwater¹¹.

North Fork Eau Claire River (LC17) – The North Fork of the Eau Claire River watershed lies within four Wisconsin counties: southeastern Chippewa, southwestern Taylor, northwest Clark, and northeast Eau Claire. This watershed is one of twenty-four watersheds within the Lower Chippewa River Basin. The watershed, composed of primarily agricultural and forest landscapes, encompasses approximately 206 square miles. Point and nonpoint source issues are key issues for this watershed. Reduction of phosphorus loading from all sources is critical for reducing excessive algae growth and eutrophication of impoundments on the Eau Claire River. Specifically, land-use modeling of the watershed for these lakes has identified the agricultural lands in the upper portion of this watershed as important locations for utilization of best management practices for phosphorus control¹².

South Fork Eau Claire River (LC16) – Low-gradient warm water streams abound in this watershed. Only Black, Dickinson, Horse, and Scott Creeks classify as trout waters. Mead Lake is the largest impoundment in the South Fork of the Eau Claire River watershed. This lake was designated as a priority lakes project beginning in 1996. The watershed upstream of the Mead Lake dam is targeted for implementation of practices to control sources of polluted runoff. The southern half of this watershed is primarily County Forest, while the northern half is used for agriculture¹³.

¹“Watershed - Cawley & Rock Creeks (BR10)” DNR Wisconsin Watersheds. Accessed Feb 7th, 2019.
<https://dnr.wi.gov/water/impairedDetail.aspx?key=14268>

²“Watershed - East Fork Black River (BR07)” DNR Wisconsin Watersheds. Accessed Feb 7th, 2019.
<https://dnr.wi.gov/water/waterDetail.aspx?key=8112613>

³“Watershed - Fivemile & Wedges Creeks (BR08)” DNR Wisconsin Watersheds. Accessed Feb 7th, 2019.
<https://dnr.wi.gov/water/waterDetail.aspx?key=14249>

⁴“Watershed - Halls Creek (BR06)” DNR Wisconsin Watersheds. Accessed Feb 7th, 2019.
<https://dnr.wi.gov/water/waterDetail.aspx?key=14219>

⁵“Watershed - O'Neill & Cunningham Creeks (BR09)” DNR Wisconsin Watersheds. Accessed Feb 7th, 2019.
<https://dnr.wi.gov/water/waterDetail.aspx?key=14264>

⁶“Watershed - Popple River (BR11)” DNR Wisconsin Watersheds. Accessed Feb 7th, 2019.
<https://dnr.wi.gov/water/waterDetail.aspx?key=14276>

⁷“Watershed - Trappers & Pine Creek (BR12)” DNR Wisconsin Watersheds. Accessed Feb 7th, 2019.
<https://dnr.wi.gov/water/waterDetail.aspx?key=14292>

⁸“Watershed - Little Eau Pleine River (CW14)” DNR Wisconsin Watersheds. Accessed Feb 7th, 2019.
<https://dnr.wi.gov/water/waterDetail.aspx?key=12355>

⁹“Watershed - Upper Big Eau Pleine River (CW18)” DNR Wisconsin Watersheds. Accessed Feb 7th, 2019.
<https://dnr.wi.gov/water/waterDetail.aspx?key=886772>

¹⁰“Watershed - Upper Yellow (Wood Co.) River (CW05)” DNR Wisconsin Watersheds. Accessed Feb 7th, 2019.
<https://dnr.wi.gov/water/waterDetail.aspx?key=5541476>

¹¹“Watershed - Black & Hay Creeks (LC15)” DNR Wisconsin Watersheds. Accessed Feb 7th, 2019.
<https://dnr.wi.gov/water/waterDetail.aspx?key=16134>

¹²“Watershed - North Fork Eau Claire River (LC17)” DNR Wisconsin Watersheds. Accessed Feb 7th, 2019.
<https://dnr.wi.gov/water/impairedDetail.aspx?key=6923457>

¹³“Watershed - South Fork Eau Claire River (LC16)” DNR Wisconsin Watersheds. Accessed Feb 7th, 2019.
<https://dnr.wi.gov/water/waterDetail.aspx?key=5542152>

Impaired Waters

Blessed with numerous rivers, streams, and lakes, Clark County's local population and visitors from outside the area enjoy recreational activities like swimming, boating, and fishing. Unfortunately, the water quality of these important resources has been degrading over past decades. Clark County is home to a great number of livestock—mostly cows that produce a lot of manure that needs to be land spread. There is also, for the most part, excessive tillage still used in the county; this leaves the topsoil vulnerable to soil erosion, and if manure is also applied, the manure sometimes washes away with the soil into the surface waters. Over the past several decades, the county has also experienced mercury fallout from burning coal in coal-fired power plants to the west. Burning coal within these power plants releases emissions into the atmosphere. The mercury that was in the coal enters the atmosphere where it will eventually make it into the surface water. Several stream and lakes have fish consumption advisories due to mercury in the fish.

Total Maximum Daily Loads (TMDL) have been developed or approved for Mead Lake and the Yellow River. A TMDL determines the maximum amount of pollutants that a water body is capable of assimilating while continuing to meet the existing federal water quality standards. For all the sources of pollution that cause impairment, such loads are established at levels necessary to meet the applicable standards with consideration given to seasonal variations and margin of safety. More information on the Mead Lake TMDL can be found at: <https://dnr.wi.gov/water/wsSWIMSDocument.ashx?documentSeqNo=41879949>.

In 2017, EPA awarded a nine key element plan for the Eau Claire River Watershed. Nine key element plans provide a framework for improving water quality in a holistic manner within a geographic watershed. The nine elements help assess the contributing causes and sources of nonpoint source pollution, involve key stakeholders, and prioritize restoration and protection strategies to address water quality problems. More information on the Eau Claire River Watershed Nine Key Element Plan can be found at: <https://dnr.wi.gov/topic/nonpoint/9keyelementplans.html>.

Nine key element watershed plans can be used to restore impaired waters or help protect unimpaired waters. In order to be eligible for Clean Water Act (CWA) Section 319 and the Mississippi River Basin Initiative (MRBI) funding from US EPA, one must address the following nine elements in a watershed plan:

- Identify the causes and sources
- Estimate pollutant loading into the watershed and the expected load reductions
- Describe management measures that will achieve load reductions and target critical areas
- Estimate the amounts of technical and financial assistance and identify the relevant authorities needed to implement the plan
- Develop an information/education component
- Develop a project schedule
- Develop the interim, measurable milestones
- Identify indicators to measure progress and make adjustments
- Develop a monitoring component

Table 6: Impaired Waters, Proposed Impaired Waters and Waters with TMDL's under development in Clark County

Status	Name	Miles/Acreage	Pollutant	Impairment Indicator	Priority
303d Listed	Black River	46.49	Total Phosphorous	Impairment Unknown	Low
	Black River	8.97	Mercury	Contaminated Fish	Low
	Black River H to Rock Creek	8.97	Total Phosphorous	Impairment Unknown	Low
	Black River H to Rock Creek	8.97	Mercury	Contaminated Fish	Low
	Cunningham Creek	21.82	Total Phosphorous	Water Quality Use Restriction	Low
	O'Neill Creek	33.4	Total Phosphorous	Water Quality Use Restriction	Med
	Poplar River	13.54	Total Phosphorous	Water Quality Use Restriction	Low
	Popple River	32	Total Phosphorous	Water Quality Use Restriction	Med
	Rock Creek	21.89	Total Phosphorous	Water Quality Use Restriction	Med
	Rock Dam	95.87	Total Phosphorous	Water Quality Use Restriction	Low
	Rock Dam	95.87	Mercury	Contaminated Fish	Low
	Sherwood lake	117	Mercury	Contaminated Fish	Low
	South Fork Popple River	10	Total Phosphorous	Water Quality Use Restriction	Med
	Cawley Creek	14.33	Total Phosphorous	Impairment Unknown	Low
	Google-Eye Creek	7.19	Total Phosphorous	Water Quality Use Restriction	Med
	Jack Creek	12.16	Total Phosphorous	Impairment Unknown	Low
	Norwegian Creek	7.52	Total Phosphorous	Impairment Unknown	Low
	Rocky Run	7.97	Total Phosphorous	Impairment Unknown	Low
	North Fork Eau Claire River			Total Phosphorous	Impairment Unknown
South Fork Eau Claire River	18.89		Total Phosphorous	Water Quality Use Restriction	Med
TMDL Approved	Mead Lake	310.3	Total Phosphorous	Low DO, Excess Algae Growth	High
	Mead Lake	311	Sediment/Total Solids	Degraded Habitat	High
TMDL Development	Yellow River	14.51	Total Phosphorous	Water Quality Use Restriction	High
	Eau Pleine River	6311	Total Phosphorous	Water Quality Use Restriction	High

Wisconsin Department of Natural Resources

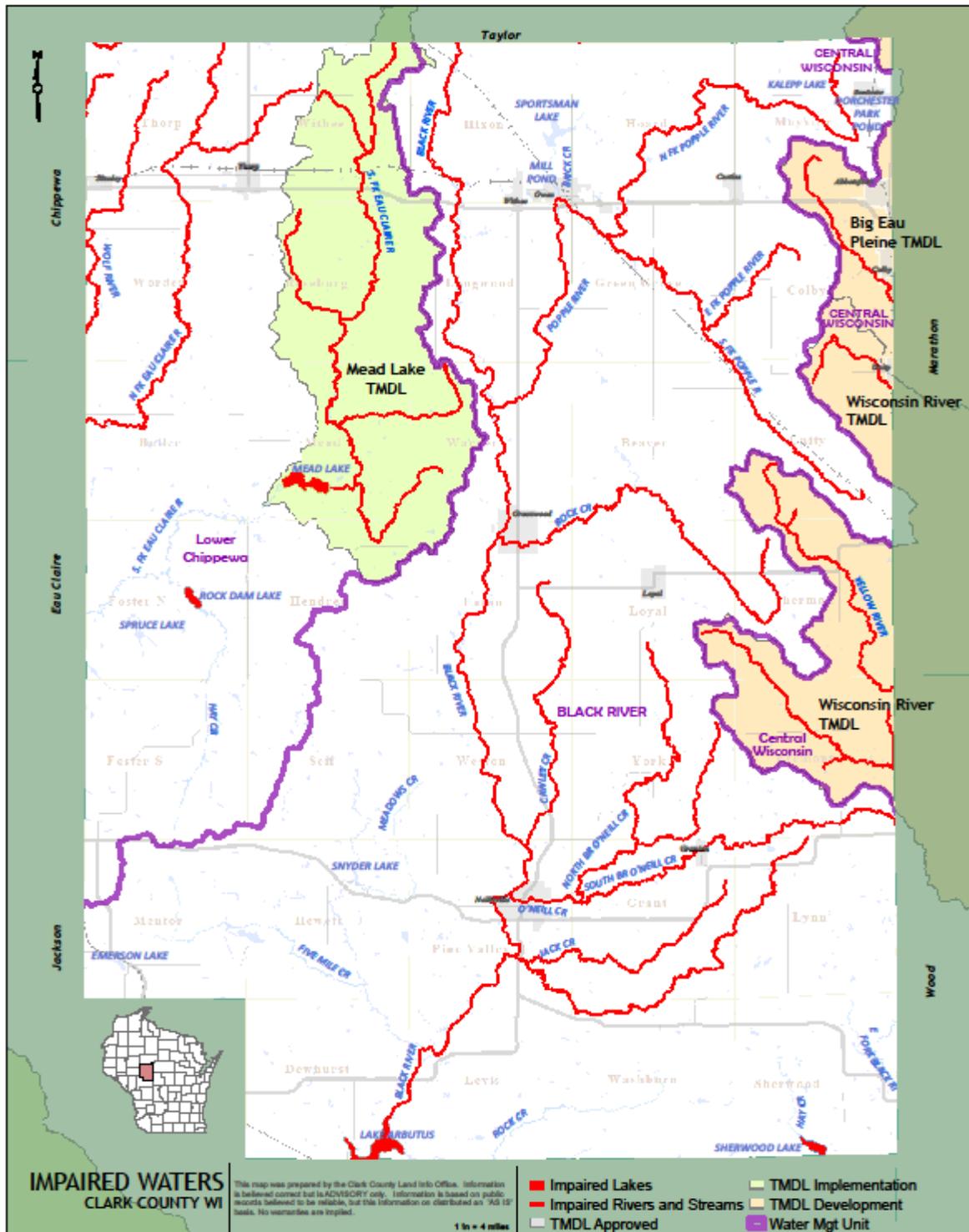
There are currently six listed impaired water bodies and one previously listed impaired watershed in Clark County, according to the DNR (See Map 14). Wisconsin’s 303(d) Waterbody Program lists these waters, managed by the DNR’s Bureau of Watershed Management. The currently listed waters include Mead Lake, Lake Arbutus, Black River, Rock Dam Lake, Sherwood Lake, and the Wolf River. Previously the program listed the Upper Yellow River Watershed as impaired. Going forward, they will use a comprehensive water quality study conducted in 2011 in the Upper Yellow River Watershed to prepare a TMDL for Dexter Lake, which is located in Wood County.

The Wisconsin River TMDL for phosphorus covers a portion of eastern Clark County. This TMDL was developed by the DNR and approved by U.S. EPA per the Clean Water Act in April 2019. In large part this TMDL is driven by the need to reduce algae blooms in downstream lakes and reservoirs. However, a number of the streams in the Clark County portion of the Wisconsin River basin are phosphorus impaired, and local stream water quality drives the reduction goals for these waters and associated watersheds. In addition to these streams, impaired waterbodies addressed by this TMDL include Wisconsin’s second and fifth largest inland lakes: Petenwell and Castle Rock Reservoirs. Reducing phosphorus loading to local surface waters acts not only to protect and improve local water quality and local economies which rely on clean water, it also benefits these downstream impaired waters. See Appendix K for maps on the Wisconsin River TMDL and for more information see: <https://dnr.wi.gov/topic/tmdls/wisconsinriver/>

The Clark County Land Conservation Department intends to promote in the Wisconsin River Water Basin the conservation practices of no-till, cover cropping, nutrient management planning and reducing cattle’s access to the waters of the state so that the total phosphorous reduction goals of the Wisconsin River TMDL shown below maybe met.

HUC12	HUC12 Name	Row Crop Acres	Translated TMDL Allocations				
			TP Baseline (lb/ac/yr)	Current Criteria		Recommended SSC	
				Reduction Needed	TP Target (lb/ac/yr)	Reduction Needed	TP Target (lb/ac/yr)
070700021502	West Branch of the Big Eau Pleine River	340	2.3	84%	0.4	84%	0.4
070700021504	Dill Creek	7,223	2.9	85%	0.4	85%	0.4
070700021505	Porky Creek-Big Eau Pleine River	431	3.2	84%	0.5	84%	0.5
070700021701	Carlson Creek-Little Eau Pleine River	5,540	2.7	84%	0.4	84%	0.4
070700031101	Headwaters of the Yellow River	8,872	3.2	73%	0.9	73%	0.9
070700031102	South Branch of the Yellow River	10,094	3.1	76%	0.7	76%	0.7

Map 14: Impaired Waters in Clark County



Watersheds

The DNR determined all nonpoint source pollution (NPS) rankings and groundwater contamination potential rankings.

Halls Creek Watershed (BR06)

The Hall's Creek watershed is a 16.30 square mile watershed. This watershed is located in the southwest corner of Clark County. The watershed is a mix of agriculture and forested land. The DNR lists the East Fork of Halls Creek as a trout stream. One impoundment, Emerson Lake, exists on the creek in Clark County. A recent water resource survey conducted by the DNR revealed that several streams rank high regarding problems associated with nonpoint source pollution. The nonpoint source pollution (NPS) stream ranking for this stream is also high. The groundwater contamination potential ranking is medium. The overall NPS ranking for this watershed is medium.

East Fork Black River Watershed (BR07)

The East Fork Black River is a 91.36 square mile watershed and has 137 miles of streams. This watershed, primarily forested with some agricultural land, is located in the southeast portion of Clark County. One impoundment, Sherwood Lake, exists in the watershed in Clark County. The Clark County Forestry and Parks Department operates a 36-site campground, a swimming beach, and picnic areas on Sherwood Lake. The shoreline on the lake is undeveloped. The river empties into Lake Arbutus. Very little water quality or fisheries information is available for streams in this watershed. One would expect many streams to contain forage fish. The major limiting factor for many streams in this watershed is lack of streamflow due to agricultural use. The main branch of the East Fork Black River is fully supporting its potential use and has a low NPS ranking. The DNR has not assigned an NPS ranking to many of the tributaries to the East Fork. The DNR has ranked the groundwater contamination potential in the East Fork Black River as being low. The overall NPS ranking is low.

Five Mile and Wedges Creeks Watershed (BR08)

The Five Mile and Wedges Creeks Watershed is 144.57 square miles. It is located in the southwest part of Clark County. It has 244 miles of streams, 266 acres of lakes, and 10,418 acres of wetlands. One impoundment, Snyder Lake, is located in the watershed.

The Clark County Forestry and Parks Department operates a 50-site campground, a swimming beach, and picnic areas on Snyder Lake. The shoreline on the lake is highly developed. Nine main streams make up this watershed. This primarily forested watershed, contains less than 12 percent of its land in agricultural use. The remaining 88 percent of the land cover is wetlands, forest, and residential. Clark County owns much of the watershed and manages it as county forest. There are some water quality impacts from agriculture sources, including streambank erosion from pasturing, resulting in stream sedimentation and habitat loss. Based on transect survey results from 2011, the average annual soil loss rate for the watershed is estimated at 1.4 tons per acre per year. There are some silvicultural impacts to water quality. There is one industrial point source discharge in the watershed. For the purposes of a lake planning grant, Clark County

considers Snyder Lake a high priority to develop management activities. The groundwater contamination potential ranking for Five Mile and Wedges Creeks Watershed is low. The overall NPS ranking is low.

O'Neill and Cunningham Creeks Watershed (BR09)

The O'Neill and Cunningham Creeks Watershed has a land area of 161.01 square miles. There are 329.34 miles of streams, 86.59 lake acres, and 9,581.29 wetland acres in the watershed. It is located in the southeast and south-central parts of Clark County. The watershed land cover is primarily agriculture, which makes up 43 percent of the use, along with 13 percent in grassland and 30 percent forest. None of the streams currently support their potential use for fisheries. The O'Neill and Cunningham Creeks Watershed has five point sources of water pollution that discharge into the system. There are two concentrated animal feeding operations in this watershed. The combination of point and nonpoint sources of pollution, as well as low summer base flows, has resulted in reported fish kills. Barnyard runoff, construction site erosion, cropland soil erosion and to a lesser extent, streambank pasturing impacts surface water quality in this watershed. Also some of the cropland in this watershed with steeper slopes in the past was contour strip cropped. In the last several years many of these contour strips have been removed and are now farmed as one, this has greatly increased the erosion potential on these fields. Transect survey results from 2011 estimate that the annual average soil loss rate for this watershed is 2.0 tons per acre per year. The groundwater contamination potential ranking is high for this watershed. The overall NPS ranking is high.

Cawley and Rock Creeks Watershed (BR10)

169.63 square miles of land make up the Cawley and Rock Creeks Watershed. There are 342.79 miles of streams, 108.66 lake acres, and 6,081.99 wetland acres. It is located in the central part of Clark County. Land cover in this watershed consists of 21 percent forest and 55 percent agriculture. There are 21 miles of warm water sport fishery in the watershed, but none of the streams fully support their potential use. Municipal and industrial point source discharges have historically degraded water quality in the streams of this watershed. There are three point sources of pollution from municipal and industrial discharges. There are two concentrated animal feeding operations in this watershed. Impacts to surface water quality include sedimentation and excess nutrients delivered to streams and habitat loss from cropland erosion, barnyard runoff, and streambank pasturing. Transect survey data from 2011 estimates that this watershed has an average annual soil loss rate of 2.0 tons per acre per year. Low baseflows (minimal groundwater recharge) during dry periods exacerbate water quality problems. In this watershed, soils with low infiltration potential, increased precipitation, and snowmelt runoff causing excessive streambank erosion are all issues. The groundwater contamination potential ranking for this watershed is high. The overall NPS ranking is high.

Popple River Watershed (BR11)

The Popple River Watershed is 203.06 square miles in size. It has 386.23 miles of streams, 250.9 lake acres, and 20,350.85 wetland acres. It is located in the northeast part of Clark County. Land cover in this watershed is 45 percent agriculture, 25 percent forest, and 19 percent wetland. One impoundment, Sportsman Lake, is located in the watershed. The shoreline is undeveloped and managed as a wildlife refuge. There are 46 miles of warm water sport fishery in this watershed and 65 miles of streams that are fully supporting their potential use. Low stream flows during dry periods are common in this watershed and limit many of the streams to warm water forage species. Point and nonpoint sources of pollution threatens another 20 miles of streams. There are seven municipal and industrial point source discharges in this watershed. There are also three concentrated animal feeding operations permitted under the WPDES program. Impacts to surface water quality include stream sedimentation, nutrient delivery, and loss of habitat from cropland erosion and pastured streambanks. The annual average soil loss in this watershed is estimated at 2.3 tons per acre per year according to 2011 transect survey data. Sportsman Lake classifies as a high priority for a lake planning grant to develop management activities. The groundwater contamination potential ranking for the Popple River Watershed is medium. The overall NPS ranking is medium.

Trappers Creek and Pine Creeks Watershed (BR12)

The Trappers Creek and Pine Creeks Watershed is located in Taylor and Clark Counties. The majority of the watershed is located in Taylor County, with 8 square miles in northern Clark County. Water quality conditions for the Trappers Creek and Pine Creeks Watershed in Clark County are more closely associated with water quality conditions in the Popple River Watershed; however, the DNR has not conducted a comprehensive survey of this watershed. In Clark County, less than 50 percent of the land cover in Trappers Creek and Pine Creeks Watershed is in agricultural use, and 35 percent classifies as wetlands. Pine Creek and Trappers Creek are high-priority candidates for nonpoint source pollution control efforts due to streambank pasturing and barnyard runoff. It is estimated that the annual average soil loss in this watershed is less than 2.0 tons per acre per year. The NPS stream ranking is low. The groundwater contamination potential ranking is medium. The overall NPS ranking is medium.

Black and Hay Creek Watershed (LC15)

The Clark County portion of the Black and Hay Rivers Watershed is 13.90 square miles in size and has 10 miles of streams. It is located in the southwest portion of Clark County. The land cover in this watershed is 65 percent forest, 15 percent agriculture, and 14 percent wetlands. Portions of this watershed support a limited Class III cold water sport fishery. Black Creek is the main tributary that drains into Coon Fork Lake in southeast Eau Claire County. Operated and maintained by Eau Claire County, Coon Fork Lake is an impoundment that has a campground, swimming beach, and picnic areas. In 2005, the Clark County Land Conservation Department, along with the Jackson and Eau Claire County Land Conservation Departments, received a lake management grant from the DNR. The lake management grant provided funds to install best management practices within the watershed that would reduce the amount of nonpoint source pollution entering Coon Fork Lake. Completed in 2010, the goal of the lake management grant

was to protect and maintain the water quality of Coon Fork Lake. On agricultural land in this watershed, the data provided by the *Coon Fork Lake Management Plan* (2004) estimates the average annual soil loss at 1.2 tons per acre per year. The most serious impacts to surface water Coon Fork Lake from cropland erosion and barnyard runoff are nutrient and bacteria loading. The NPS stream ranking is low. The groundwater contamination potential ranking is medium. The overall NPS ranking is medium.

South Fork Eau Claire River Watershed (LC16)

The South Fork Eau Claire River Watershed is 215.23 square miles in land size. There are 421.59 miles of streams, 450.19 lake acres, and 23,719.61 wetland acres in the watershed. It is located in the north central part of Clark County. Land cover in this watershed is 66 percent agriculture and 23 percent forest. There are 16.7 miles of Class III cold water sport fisheries and 50 miles of warm water sport fisheries. The three trout streams in Clark County are Scott Creek, Black Creek, and Dickison Creek. Nearly all tributaries in the South Fork Eau Claire River Watershed are meeting their potential use as a warm water fishery. There are two impoundments, Mead Lake and Rock Dam Lake, which support a warm water sport fishery and other recreational activities.

Mead Lake has a surface area of 320 acres and a maximum depth of 16 feet. The lake's watershed is primarily agriculture with some forest and wetlands. Agriculture dominates land use in the northern parts of the watershed, while most of the southern parts of the watershed are managed forest. Mead Lake has good populations of walleye, bass, musky, and panfish. It classifies as being highly eutrophic, and the DNR lists it as an impaired waterbody. The shoreline of Mead Lake is highly developed, having seasonal cabins and homes. The Clark County Forestry and Parks Department owns and operates the dam that creates the impoundment. They also own and operate a 71-site campground, a swimming beach, and a day-use picnic/playground area.

Rock Dam Lake is another impoundment in the South Fork Eau Claire River Watershed. It has a surface area of 125 acres and a maximum depth of 10 feet. It classifies as being eutrophic and the DNR lists it as an impaired waterbody. It has a limited warm water sport fishery, with bass and panfish being the primary species. Numerous wetlands primarily forest the watershed. The shoreline on the lake is highly developed. The Clark County Forestry and Parks Department operates a 150-site campground, a swimming beach, and picnic areas on the lake.

Cropland erosion, pastured streambanks, and low stream flow levels impact the surface water quality in the South Fork Eau Claire River Watershed that drains to Mead Lake. Transect survey data from 2011 estimates that the South Fork Eau Claire River Watershed has an annual average soil loss of 2.8 tons per acre per year. There is one industrial point source discharge and one concentrated animal feeding operation in the Mead Lake Watershed. A total maximum daily load was established for Mead Lake in 2009. The focus of the TMDL is to reduce phosphorus and sediment input into the lake by 30 percent. Wetland restoration is a high priority in the Mead Lake Watershed. Currently, Mead Lake has a nonpoint source lake ranking of high. The NPS stream ranking is low. The groundwater contamination potential ranking for this watershed classifies as medium. The overall NPS ranking is medium.

North Fork Eau Claire River Watershed (LC17)

The North Fork Eau Claire River Watershed has a drainage area of 110.25 square miles and 230 miles of streams in Clark County. It is located in the northwest part of Clark County. The land cover in this watershed is primarily agriculture, at 46 percent, with forested acreage making up 41 percent. There are both Class II and Class III cold water sport fisheries, as well as warm water sport fisheries, in this watershed. The DNR lists Sterling Creek as a class III trout fishery. The DNR considers the Wolf River, a tributary in the northeastern reaches, impaired. It is not supporting its designated use due to low dissolved oxygen levels. There are some concerns with surface water quality in this watershed, both from point and nonpoint sources of pollution. There is one industrial and one municipal point source discharge in the Clark County portion of the watershed. Streambank erosion and pasturing, as well as cropland erosion that causes in-stream sedimentation and aquatic habitat loss, are the major nonpoint source concerns. Transect survey data from 2011 indicates that the average annual soil loss rate in this watershed is 1.7 tons per acre per year. Excessive nutrient loading has also affected the river. The combination of nonpoint and point source nutrient discharges results in low dissolved oxygen levels in streams when base flow reduces during dry weather periods. The groundwater contamination potential ranking for the North Fork Eau Claire River Watershed is high. The stream ranking is low. The overall NPS ranking is high.

Upper Big Eau Pleine River Watershed (CW18)

The Upper Big Eau Pleine Watershed has a drainage area of 21.01 square miles with 38 miles of streams. It is located in the northeast portion of Clark County. The Clark County portion makes up only 10 percent of the total land volume of the watershed. The land cover is primarily agriculture, which makes up 90 percent of the land use. The Upper Big Eau Pleine River Watershed in Clark County has both warm water sport fishing and warm water forage fishing. The Dill Creek segment in the Town of Colby supports warm water sport fishing. Much of Upper Big Eau Pleine River Watershed in Clark County does not meet established water quality goals. The watershed has a “flashy” stream flow pattern that drastically fluctuates in flow between precipitation and snowmelt runoff events. During dry periods, the stream flow is stagnant. During wet periods, stream flow is quick and large amounts of sediment, bacteria, and phosphorus run off into the streams. Ultimately, these contaminants end up in the Big Eau Pleine Reservoir, where they can cause algae blooms that may result in fish kills. Sediment delivery from croplands and nutrient loading from animal waste are the major nonpoint sources of pollution in the watershed. Transect survey data from 2011 estimates an annual soil loss rate of 3.2 tons per acre per year. Municipal wastewater discharge is the major point source of pollution. There are two municipal point source discharges in the Clark County portion of the watershed. The Upper Big Eau Pleine is currently on the 303(d) list as an impaired water body. Marathon, Taylor, and Clark County Land Conservation Departments implemented a priority watershed project in 1985 through 1996 for the 6,677 acre Big Eau Pleine Reservoir in western Marathon County, completing the project in December 1997.

Currently, the Upper Big Eau Pleine River has an NPS ranking of high for streams, as well as a high ranking for groundwater contamination potential. The overall NPS ranking is high.

Little Eau Pleine River Watershed (CW14)

The Little Eau Pleine River Watershed has a drainage area of 11.76 square miles, with 21 miles of streams in Clark County. It is located in the east-central part of Clark County. The Little Eau Pleine River drains to the DuBay Flowage. The land cover is primarily agricultural, which makes up nearly 90 percent of the land use. The Little Eau Pleine River Watershed has both a warm water sport fishery and a warm water forage fishery. Cropland soil erosion, animal manure runoff, and streambank erosion affects the Upper Little Eau Pleine River. Research estimates the average soil loss rate at 3.0 tons per acre per year. There is one municipal point source discharge in the Clark County portion of the watershed. A shallow groundwater table in the watershed allows unused herbicides, pesticides, and fertilizers to leach into the groundwater. Silty, low-permeability soils that increase surface runoff to rivers and streams increase surface water quality problems. The nonpoint source stream ranking for the Little Eau Pleine River Watershed, according to the DNR, is low. The NPS ranking for groundwater is high. The NPS overall ranking is high.

Upper Yellow River Watershed (CW05)

The Upper Yellow River Watershed is located in the counties of Wood, Clark, and Marathon. Approximately 30 percent of the watershed, or about 53.39 square miles, is located in east-central Clark County. The drainage area of the Upper Yellow River has 92 miles of streams. The land cover is predominantly agriculture, which is 68 percent of the land use. There is one municipal point source discharge and three confined animal feeding operations in the Clark County portion of the watershed. The DNR funded the Upper Yellow River Watershed as a Priority Watershed Project in 1993, completing it in 2005. The DNR previously listed Upper Yellow River watershed as impaired. Going forward they will use a comprehensive water quality study conducted in 2011 in the Upper Yellow River Watershed to prepare a TMDL for Dexter Lake located in Wood County. Soil erosion is a problem in the watershed. The heavy silt loam soils and long slopes promote rapid runoff. The poorly drained soils can lead to rapid surface water runoff that carries sediment, bacteria and phosphorus into the surrounding waterways.

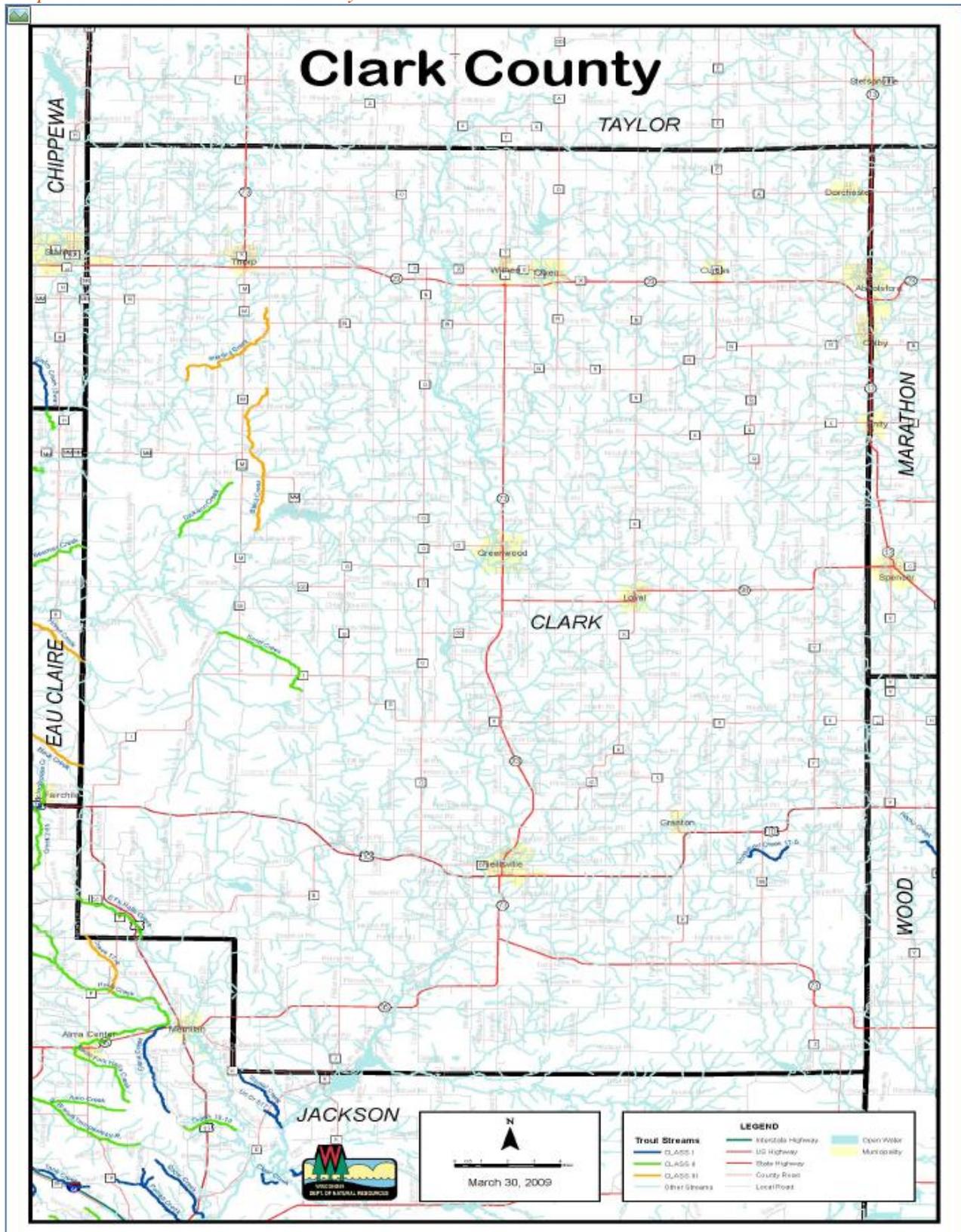
Transect data from 2011 estimates that the average annual soil loss rate is 2.0 tons per acre per year. Animal manure runoff from barnyards or pasture occurs on the main tributaries of the Yellow River. The DNR assessed 77 percent of the fish and aquatic life in the watershed as being poor quality. Sampled biotic index values for those streams indicate fair to poor water quality. The NPS stream and groundwater ranking for the Upper Yellow River Watershed is high. The NPS overall ranking is high.

Exceptional and Outstanding Resource Waters

Clark County has no designated “outstanding” resource waters (ORW) (See Map 14). Within Clark County, the only “exceptional” resource water (ERW) listed is an unnamed creek (17-5, T24N R1E)—a branch of Cunningham Creek—in the Town of Lynn between Division Ave. and County Highway W. This segment of the Cunningham Creek is a Class II trout stream. Other streams are currently in the process of classifying as trout water, which results in an exceptional water designation. These streams include Black Creek, Dickinson Creek, Halls Creek, Scott Creek, and Sterling Creek in Clark County. The definition of ORW is a lake, stream or flowage

having excellent water quality, high recreational and aesthetic value and high quality fishing. ORW waters are free from point source or nonpoint source pollution. The definition of ERW is a lake, stream, or flowage exhibiting the same high quality resource values as ORW, but differs by point source pollution impact or harboring the potential for future discharge from a small sewer community.

Map 15: ERW & ORW in Clark County



Fish Habitat

Clark County has nearly 4,500 acres of surface water; however, not all are suitable for fishing. Approximately 3,700 acres provide habitats for fish. The game fish found in Clark County waters include muskellunge, walleye, large and smallmouth bass, northern pike, pan fish, and crappies. There are approximately 20 miles of trout streams in Clark County, and most streams are dependent on restocking programs.

Woodlands

Forest, second only to farmland and pasture in amount of total land cover, is one of the most prominent land cover features found in the county. Forests are also important to the county's resource base, culture, and economy. Forest land serves many functions, adds value to both the local economy and quality of life, and contributes to the county's rural atmosphere. Forests provide wildlife habitat, recreational opportunities, timber and pulpwood, and educational opportunities. They connect to many aspects of the local and regional economy. The health and management of these forests have many implications for the county.

Historic Condition

Before Clark County became settled, it consisted mostly of a conifer-hardwood forest. Logging activities and land clearing for agriculture have removed most of the original old growth forest. Native forest types varied widely in the county, according to the DNR's map: *Original Vegetative Cover of Wisconsin*. Clark County is located within Wisconsin's tension zone, where southern deciduous forests are intermingled with northern coniferous forest types. Native forest communities include:

Upland Mixed Conifer – Deciduous

Hemlock, sugar maple, yellow birch, white pine, red pine

Sugar maple, yellow birch, white pine, red pine

White pine, red pine

Aspen, white birch, pine

Deciduous

White oak, black oak, bur oak, red oak

Sugar maple, basswood

Forested Wetland

White cedar, black spruce, tamarack, hemlock

Willow, soft maple, box elder, ash, elm, cottonwood, river birch

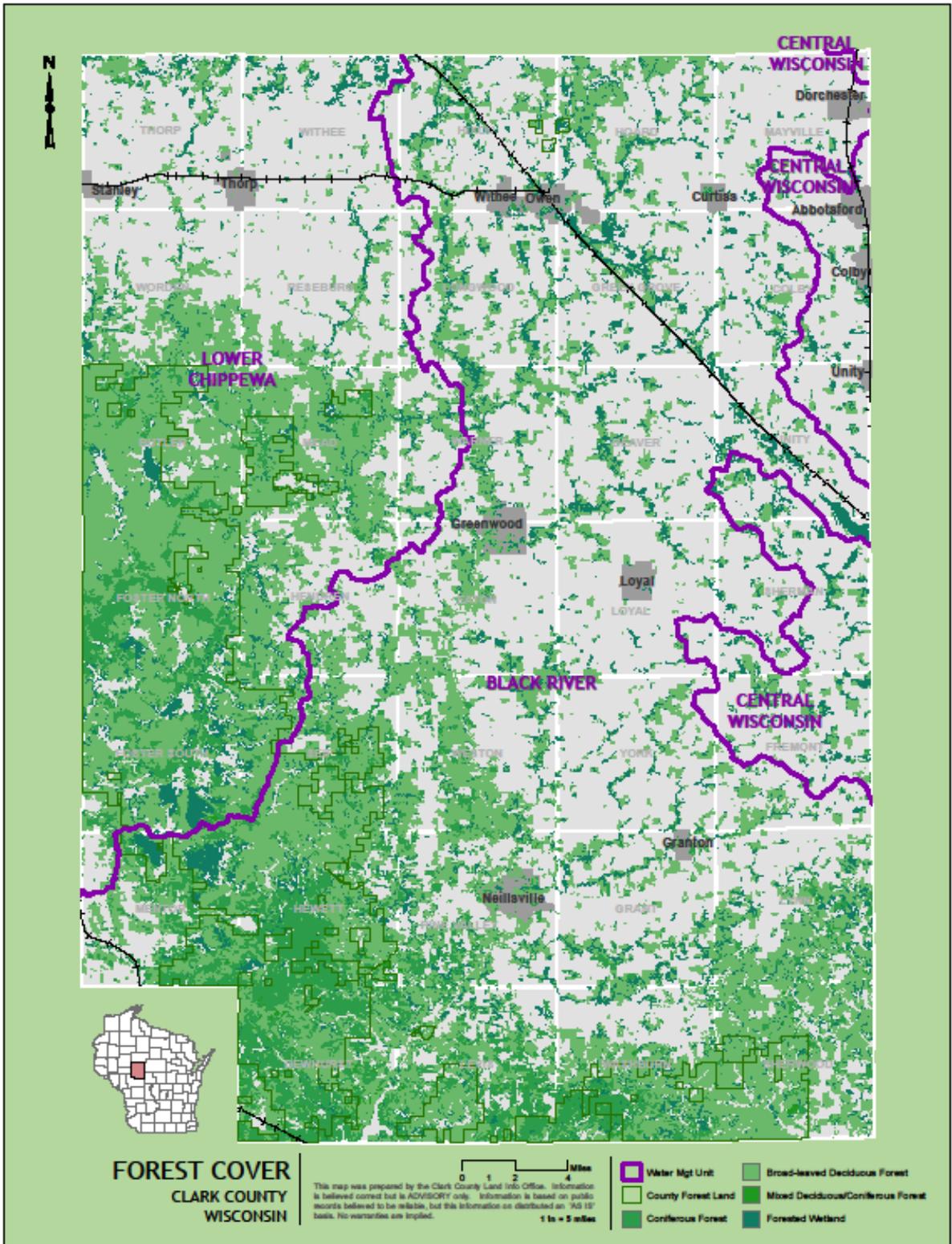
The Clark County Forest was established in 1934 and included 120,000 acres by 1937. Prior to 1934, people attempted farming, with little success, on the lands that became the County Forest. Natural regeneration and tree planting by the Civilian Conservation Corp aided reforestation.

Current Condition

Today, forested land makes up approximately 43% of the county: there are 334,368 acres of forest, including privately and publicly owned lands, See Map 15. Privately held forest lands include both individual and corporate owners. Private owners generally manage their forest lands for recreational use, for timber and pulp production, and/or for future development. Many of the Amish settlements in Clark County provide localized mill operations and depend on timber production in the county for their mills, which provide secondary incomes. The Clark County Forest currently covers nearly 134,000 acres and is the 6th largest county forest in the state. The county forest is mostly in the southern and southwestern areas of the county. According to the *Clark County Forest 15 Year Comprehensive Land Use Plan*, the forest has recovered from its 1930s condition and is now approximately 85% forested. The forest now generates significant revenues for the county, primarily through pulpwood harvests.

In some areas of Clark County, farmers are harvesting small woodlots for the purpose of crop planting. Woodlots are also being destroyed because an increasing share of the property tax burden continues to be shifted to recreational landowners, primarily due to use-value assessment and the rising assessed value of forest land. Use-value assessment is lowering the property tax burden for owners of agricultural land, thus placing more demand on non-agricultural properties. Rising property taxes for forest landowners have led to a sharp increase in Managed Forest Law (MFL) program enrollment. This DNR program provides a property tax break for forest owners who agree to adopt a forest management plan, conduct a timber harvest, and pay a 5% tax on the timber sale.

Map 16: Forest Land in Clark County



Air Quality

In order to evaluate the quality of the air and to protect the public health, the U.S. Environmental Protection Agency (EPA) developed a series of National Ambient Air Quality Standards (NAAQS), as established in section 109 of the Clean Air Act. According to the Wisconsin Air Quality Report, as prepared by the DNR, the air pollutants affecting Wisconsin include sulfur dioxide, suspended particulate matter, carbon monoxide, ozone, oxides of nitrogen, lead, sulfates, and nitrates. The NAAQS (defined in the Federal Clean Air Act) consider Clark County an attainment area.

The main air pollutants of concern are carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter and sulfur dioxide. Below is a table illustrating the maximum level reached before the level is a concern. The maps include the whole state of Wisconsin, but observation sites are sparsely located. We obtained this data from the DNR Air Quality Trends 2001-2017 Publication Number: AM-564 2018.

Table 7: Air Pollutants in Clark County

Pollutant		Primary / secondary	Averaging time**	Level	Definition**
Carbon monoxide		primary	8 hr	9 ppm	not to be exceeded more than once per year
			1 hr	35 ppm	
Lead		primary and secondary	3 mo	0.15 µg/m ³	maximum 3-mo mean over 3 yr
Nitrogen dioxide		primary	1 hr	100 ppb	annual 98th percentile value of daily maximum 1-hr concentrations, averaged over 3 yr
		primary and secondary	annual	53 ppb	annual mean
Ozone		primary and secondary	8 hr	0.070 ppm (2015 standard) 0.075 ppm (2008 standard)	annual fourth-highest daily maximum 8-hr concentration, averaged over 3 yr
Particulate matter	PM _{2.5}	primary	annual	12.0 µg/m ³	annual mean, averaged over 3 yr
		secondary	annual	15.0 µg/m ³	annual mean, averaged over 3 yr
		primary and secondary	24 hr	35 µg/m ³	annual 98th percentile value, averaged over 3 yr
	PM ₁₀	primary and secondary	24 hr	150 µg/m ³	not to be exceeded more than once per year on average over 3 yr
Sulfur dioxide		primary	1 hr	75 ppb	annual 99th percentile value of daily maximum 1-hr concentrations, averaged over 3 yr
		secondary	3 hr	0.5 ppm	not to be exceeded more than once per year

* Based on <https://www.epa.gov/criteria-air-pollutants/naaqs-table>.

** hr = hour, mo = month, yr = year; 3-mo, 8-hr, and 3-hr averages are calculated as rolling averages; in contrast, annual averages are for the calendar year and 24-hr averages are for the calendar day (i.e., are not rolling)

8-Hour Ozone Design Values: 2015-2017

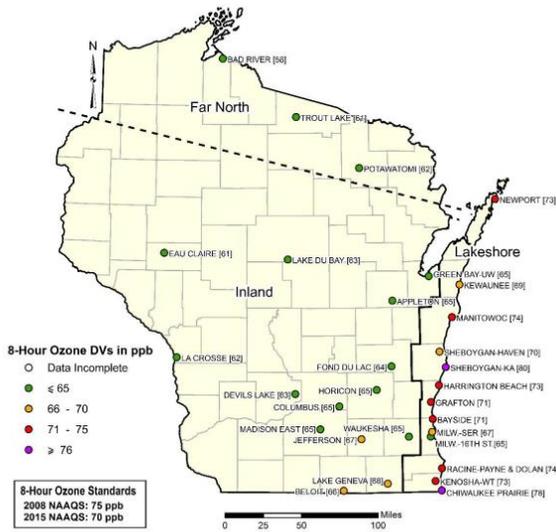


Figure 15. The 8-hr ozone design values for each monitoring site¹⁵ for 2015-2017. Note that the Far North region includes the three sites shown, but its boundaries are not clearly defined.

Annual PM_{2.5} Design Values: 2015-2017

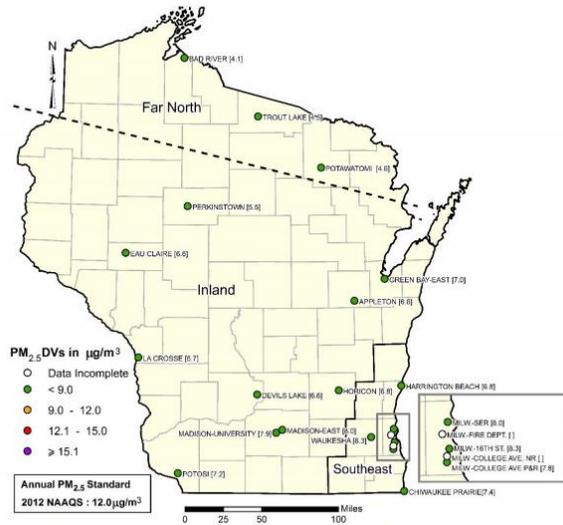


Figure 19. The annual PM_{2.5} design values for each monitoring site for 2015-2017. Note that the Far North region includes the three sites shown, but its boundaries are not clearly defined.

1-Hour SO₂ Design Values: 2015-2017

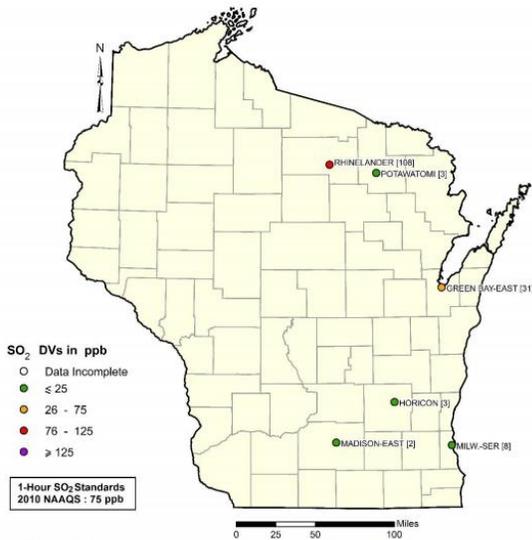


Figure 29. The 1-hr SO₂ design values for each monitoring site for 2015-2017.

Annual NO₂ Design Values: 2017

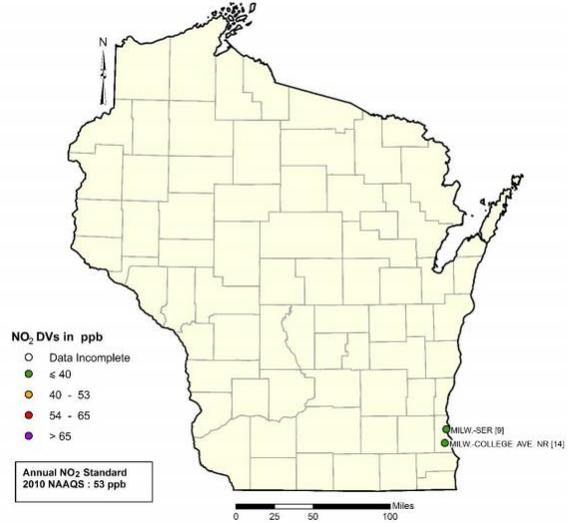


Figure 31. The annual NO₂ design values for each monitoring site for 2017.

3-Month Lead Design Values: 2015-2017

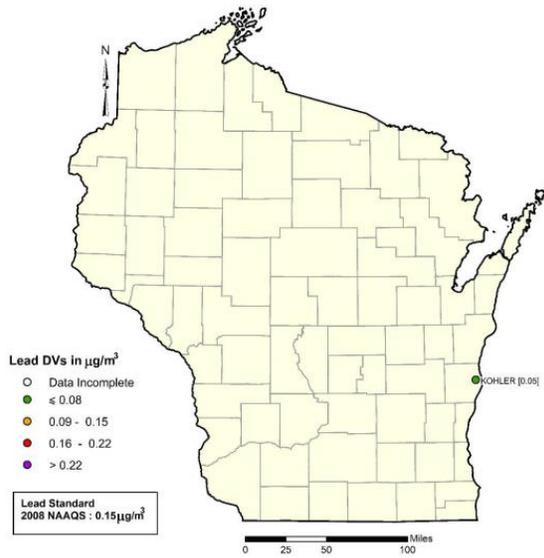


Figure 35. The 3-mo lead design values for 2015-2017.

8-Hour CO Design Values: 2017

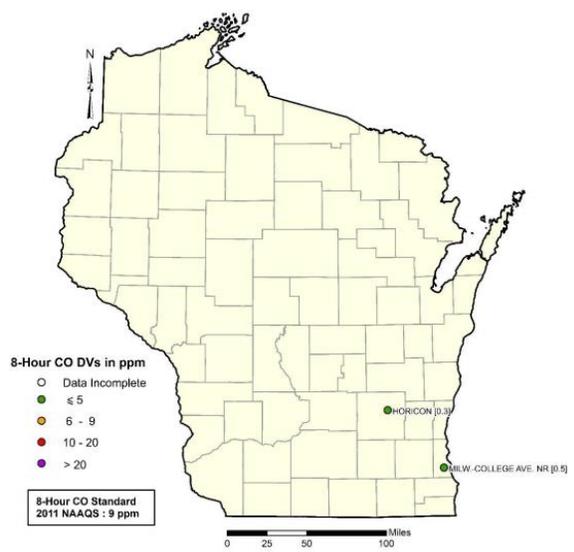


Figure 37. The 8-hr CO design values for each monitoring site for 2017.

Habitat and Ecology

Wisconsin's Land Legacy Report

The Wisconsin Department of Natural Resources has developed a report aptly nicknamed the "green print" for conservation and recreation over the next 50 years. *Wisconsin's Land Legacy Report*, released in January of 2006, identifies places that are critical in meeting conservation and recreation needs in the future. The report defines which places have the highest priority to protect for the future and why. The DNR identifies the areas listed below as being within or partially within Clark County and include them within the study.

Black River Corridor

This area includes the entire corridor of the Black River and the East Fork of the Black River, over 100 miles of large river habitat. It is one of the most undeveloped rivers in the state, which provides for an exceptionally unique opportunity to enjoy the aesthetics of being on a "wild river". In addition, we find that there are many threatened and endangered species along the river corridor, and many archeological sites on the terraces above the Black River floodplain. The lowland areas consist of tag alder, sedge meadows, and bogs. Lower reaches of the river consist of native floodplain forest, backwater oxbows, and high-quality wetland communities. Upland vegetation consists of jack pine and oak sand barrens changing to oak, maple, and basswood, intermixed with white pine. This corridor connects to the Mississippi River, runs through the Black River State Forest, and leads north to the Chequamegon National Forest. In addition to this ecologically important linkage, the Black River is a favorite of canoeists.

Central Wisconsin's Grassland

This large landscape in central Wisconsin extends into eastern Clark County and provides one of the state's best opportunities to maintain and restore habitat for a number of rare grassland birds, including the prairie chicken and sharp-tailed grouse. Mead and McMillan Marsh Wildlife Areas form the core of this large grassland area. These wildlife areas host a variety of vegetative communities, including tamarack and black spruce bogs, sedge meadow, upland grass, agricultural areas, various successional stages of timber, and extensive wetlands. The Little Eau Pleine River serves as a natural link between these wildlife areas. Farmland (both active and retired) and individual or multiple home developments dominate the rural landscape. The area is in close proximity to Stevens Point, Wisconsin Rapids, Marshfield, and Wausau, and it hosts many recreational activities, including the hunting of deer, waterfowl, and upland birds; trapping; hiking; berry picking; bird watching; snowmobiling; snow-shoeing; and cross-country skiing.

Large Scattered Forest Blocks

Many large blocks of industrial forest provide wood products that are important to Wisconsin's economy. The DNR's Forest Crop Law (FCL) or Managed Forest Law (MFL) programs enroll much of this industrial forest and provide considerable conservation values and public recreation opportunities. These working forests also harbor many valuable features such as spring ponds,

small and undeveloped lakes, marshes, and trout streams. Often these lands are large enough to provide visitors with a remote, quiet experience. Many adjoin state, federal, and county properties. Some of these large blocks of forest are in danger of being divided into smaller parcels and closed to public access. Maintaining these large blocks as working forests will ensure that they continue to meet economic and recreational needs and will help meet the ecological needs of those species that require large acreages of habitat to survive.

Chapter 3: Resource Assessment

Surface Water

Clark County has an abundance of surface water from several rivers and man-made impoundments. Unfortunately, over time, sediment and nutrients have polluted many of these that some years cause severe algae blooms. Most of these sediments and nutrients result from soil erosion and manure runoff from farm fields. The completed 2007 Mead Lake TMDL (Total Maximum Daily Load) has documented sediment and manure to be the

major cause of degradation in Mead Lake. Polluted lakes can be a major deterrent to visitors that come and stay at the county's campgrounds or have cabins on lakes. Lakes that have high occurrences of algae blooms can also affect fish populations by reducing the oxygen levels in the water. These blooms are unsightly and odorous, and people often do not want to swim, boat, or fish in that water. If blue-green algae are present, they can produce toxins that may cause skin rashes, respiratory infections, stomach problems, paralysis, and (in the worst cases) death.

Clark County has been very proactive in promoting nutrient management planning and manure storage to reduce manure spreading during sensitive times of the year. The county has also been proactive in encouraging farmers to credit all sources of applied nutrients by implementing a Nutrient Management Plan so that less sediment and nutrients get into the county's surface waters. Nutrient Management Plans credit all home-grown sources of nutrients, like manure. Based on crop rotations, soil fertility levels, and field slopes, the crop utilizes the manure when applied at the right amounts and times and it does not end up in ground and surface water. Nutrient Management Plans also have recommendations for commercial fertilizer rates and types. Nutrient Management Plans should follow the 4R's of nutrient applications: Right Place, Right Rate, Right Type, and Right Time. Still, only 46% of the cropland acres in the county have a Nutrient Management Plan, which leaves a significant amount of acres that may be getting excessive nutrients and/or are not meeting tolerable soil losses.

Mead Lake during an algae bloom



Mercury Pollution

Sediment and runoff, as well as mercury from the natural breakdown of rocks, soil and fallout from burning coal in power plants to the West pollute the Black River, Lake Arbutus, and Lake Sherwood. Mercury naturally occurs in coal, and when the coal burns, it releases itself into the atmosphere, where it eventually falls out over the landscape below. Recently, power plants have been required that significantly reduce the amounts of mercury they release, but the damage has already been done. The mercury that has been released is sitting on the bottom of lakes and rivers, where it gets mixed occasionally into the water column and consumed by fish and can be passed down the food chain. Table 1, Fish Consumption Guidelines, gives recommendation for consuming fish in Clark County from water bodies that can have elevated levels of mercury.

Mercury from the fish people eat can build up and reach levels that affect the nervous system. Infants and children of women who have consumed too much contaminated fish during pregnancy may have lifelong changes in brain function affecting learning, coordination, and reaction times. In adults and older children, mercury can affect cognitive thinking, coordination, balance, vision, hearing, and speech. Some studies have also found higher rates of heart disease in men who had elevated mercury levels. It takes the human body about 60 days to eliminate half of the mercury ingested, so people should eat fish with higher mercury concentrations less frequently.

Table 8: Fish Consumption Guidelines in Clark County

Waterbody	Guidelines for women under 50 & children under 15 (mercury)	
	Up to 1 meal per month	DO NOT EAT
	Guidelines for women over 50 & men (mercury)	
	Up to 1 meal per week	Up to 1 meal per month
Black River: below Lake Arbutus to Black River Falls	Black crappie	
Cranberry Flowage, Upper	Black crappie, Bluegill	Largemouth bass over 19"
Harkner Flowage	Black crappie, Yellow perch	
Lake Arbutus (Black River)	Black crappie, Bluegill	Channel catfish over 25", Smallmouth bass over 17", Walleye over 22"
Lost Lake (Ranch Creek)	Black crappie, Bluegill	Largemouth bass over 21"
North Flowage	Black crappie	Largemouth bass over 15"
Potter's Flowage	Black crappie, Yellow perch	Largemouth bass over 18"
Sherwood Lake	Black crappie	Largemouth bass over 16"
Townline Flowage	Black crappie, Yellow perch	
White Tail Flowage	Yellow perch	Northern pike over 22"

Wisconsin Department of Natural Resources

Groundwater

Groundwater is the source of all drinking water in Clark County, and it supplies many agricultural and industrial processes as well. Groundwater is a limited resource, and both its quality and quantity are important factors. Local geology and local land use influence these factors.

Groundwater in Clark County is generally abundant and of good quality. Three primary aquifers are present in the county: the sand and gravel aquifer, the sandstone aquifer, and the crystalline rock aquifer. The sand and gravel aquifer is present throughout most of the county at approximately 20 to 50 feet below the ground surface. This aquifer is easily accessible, but it is also the most easily contaminated. The sandstone aquifer is a deep aquifer and one will find this in the western and southeastern portions of Clark County. Groundwater is abundant in the sandstone aquifer and is generally less susceptible to contamination. The crystalline rock aquifer is also a deep aquifer and one will find this in the Northern and northeastern portions of the county as well as along the course of the Black River throughout the county. The crystalline rock aquifer yields low to moderate amounts of water, but it is generally less susceptible to contamination.

Groundwater contamination is most likely to occur where fractured bedrock is near the ground surface, or where only a thin layer of soil separates the ground surface from the water table. According to a DNR map, *Groundwater Contamination Susceptibility in Wisconsin*, 1989, Clark County is moderately susceptible to groundwater contamination. Bacteria and nitrates are the two ground water contaminants that are occurring in Clark County of concern.

Potential sources of groundwater contamination include:

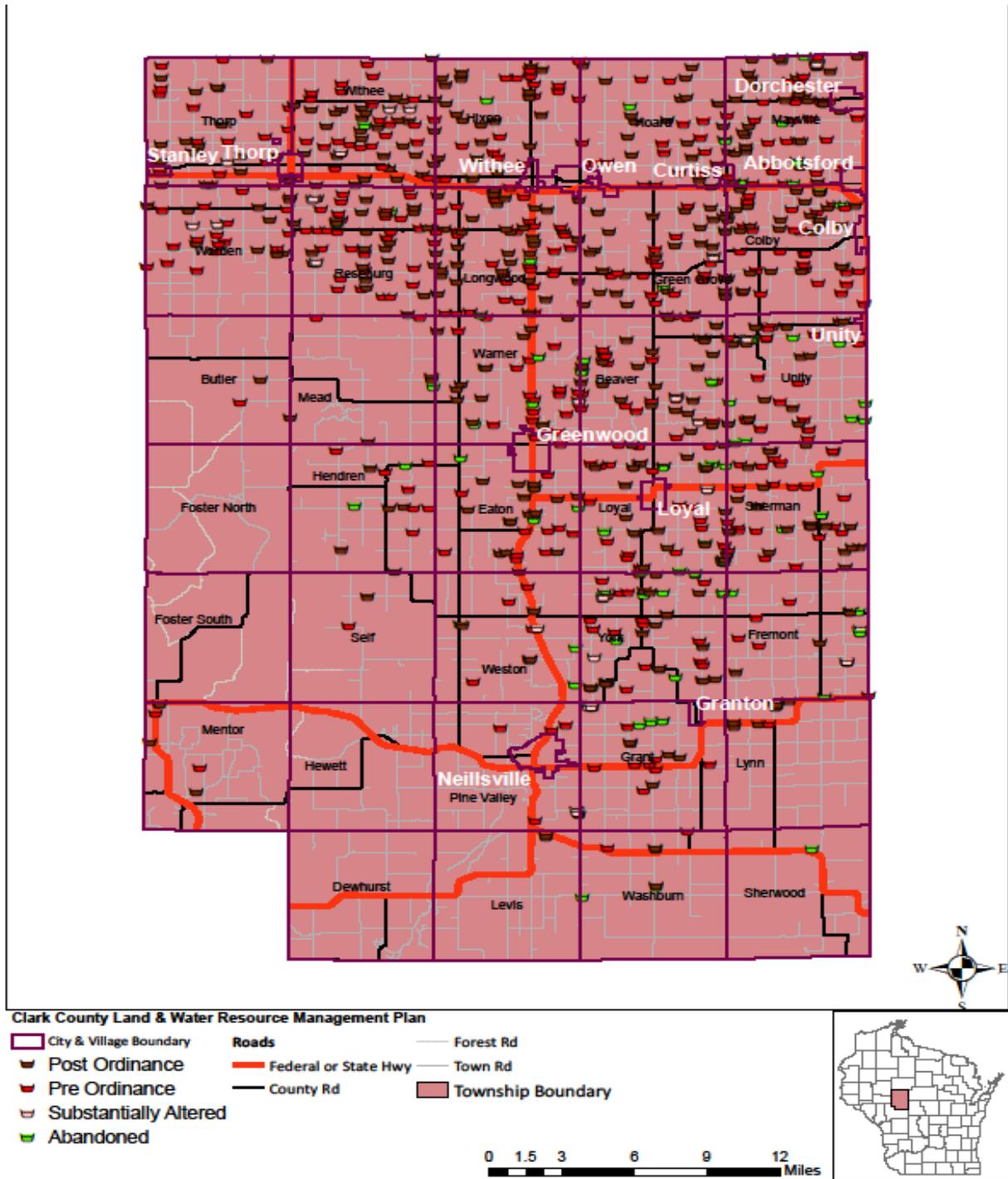
- Animal feedlots and manure storages
- Unused wells that have not been properly closed
- Use of manure, fertilizers, and pesticides
- Land spreading of petroleum contaminated soils
- Chemical and fertilizer storage
- Land spreading of industrial, municipal, and residential wastewater, sludge, and septage
- Out-dated or neglected up-to-date septic tanks and drainfields
- Underground storage tanks, pipelines, and sewers
- Accidental spills of chemicals, fertilizers, manure, and petroleum products
- Improper disposal of household and agricultural chemicals and hazardous waste
- Existing and abandoned landfills and improper disposal of household waste
- Mines, pits, and quarries

The main sources for polluted groundwater in Clark County are old leaking manure storages, old unused wells that have not been properly decommissioned, and outdated or mismanaged private on-site septic systems or POWTS. Clark County has hundreds of pre-ordinance manure pits that built as early as the mid-seventies. Back when they first built these manure pits, the county did not have any manure storage ordinance, and no construction standards existed until 1985, when the county passed a countywide ordinance covering construction of manure pits. The county

sometimes constructed the without any knowledge of separation to bedrock, groundwater, or the soil material between.

These pre-ordinance manure pits may be leaking because of a lack of a solid liner through which, over time, manure can leach into groundwater. The Land Conservation Department is taking an aggressive stance on closing these old manure pits by offering cost-sharing and providing free engineering services to develop a decommissioning design. Still, in many cases, the landowner needs to take the initiative to get these closed. A permit from the Land Conservation Department is required.

Map 17: Manure Storages by Type in Clark County



Old, unused wells are another source for groundwater contamination. Probably hundreds of these wells are located in fields, abandoned building sites, and even in some homes where someone currently lives and uses a replacement well. Hand-dug wells are the worst-case scenario; sometimes, no covers are over them, so anything from rodents to people could potentially fall into them. According to Chapter 812.26, any well or drillhole removed from service should be

properly filled and sealed within 90 days by a DNR certified well closer. Old, drilled wells can also be a source for groundwater contamination from deteriorating well casings and caps or from missing caps altogether. In some cases, farmers are tilling and spreading manure and chemicals within a couple of feet of old wells in their fields. Landowners need to be aware of the potential to pollute groundwater, which can result in health and legal consequences.

Unused Hand Dug Well



Better known as septic systems, Private On-Site Waste Treatment Systems (POWTS), when installed correctly, can be a safe way to treat raw sewage. However, when the systems are old and neglected, they can be a source for nitrates and bacteria in groundwater. Clark County’s outdated septic systems probably number in the thousands and are still prevalent throughout the county—see map 12. Outdated septic systems may include drain pipes that run from the septic tank to a road ditch “Ditch Pukers” or an open drain field ditch and old metal septic tanks that could date back to the 1940s that rust out and leak. In order for a septic system drain field to function properly, one should pump their septic tank at least every three years. Clark County did not require septic systems to be recorded until the early 1980s, so some of the systems on the map may have been installed correctly prior to the county ordinance and are functioning as they should but have not been recorded. It should also be pointed out that some systems, like holding tanks, have been installed and are recorded, but the homeowner may be taking a sump pump and pumping them out illegally instead having it done by a licensed septic hauler. Bottom line, one must consider these factors regarding the accuracy of this map. The county and state do have financial incentives to replace outdated septic systems, and landowners need to take the initiative to upgrade their systems.

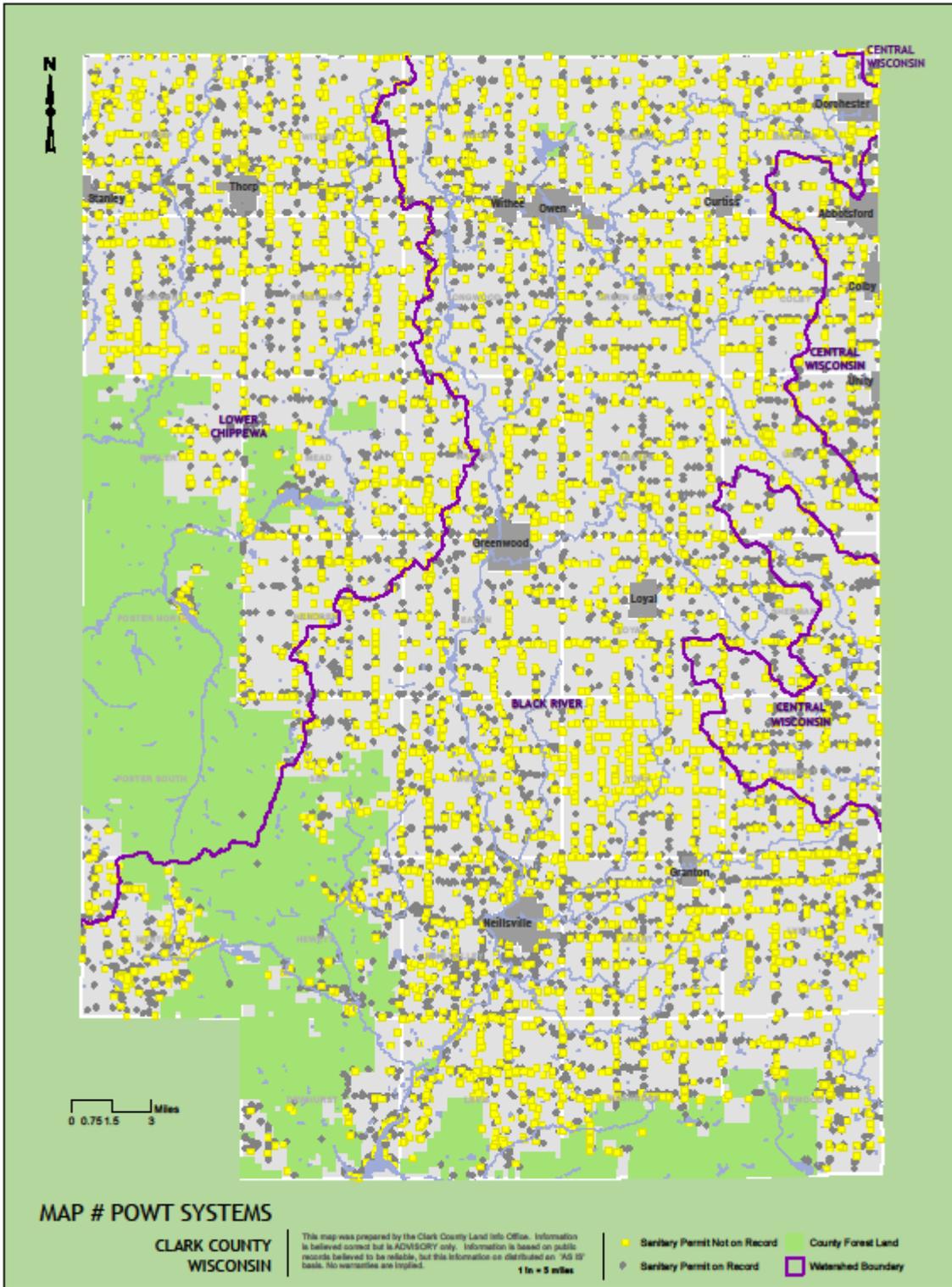
If consumed, water contaminated by bacteria can cause flu-like symptoms and, in the case of some types of bacteria, even death. Tested wells that show a high level of bacteria are scattered around the county—see map 20 for reference.

Table 9: Non-Permitted Septic System by Watershed

Watershed	Non-permitted Septic Systems	Total acres	Acres/Non-permitted Septic's
Halls Creek (BR06)	28	57,600	2,057
East Fork Black River (BR07)	93	193,280	2,078
Fivemile and Wedges Creeks (BR08)	171	78,080	457
Lake Arbutus-Black River (BR09)	599	130,560	218
Rock Creek-Black River (BR10)	498	106,880	215
Popple River (BR11)	509	106,880	210
Trappers-Pine Creeks-Black River (BR12)	136	109,440	805
Rocky Creek-Yellow River (CW05)	133	138,880	1,044
Little Eau Pleine River (CW14)	35	161,280	4,608
Dill Creek-Big Eau Pleine River (CW18)	86	140,800	1,637
Hay Creek-Eau Claire River (LC15)	10	102,400	10,240
South Fork Eau Claire River (LC16)	373	147,200	395
North Fork Eau Claire River (LC17)	286	131,840	461

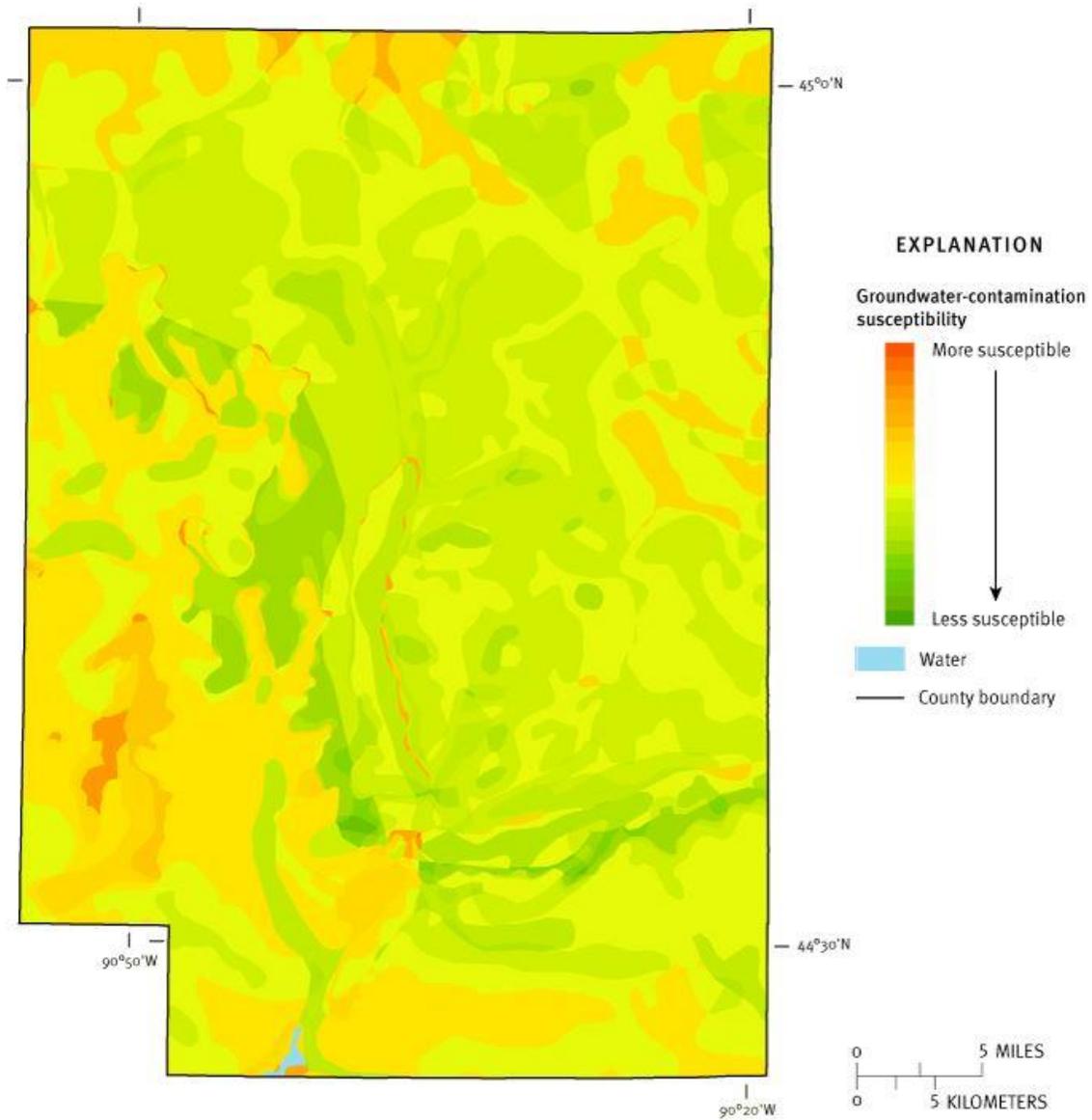
Clark County Planning and Zoning Department

Map 18: Septic System in Clark County



Map 19: Goundwater Contamination by Soil Texture in Clark County

Clark County – Groundwater-Contamination Susceptibility Analysis

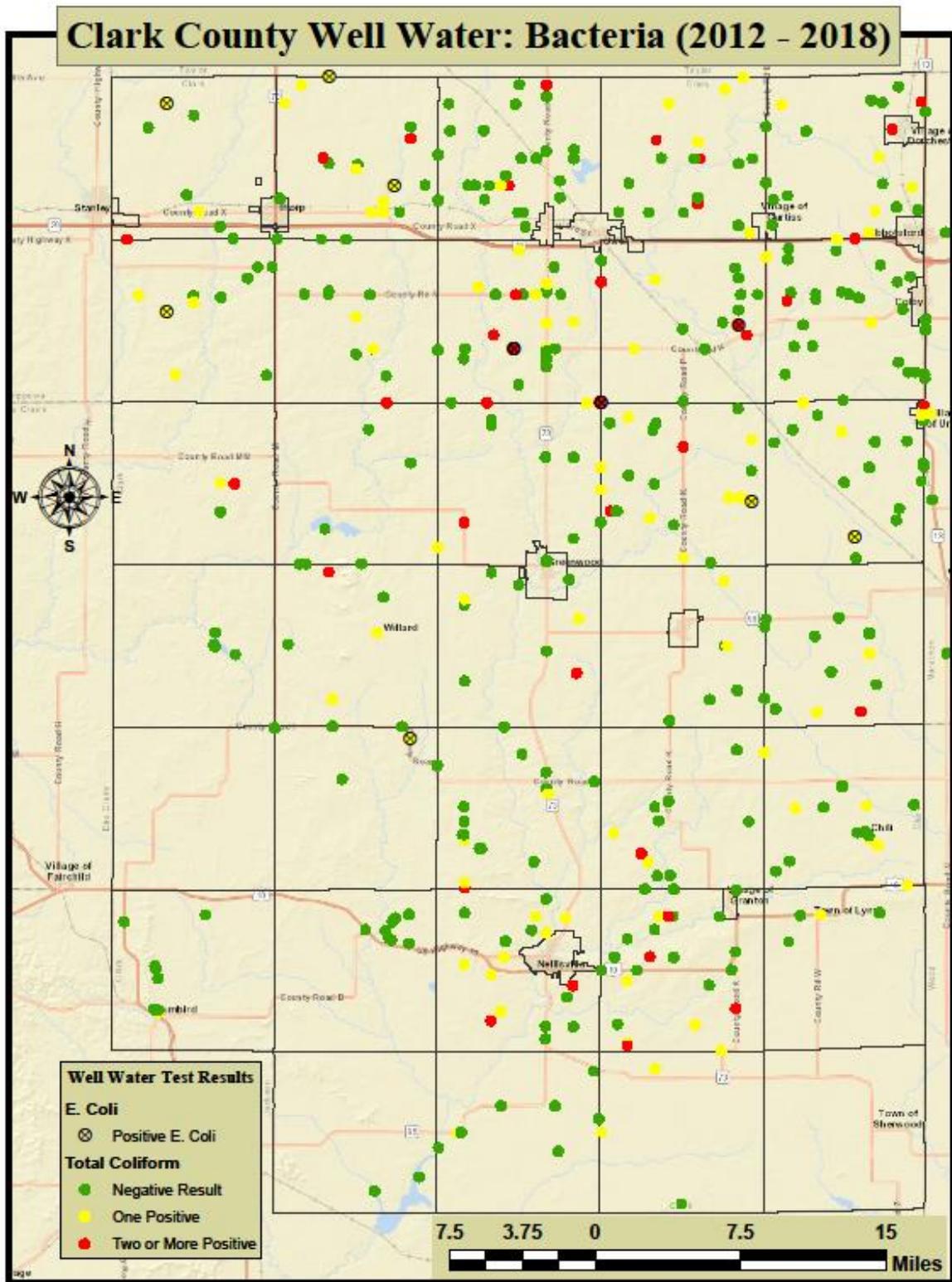


This groundwater-contamination susceptibility map is a composite of five resource characteristic maps, each of which was derived from generalized statewide information at small scales, and cannot be used for any site-specific purposes.

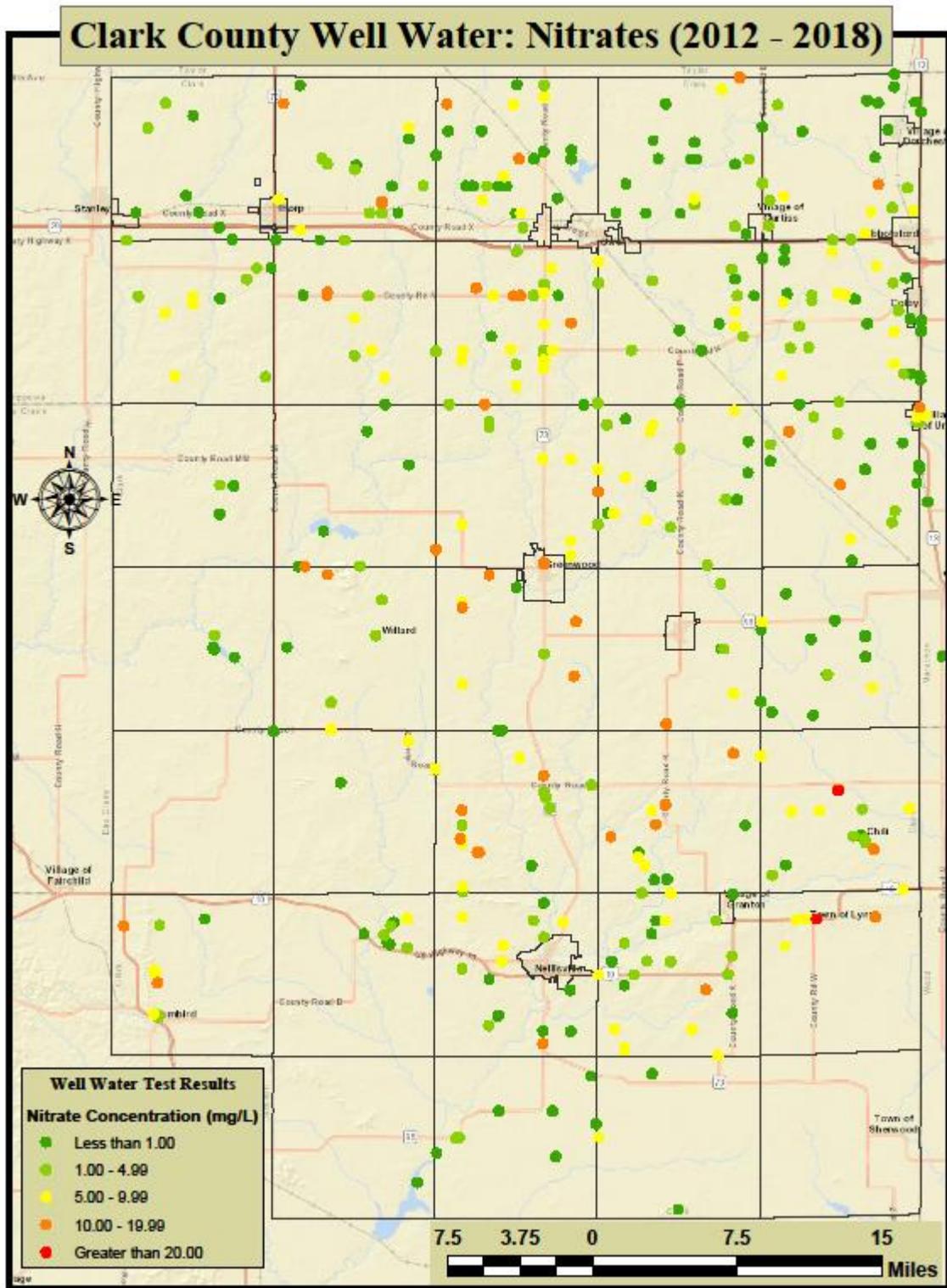
Map source: Schmidt, R.R., 1987, Groundwater contamination susceptibility map and evaluation: Wisconsin Department of Natural Resources, Wisconsin's Groundwater Management Plan Report 5, PUBL-WR-177-87, 27 p.

Figure created for the "Protecting Wisconsin's Groundwater Through Comprehensive Planning" web site, 2007, <http://wi.water.usgs.gov/gwcomp/>

Map 20: Groundwater Bacteria Levels in Clark County



Map 21: Ground Water Nitrate Levels in Clark County

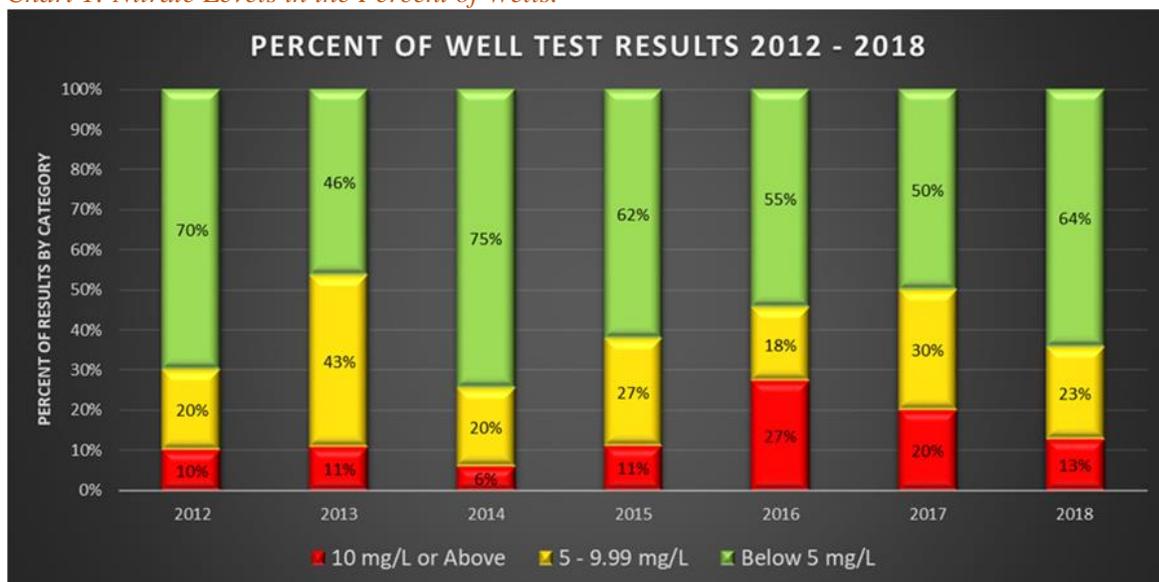


Groundwater Testing

Groundwater testing in the county is generally broken down into two classes: public wells and private wells. Public water such as the water in restaurants, the water in schools, and city water are tested by the DNR and Clark County Health Department regularly for water quality. Private wells are generally out in the country and are only tested when drilled or when the landowner wishes to test his or her water. Dairy farms are required to test their water at least once every two years. Over the last several years, the Land Conservation Department and the Clark County Health Care Department have received grants to offset the cost of sampling private wells to help encourage homeowner well testing. The Health Department has a program where any home with a pregnant woman or a child under six months of age is eligible for free water testing for nitrates and bacteria. Children in the womb or up to one year of age are especially susceptible to nitrate levels above ten PPM, which can cause Blue Baby Syndrome. Blue Baby Syndrome can be a serious concern, as children with this condition cannot get enough oxygen into their blood, and it can be deadly if not treated immediately. Research has shown that even adults that consume drinking water that is above the recommended levels for nitrates can be susceptible to increased risks of colorectal cancer (Schullehner J, et al. *Int J Cancer*. 2018).

According to the Clark County Healthcare Department, based on analysis results of private groundwater sources for nitrates, nitrates appeared to be trending upwards between 2012 and 2018 (see chart 1). There may be several reasons for the variability between years. One reason for variation could be that more precipitation may cause more nitrates to leach down into the aquifer. The county did not test the same wells every year, so some wells will test higher and some will test lower due to location. Private wells with high levels of nitrates in them are scattered throughout the county and do not show any direct correlation to soil type (see map 11).

Chart 1: Nitrate Levels in the Percent of Wells.



Clark County Health Department

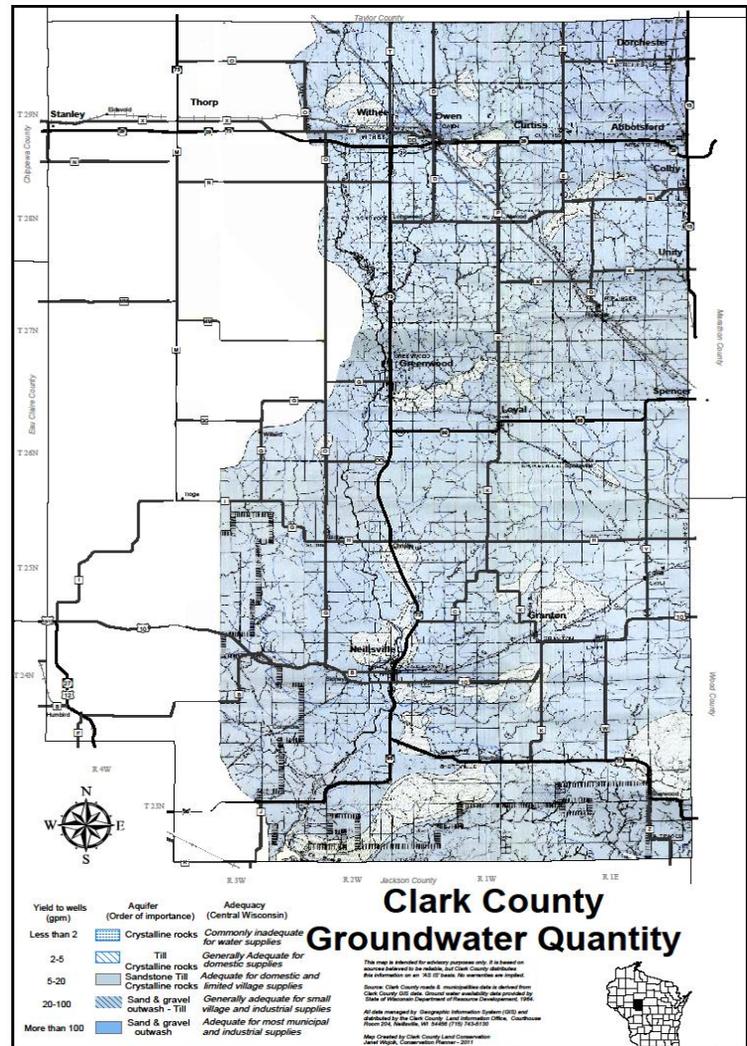
Groundwater Quantity

According to the Geological Survey Water-Supply Paper, 2022 published in 1974 by the U.S. Department of the Interior and the University of Wisconsin Geological and Natural History Survey, "Water Availability in Central Wisconsin—An Area of Near-Surface Crystalline Rock" reports that most of Clark County is located in a region of Wisconsin that is considered to be groundwater quantity deficient. This survey can be found at http://wi.water.usgs.gov/pubs/water_supply_papers.htm.

Many private and public drinking water wells in this area yield low amounts of water to the order of two to five gallons per minute. Soils of low permeability impede downward seepage and promote rapid surface runoff. Many farms have multiple wells. Farmland and other open spaces are essential for groundwater infiltration; these types of landscapes are pervious and allow rainwater and snowmelt to infiltrate through the soil profile and contribute to recharging the supply of groundwater.

Residential development is often associated with increased impervious surfaces because of concrete and blacktop, which limit rainwater and snowmelt infiltration, thereby decreasing the amount of groundwater recharge and increasing the amount of runoff water that may transport pollutants into the surrounding surface waters. The best land use for increasing infiltration of water, and subsequently groundwater quantity, is agricultural, forested wetland, and other open space lands where concrete or blacktop do not cover the surface.

Map 22: Groundwater Quantity by Bedrock type in Clark County



Wellhead Protection

A wellhead protection area is a surface and subsurface land area regulated to prevent contamination of a well or well-field supplying a public water system. State governments implement this program, established under the Safe Drinking Water Act ([Wikipedia](#)). The goal of wellhead protection is to prevent potential contaminants from reaching the wells that supply municipal water systems. Monitoring and controlling potential pollution sources within the land area that recharges those wells is what accomplishes this.

The DNR administers wellhead protection planning as required by the U.S. Environmental Protection Agency (EPA) and the 1986 amendments to the Federal Safe Drinking Water Act. Wellhead planning is encouraged for all communities, but it is required when any new municipal well is proposed.

The general process of community-level wellhead protection planning includes:

1. Forming a planning committee
2. Delineating the wellhead protection area
3. Inventorying potential groundwater contamination sources
4. Managing the wellhead protection area

In Clark County, the City of Colby, Greenwood, Thorp, and Village of Withee have DNR-approved wellhead protection plans for all of their municipal wells. See Appendix: L for map of the municipalities with well protection.

Soil Erosion

Most of the soils in Clark County are loamy in nature, which, coupled with the rolling topography of the county, leads them to be more prone to erosion. Before the advent of growing soybeans profitably this far north, and when dairy farms only had one or two years of corn in a rotation that included three to four years of hay, soil surfaces were protected better. Now, it is not uncommon to see fields planted with three to four years of continuous corn grain or corn and soybean rotations. More corn silage is also being grown now because it is a good source of dairy feed; this means there is less crop residue to protect the soil after silage is harvested. Extensive tillage is also being over-practiced in the county. Moldboard plowing is still common in some parts of the county, although chisel plowing is growing in popularity. Moldboard plowing has several detrimental effects to the soil: one, it buries most or all of the previous crop's residue that could be protecting the soil from rain drop impacts; two, it leaves the soil loose and vulnerable to erosion; three, it can create a hard pan 7-8" below the surface that can cause water to not infiltrate efficiently, so excessive water is more likely to run across the surface and cause erosion.

Ephemeral Erosion 2017



Loss of topsoil is a serious concern in the county, but not only the soil sediment that washes off fields. Nutrients and pesticides are also to blame. Clark County soils only have 6-7" of A Horizon topsoil, which farmers can ill afford to lose. Most soils in Clark County have a tolerable soil loss (T) rating of 3-5 tons per acre. One ton of soil on an acre is about the thickness of a dime across an acre. The cost of this topsoil erosion is enormous in terms of damage to infrastructure, roads, ditches, and sedimentation in lakes, rivers and streams. Townships routinely have to clean out ditches that have sediment in them. Impoundments like Mead Lake are filling with sediment, which has a negative effect for boaters. The cost of dredging this sediment out is, in most cases, prohibitive. There are well documented negative effects on crop yields due to loss of organic matter, nutrients, and water-holding capacity. Moving soil back up to where it was can be very expensive, and it takes hundreds of years to generate an inch of topsoil.

Sheet erosion 2018



Soil erosion is increasing for many reasons:

- Less hay in the crop rotation and more row cropping of grains
- Increase in soybean acreage without the use of cover crops
- Increase in corn silage acreage without the use of cover crops
- Field sizes have increased dramatically from 30 years ago
- Heavier, more aggressive tillage being performed
- Heavier equipment is causing compaction that reduces water infiltration
- The increased use of heavy land rollers that reduce water infiltration
- Cleaner fields from more efficient chemicals
- Elimination of waterways on some fields
- Elimination of contour strips
- Farmers not following their conservation plans

All of these causes have remedies: farmers can grow cover crops where corn silage and soybeans are grown, field sizes can be reduced, contour strips can be installed, alternatives to heavy land rollers can be used, and grassed waterways can be maintained or improved in most cases with cost sharing. Farmers can dramatically reduce or eliminate tillage because there are better no-till planters and minimum disturbance manure injectors than in the past.

The Land Conservation Department is trying to get more cover cropping and no-tilling practiced in the county. Cover cropping not only helps protect the soil when the main crop isn't growing, but it also helps build organic matter, build biological activity, store unused nutrients like nitrogen, and increase water infiltration. The Natural Resources Conservation Department (NRCS) has cost sharing available to help offset some of the costs of establishing a cover crop. The Land Conservation Department also has some cost sharing that it can tap into to help cost share cover crops if a farmer is following a Nutrient Management Plan.

In the fall of 2016, the Clark County Land Conservation Department purchased a brand new no-till drill that it rents out to farmers for the no-till planting of small grains, soybeans, and forages. The cost of no-till drills is a prohibitive expense for most small farms, so even if farmers wanted to give cover cropping or no-tilling a try, they might not be able to afford the equipment for themselves. Instead, they

No-Till Drill Similar to Clark County's



can rent the county's drill. Since the county purchased its no-till drill in 2016, every year there has been increased usage of it for interseeding thin stands in hay fields, no-till planting soybeans, and planting small grains and cover crops. It has been observed that, in the spring of 2019, there were more no-till drills available for farmers to rent than ever before in the county. Most of these no-till drills are owned by private individuals who want to rent their drills out to help offset the expense of purchasing one. Having sufficient no-till drills available to rent when farmers need to use them is important if no-till and cover cropping is going to become the norm in Clark County.

In 2018, the Land Conservation Department applied for and was awarded a Large Scale Targeted Runoff Management (TRM) Grant. The grant is for establishing a Cover Crop Demo Farm for

three years, whereby three plots along with a check plot will be used to demo different cover crop regimes against different crop rotations. The Cover Crop Demo Farm is in the South Fork of the Eau Claire River Watershed, approximately nine miles southeast of Thorp, WI. The idea of establishing this demo farm came from a meeting that was held in February 2018 in the same watershed. The meeting was attended by 25-30 farmers. After presentations on cover cropping and no-tilling practices, many of the farmers at the meeting said they would be interested in trying the soil-saving methods, but they also said that they wanted demonstrations in their area that would show them that cover cropping and no-tilling would actually work there.



Currently, the county is using SNAP+ and yearly transect surveys to track erosion in the county. As of June 2019, the county has access to LIDAR data for the entire county. LIDAR, which stands for Light Detection and Ranging, is a remote sensing method that uses light in the form of a pulsed laser to measure the surface of the earth. Using LIDAR, the Land Conservation Department will be able to create high-definition 3D images from the office that help determine where erosion has occurred and is most likely to occur.

Transect Surveys are used to show trends in crop rotations and tillage practices. The survey evaluates changes in crop rotation and residue management systems, as well as other supporting conservation practices such as contour farming and contour strip cropping. The survey can also be used to track changes from agricultural uses to rural residential uses. The survey is very valuable in tracking the acres of cropland meeting tolerable soil loss (T). **Appendix G** shows the average T loss for 2013-2018 for 263,265 acres of cropland in the Clark County.

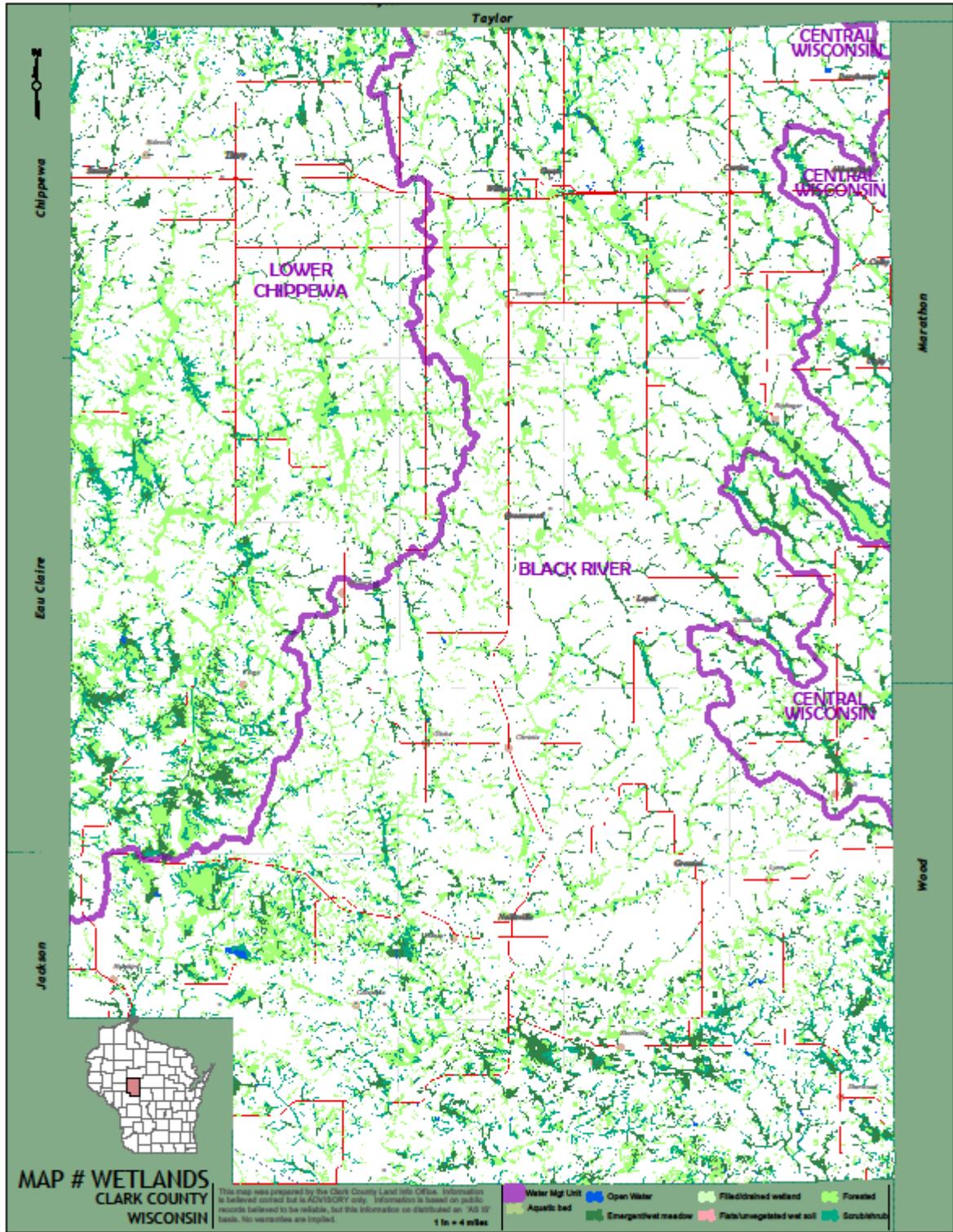
Wetlands

The DNR has identified wetlands through its Wisconsin Wetlands Inventory. Clark County currently has about 100,338 acres of wetlands, or about 12.9% of the total county acres. A wetland is an ecosystem that has both land and water characteristics. Although water often covers or saturates wetlands to the surface, some are only wet during certain times of the year. Swamps, marshes, bogs, fens and wet forest are some types of wetlands that exist in Clark County. One may even see wetlands in lower-lying parts of some farm fields. Before landowners consider building, ditching, or tiling, they should contact the NRCS and check the DNR Wetland Indicator website. If the site in question is a mapped wetland or may be potentially a wetland, the landowner should contact the DNR before proceeding with any excavation. The DNR Wetland One may only use inventory as an approximation of where the wetland boundaries are; it is not exact. Wetlands are regulated under Chapter NR 103.

We need to protect wetlands because they act as a sponge for excess water that causes flooding, and they filter out pollutants such as urban and residential storm water, chemicals and fertilizers, and agricultural wastewater and manure that could otherwise end up in our groundwater, lakes, streams, and rivers. Wetlands also provide an important habitat for a variety of species of birds, insects, and mammals.

Recently, a trend in Clark County is occurring where some farmers are pattern drain tiling and ditching to improve the drainage where wetlands are in fields or clearing land and installing tile or ditching to make the land suitable for raising crops. Field tiling side hill seeps has been occurring in the county for decades, but pattern tiling an entire field is a new phenomenon. The Clark County Land Conservation Department, along with the UW Extension and NRCS, is trying to educate landowners and farmers on what and where wetlands are, the need to protect wetlands, and the legal and financial consequences if they disturb a wetland. So far, the success of this model remains mixed, as some landowners and contractors are still trying to push the limits on disturbing wetlands.

Map 23: Wetlands in Clark County



Terrestrial and Aquatic Invasive Species

Invasive plants, animals, and disease-causing microorganisms are taking a toll on some of Clark County's lakes, rivers, and landscapes, as well as on the local economy and recreation opportunities. Invasive species can alter ecological relationships among native species and can affect ecosystem function, structure, and economic value. The DNR has been working with citizens and partners to develop ways to prevent and control invasive species. On September 1, 2009, the Invasive Species Identification, Classification, and Control rule went into effect. The Invasive Species Rule (Wis. Adm. Code Chapter NR40) makes it illegal to possess, transport, transfer, or introduce certain invasive species in Wisconsin without a permit. The rule creates a comprehensive, science-based system with criteria to classify invasive species into two categories: "Prohibited" and "Restricted". With certain exceptions, the law bans the transport, possession, transfer, and introduction of prohibited species. Restricted species are also subject to a ban on transport, transfer, and introduction, but the law allows possession, with the exception of fish and crayfish. The DNR may issue permits for research or public display of any listed invasive species. This comprehensive invasive species law helps prevent new invaders from getting to Wisconsin (and Clark County) in the first place, and it allows the DNR to attempt to contain new invasive species before they become established.

Invasive species are plants, animals, and pathogens that are "out of place." A species is regarded as invasive if it has been introduced by human action to a location, area, or region where it did not previously occur naturally (i.e. it is not native), becomes capable of establishing a breeding population in the new location without further intervention by humans, and spreads widely throughout the new location.

One of the reasons that invasive species are able to succeed is that they often leave their predators and competitors behind in their native ecosystems. Without these natural checks and balances, they are able to reproduce rapidly and out-compete native species.

According to the DNR, Clark County has the following aquatic invasive plant and animal species. Some of these species have been formally classified in NR40.

Common Name	NR40 Classification
Curly-Leaf Pondweed	Restricted
Eurasian Water-Milfoil	Restricted
Rusty Crayfish	Restricted
Hybrid Cattail	Restricted

According to the DNR, Clark County has the following terrestrial invasive animal species:

Common Name	NR40 Classification
Asian Gypsy Moth	Prohibited
Asian Lady Beetle	Caution
Asian Longhorned Beetle	Prohibited
Butternut Canker Pathogen	Caution

Earthworms	Not Listed
Emerald Ash Borer	Restricted
English Sparrow, House Sparrow	Non-Restricted
European Goldfinch	Not Listed
European Starling	Non-Restricted
Feral Domestic Swine	Prohibited
Forest Tent Caterpillar	Not Listed
Gray Partridge	Non-Restricted
Gypsy Moth	Restricted
House Finch	Non-Restricted
House Mouse	Non-Restricted
Mute Swan	Not Listed
Norway Rat	Non-Restricted
Oak Wilt	Not Listed
Sudden Oak Death Pathogen	Prohibited
White Pine Blister Rust	Caution

According to the DNR, Clark County has the following terrestrial invasive plant species:

Common Name	NR40 Classification
Amur Honeysuckle	Restricted
Amur Maple	Restricted
Amur Silvergrass	Not Regulated
Aquatic Forget-Me-Not	Restricted
Barnyardgrass	Not Regulated
Bigleaf Lupine	Caution
Birdsfoot Trefoil	Not Regulated
Bishop's Goutweed	Restricted
Bittersweet Nightshade	Not Regulated
Black Locust	Restricted
Bristly Locust	Restricted
Broadleaf Dock	Not Regulated
Buckthorn	Not Regulated
Bull Thistle	Not Regulated
Bush Honeysuckles	Not Regulated
Callery Pear	Not Regulated
Canada Thistle	Restricted
Chinese Mystery Snail	Restricted
Chinese Weeping Willow	Not Regulated
Common Buckthorn	Restricted
Common Burdock	Not Regulated
Common Hemp-Nettle	Restricted
Common Motherwort	Not Regulated
Common Mugwort	Not Regulated
Common Mullein	Not Regulated
Common Reed	Prohibited

Common St. Johnswort	Not Regulated
Common Tansy	Restricted
Common Teasel	Restricted
Common Valerian	Restricted
Crack Willow	Not Regulated
Creeping Bellflower	Restricted
Creeping Charlie	Not regulated, Caution
Crown Vetch	Restricted
Cutleaf Teasel	Restricted
Cypress Spurge	Restricted
Dalmatian Toadflax	Restricted
Dame's Rocket	Restricted
European Marsh Thistle	Restricted
Field Forget-Me-Not	Not Regulated
Flowering Rush	Restricted
Garlic mustard	Restricted
Germander Speedwell	Not Regulated
Giant Hogweed	Prohibited
Gingermint	Not Regulated
Glossy Buckthorn	Restricted
Greater Celandine	Restricted
Heath Speedwell	Not Regulated
Japanese Barberry	Restricted
Japanese Hops	Prohibited
Japanese Knotweed	Restricted
Ladysthumb	Not Regulated
Leafy Spurge	Restricted
Low Baby's-Breath	Not Regulated
Low Smartweed	Not Regulated
Mint	Not Regulated
Moist Sowthistle	Not Regulated
Moneywort	Restricted
Morrow's Honeysuckle	Restricted
Multiflora Rose	Restricted
Musk Thistle	Restricted
Narrow-Leaf Cattail	Restricted
Norway Spruce	Not Regulated
Oakleaf Goosefoot	Not Regulated
Orange Daylily	Not Regulated, Caution
Oriental Bittersweet	Restricted
Perennial Sowthistle	Not Regulated
Poison Hemlock	Prohibited
Purple Loosestrife	Restricted
Queen Anne's Lace	Not Regulated
Redtop	Not Regulated
Reed	Prohibited

Reed Canarygrass	Not Regulated
Reed Manna Grass	Prohibited
Rough Bugleweed	Not Regulated
Sericea Lespedeza	Prohibited
Sheep Sorrel	Not Regulated
Showy Fly Honeysuckle	Restricted
Siberian Elm	Restricted
Spotted Knapweed	Restricted
Sweet Clover	Not Regulated
Tall Waterhemp	Not Regulated
Tamarisk	Not Regulated
Tartarian Honeysuckle	Restricted
Teasel	Not Regulated
Thistle	Not Regulated
Watercress	Not Regulated, Caution
White Sagebrush	Not Regulated
White Sweet-Clover	Not Regulated
Wild Chervil	Prohibited
Wild Parsnip	Restricted
Wild Sweet William	Not Regulated
Yellow Archangel	Not Regulated
Yellow Iris	Restricted
Yellow Sweet-Clover	Not Regulated
Yellow Toadflax	Not Regulated

Threatened and Endangered Species

The Wisconsin Department of Natural Resources (DNR) lists species as “endangered” when, citing scientific evidence, the continued existence of that species as a viable component of the state’s wild animals or wild plants is determined to be in jeopardy. “Threatened” species are listed when it appears likely, based on scientific evidence, that the species may become endangered within the foreseeable future. The DNR also lists species of “special concern”, of which some problem of abundance or distribution is suspected, but not (yet) proven; the intent of this classification is to focus attention on certain species before they become endangered or threatened. Another source for information on rare and natural animals and features is the Natural Heritage Inventory (NHI) program. The Wisconsin Natural Heritage Inventory program is part of an international network of NHI programs. The Nature Conservancy established this network and NatureServe, an international non-profit organization, coordinates it. NHI programs focus on locating and documenting occurrences of rare species and natural communities, including state and federal endangered and threatened species.

The definition of wildlife habitat is the presence of enough food, cover, and water to sustain a species. The Clark County landscape provides habitat for a variety of plants, birds, mammals, amphibians, reptiles, and fish. Habitat areas within the county are critical components of the state’s biodiversity, and they provide habitat for rare, threatened, and endangered species.

Within Clark County, eight plant species are listed as special concern and one species is listed as endangered. Fifteen animal species are listed as special concern, and six other animal species are listed as endangered or threatened.

Common Name (Plant or Animal)	Type	State and/or Federal Status*
Ellipse	Rare Mussel	Threatened
Greater Prairie Chicken	Rare Bird	Threatened
Cerulean Warbler	Rare Bird	Threatened
Wood Turtle	Rare Reptile	Threatened
Red-Shouldered Hawk	Rare Bird	Threatened
Northern Flying Squirrel	Rare Mammal	Special Concern
Blanding's Turtle	Rare Reptile	Special Concern
Elktoe	Rare Mussel	Special Concern
Water Shrew	Rare Mammal	Special Concern
Sioux (Sand) Snaketail	Rare Dragonflies	Special Concern
Woodland Jumping Mouse	Rare Mammal	Special Concern
Woodland Vole	Rare Mammal	Special Concern
Prairie Vole	Rare Mammal	Special Concern
A Minute Moss Beetle	Rare Beetle	Special Concern
Least Darter	Rare Fish	Special Concern
Persius Dusky Wing	Rare Butterfly	Special Concern
A Giant Casemaker Caddisfy	Rare Caddisfly	Special Concern
Dusted Skipper	Rare Butterfly and Moth	Special Concern
Northern Goshawk	Rare Bird	Special Concern
Karner Blue	Rare Bird	Special Concern
Silky Willow	Rare Plant	Special Concern
Hooker's Orchid	Rare Plant	Special Concern
Canada Mountain Ricegrass	Rare Plant	Special Concern
Rock Clubmoss	Rare Plant	Special Concern
Arrow-Headed Rattle-Box	Rare Plant	Special Concern
Clustered Sedge	Rare Plant	Special Concern
Missouri Rock-Cress	Rare Plant	Special Concern
Bird Rookery	Miscellaneous Elements	Special Concern
Sand Violet	Rare Plant	Endangered
Western Ribbonsnake	Rare Reptile	Endangered
Eastern Massasauga	Rare Reptile	Endangered

The DNR also lists important examples of natural community types found in the county. Clark County straddles Wisconsin's tension zone, where southern deciduous forests are intermingled with northern coniferous forest types. For this reason, Clark County's natural communities are very diverse and extremely ecologically important, because they bridge the northern pine forest to the southern deciduous forest and prairie. Though not legally protected, these communities are critical components of Wisconsin's biodiversity and may provide a habitat for rare, threatened, and endangered species. The native natural community types found within Clark County are as follows: alder thicket, bird rookery, central poor fen, central sands pine-oak forest, dry cliff, dry prairie, emergent marsh, northern dry forest, northern dry-mesic forest,

northern sedge meadow, northern wet forest, open bog, southern dry-mesic forest, southern mesic forest, southern sedge meadow, and stream (fast, hard, cold).

Chapter 4: Goals and Objectives

The goals and objectives of this Land and Water Resource Management Plan are to protect the surface and groundwater in the county, protect and improve agricultural soils in the county, and protect and enhance the county's recreational resources. All these should be priorities for the county while allowing businesses the opportunity to survive and thrive.

The mailed survey lists the goals below as priorities, recommendations agreed on by the Land and Water Resource Management Planning Committee, and inner departmental conclusions.

Groundwater Quality – The mailed survey highlights this as the number one concern in the summer of 2018, as it was when we sent out the survey for updating the 2012-2016 LWRM Plan. Two primary sources can contaminate groundwater: manure or fertilizer, and improper use of private septic systems or POWTS. Clark County has a moderate level of wells that are testing above recommended levels for nitrates and bacteria. Clark County has hundreds of old, unused wells in the countryside. These wells can provide a direct conduit to groundwater that can lead to nitrate and bacteria contamination in groundwater aquifers. Old, unused pre-ordinance manure storage facilities are also prevalent throughout Clark County. People built pre-ordinance manure storage facilities (pits) with little thought of potential leaching to groundwater. Leaking manure storages can cause elevated levels of nitrates in surrounding wells.

Action Items:

- Increase the closure of unused wells in rural areas through education and cost sharing.
- Increase the closure of pre-ordinance and unused manure storages in the county.
- Increase awareness of well water quality through increased water testing and education activities.
- Increase the number of nutrient management plans and scrutinize existing plans to make sure landowners are following them.
- Encourage landowners and public on proper disposal of chemicals and hazardous materials.
- Increase awareness by the public about groundwater contamination from outdated or not properly maintained POWTS.
- Scrutinize existing and future manure storages built in the county using the manure storage ordinance

Surface Water Quality – Algae blooms are common in many of the lakes, and rivers and streams sometimes run brown from sediment for several months in the summer in Clark County. These conditions reduce recreation activities and the aesthetic beauty of the county. Many sources of surface water degradation come from soil erosion and poor application practices of livestock manure. Manure, when managed correctly, can be an excellent source for fertilizer. Farmers should have a nutrient management plan that, if followed correctly when using manure, will minimize the impact on surface and groundwater. Clark County still has significant cropland acres that do not have a nutrient management plan (NMP).

According to the mailed survey, the number two threat to the county's natural resources is agricultural practices. Soil erosion and nutrient runoff were the causes of this concern.

Action Items:

- Increase the acres under NMPs.
- Repair or construct new waterways in the county that will trap and filter out nutrients and sediment before they reach surface waters.
- Promote the Conservation Reserve Enhancement Program (CREP) as a tool for trapping sediment and nutrients along our water bodies by installing buffer strips.
- Increase monitoring of waterbodies to determine if water quality is increasing or decreasing.
- Establish Farmer Led Priority Watersheds in the county that will lead farmers to adapt more soil and nutrient conservation practices.
- Establish a Demo Farm Cover Crop project to educate and promote the best options for cover crops in our area.
- Use Cost Sharing incentives to encourage farmers to construct barnyard lots that capture and collect 100% of the manure, to construct or repair grassed waterways, to construct manure storages so farmers are not spreading manure during environmentally sensitive times of the year, and to increase NMP compliance in the county.
- Work at meeting the TMDL water quality standards in the Mead Lake and the Wisconsin River watersheds during the ten years of the LWRM Plan.

Soil Erosion – Soil erosion is increasing in Clark County, and there are several reasons for this increase. The switch to growing continuous row crops instead of only one or two years followed by three or four years of hay is one of them. Field sizes have increased dramatically on some farms, and many farms now have 60- to 100-acre fields. Bigger fields may be more efficient to plant and harvest, but the increase in size means that there is no barrier to break up the slope, so the water builds up more speed as it runs across the surface, therefore increasing the forces that erode the soil. Intensive rainfall events of 2-5" per hour have been increasing in frequency the last several years. Use of intensive, heavy tillage equipment that can turn soil to a powder if not used carefully has increased. Increased use of heavy land rollers that can smooth and seal the bare soil surface, which can cause water to run across the surface before it can infiltrate the soil efficiently, has also risen.

The results are increased sediment delivery to the county's rivers and streams. If the county can reduce soil erosion, it will be able to accomplish two goals: reduce the sediment and nutrients that enter surface water. The LCD purchased a 10' no-till drill back in 2016 that it rents out to farmers to encourage no-till planting and the use of cover crops. Using these practices will significantly reduce runoff while improving soil health.

Action Items:

- Reduce soil erosion through the education and promotion of no-till planting, usage of cover crops, and other conservation practices such as contour farming and strip cropping.
- Make sure NMPs are meeting soil T levels and, if they are not, have the farmer adjust the rotation or tillage so that they do.

- Continue the countywide transect survey to assess trends in soil erosion rates.
- Increase usage of cover cropping practices that will help protect bare soil surfaces when they are most prone to erosion.
- Scrutinize Nutrient Management Plans closely to make certain that fields are meeting tolerable soil losses.
- Use Cover Crop Demo Project as a way to convince farmers to use cover cropping.

Wetland Protection –

Action Items:

- Work with the DNR, Army Corps, and NRCS to educate the farmers and contractors about the need to protect wetlands and about what kind of tiling and ditching is permissible.
- If tiling or ditching in wetlands have occurred, notify proper authorities to discourage it from happening again.
- Promote development of new wetlands and restoration of drained or degraded wetlands.
- Educate the public on why we need to protect these important wetlands.

Controlling Invasive Species - Terrestrial and Wetland Invasive species are on the rise in Clark County. Invasive plant species have the ability to take over and crowd out beneficial species that wildlife relies on. In bodies of water, Aquatic Invasive Plants have the ability to choke out sunlight and reduce recreational activities on lakes.

Purple Loosestrife

Action Items:

- Provide training for invasive plant ID and control method to municipal road crews.
- Continue to educate the public on invasive species, including field days, displays, and brochure distribution.
- Provide training to LCD staff on identifying Invasive Species
- Start a countywide survey of the location of Terrestrial Invasive Species.
- Notify Wetland Zoning Authority



Protecting Farmland - As in other parts of the state, Clark County is losing cropland to rural housing development.

Action Items:

- Protect existing farmland from development through the use of the Farmland Preservation Program
- Protect the quality of cropland soils by encouraging soil health building practices like no-till planting and planting cover crops.

➤ Promote building industrial complexes in areas zoned by cities for industrial development.

Protecting Forest and Woodlands – Currently, Clark County is losing small tracts of woodlots because landowners are clearing them for farmland. Currently, the manner in which the government taxes woodland also makes it more expensive to keep woodlots compared to cropland.

Action Items:

- Educate landowners on forestry management programs available in Clark County.
- Hold landowner workshops and tours in conjunction with state, county, and private foresters promoting forest stewardship.
- Promote and provide landowners with information pertaining to the Deer Management Assistance Program (DMAP) and the Manage Forest Law (MFL) program.
- Re-start and promote the LCD tree sales program.
- Work with landowners on the importance of trees, promote plantings, and encourage tree preservation.

Chapter 5: *Runoff Management Performance Standards and Prohibitions*

Rules to control polluted runoff from farms and other sources in Wisconsin went into effect on October 1, 2002 and were revised in 2010, 2013, then again in November 2018 (No. 755). DNR rule NR 151 sets performance standards and prohibitions for farms. For information The DATCP rule, ATCP 50, identifies conservation practices that farmers must follow to meet these performance standards. For information on both rules, go to the following link on the DNR web site: <https://dnr.wi.gov/topic/Nonpoint/AgPerformanceStandards.html>. County Land Conservation Departments have primary responsibility for implementing the standards. The following are the Ag performance standards and prohibitions:

NR 151.02 – Land where crops are grown shall be cropped to “T” (measured using RUSLE II).

Clark County farmers are expected to meet the “T” standard by using some or all of these practices from ATCP 50: contour farming, crop rotations, cover and green manure crop, diversions, filter strips, and residue management. In addition, planners recommend grassed waterways, grade stabilization structures, and critical area stabilization to control ephemeral erosion.

NR 151.05 – New or altered waste storage facilities must be designed and constructed to NRCS standards, and waste storage facilities not used for 24 months or more must be properly closed by following NRCS standards.

Facilities must meet NRCS standard 313 (waste storage facility), 360 (closure of waste impoundments, and/or 634 (manure transfer) and all standards referenced within these standards. Clark County enforces a manure storage ordinance to address these issues.

NR 151.06 - Runoff shall be diverted from contacting feedlots, manure storage areas, and barnyard areas located within water quality management areas (WQMA).

Clark County farmers need to use diversions, roof runoff systems, subsurface drains, and underground outlets to meet this standard.

NR 151.07 – Crop and livestock producers applying manure and other nutrients to agricultural fields shall do so according to a certified nutrient management plan.

Landowners must hire a certified agronomist, or they may prepare their own plan by completing a certified course. Plans must meet NRCS Nutrient Management Standard 590. This standard was in effect as of December 2015.

NR 151.08 – All livestock producers shall comply with four manure management prohibitions:

1. no manure storage facility overflow
2. no unconfined manure piles in water quality management areas
3. no direct runoff from a feedlot or stored manure into waters of the state
4. no unlimited livestock access to waters of the state in a location where high concentrations of animals prevent maintenance of adequate sod or self-sustaining vegetative cover

Clark County farmers should use one or a combination of several of these practices to address problems with the prohibitions: manure store facilities, barnyard runoff systems, access roads and crossings, diversions, filter strips, livestock fencing, livestock watering facilities, prescribed grazing, streambank stabilization, and riparian buffers.

NR151 Implementation Strategy and Compliance Procedures

The following identifies the procedures the LCD may use in regards to compliance with NR 151, ATCP 50, and local regulations. The information also identifies the procedures, including notice, hearing, enforcement, and appeals process that will apply if the county takes action against a landowner for failure to implement conservation practices under Chapter NR 151 or related local regulations. Staff and funding availability is the basis for the implementation of this compliance strategy.

Information and Education

Clark County LCD, NRCS, and UWEX staff regularly inform landowners of the requirements of NR 151. This effort will continue in an attempt to encourage voluntary compliance with the rules. We use newsletters, FSA electronic newsletters, newspaper columns, direct mailings, the Clark County web site, and handouts to spread the word.

Priority Farm Identification

Priority for NR 151 evaluations, information and education activity, and implementation granted when farms are:

- Participating in the Farmland Preservation Program.
- Located in Water Quality Management Areas identified in the 2018 inventory (pg. 21)
- Participating in the DNR Phosphorous Adaptive Management Program outlined for municipalities.
- NOD/NOI participants
- Located in watersheds draining to 303(d) waters

Evaluations will also be performed:

- When permitted through the Clark County Manure Storage Ordinance.
- In response to formal citizen complaints
- For any landowner requesting a determination
- Prior to signing SWRM grant cost-share agreements with landowners

NR 151 assessments will be used to determine when farm operators are eligible for barnyard runoff cost-sharing through the state or federal programs. Priority for nutrient management plan cost-sharing will go to landowners requiring a plan for program participation and/or permits.

Compliance Determination

Priority Farms identified above will utilize a combination of tools to achieve compliance determinations. For example, farms that participate in the Farmland Preservation Program will utilize a combination of on-site evaluations done every four years by LCD staff and self-certification the other 3 years. An annual nutrient management plan update (checklist) is also required. Evaluators will conduct a records inventory using existing plans, agreements, and contracts. On-site evaluations will utilize the inspection form included in the appendix-K to this document. The form includes a signature page and date for the landowner and the LCD evaluator. Evaluators will track compliance data using the county geographic information system. Landowners with completed determinations will receive the following:

- Copy of the inspection (trip) report with a landowner signature page.
- Letter with instructions on appeal procedures if the landowner does not agree with the findings
- Recommendations for measures needed to achieve compliance, including an explanation of the technical standards and maintenance requirements
- Schedule for achieving compliance with the standards
- The status of available cost-sharing for recommended practices

Enforcement

Enforcement of actions associated with NR 151.09 will be coordinated with the DNR. If a landowner continues to remain in noncompliance with the state performance standards, or should a landowner refuse technical and/or financial assistance from the LCD, the LCD will forward all information corresponding to the infraction(s) to the DNR and will notify the landowner(s) by registered mail that they are subject to an enforcement action pursuant to NR 151.09. The DNR contact for Clark County is the Non-Point Source Coordinator in the Wausau office.

Appeals

Any person aggrieved by a decision of the Clark County Land Conservation Department may file a written appeal of the decision with the Clark County Land Conservation Committee and/or Department at 517 Court Street, Courthouse, Room 102, Neillsville, WI 54456 within 30 days of the Department's decision. A hearing on the appeal shall be commenced within 60 days of the date of the appeal.

Incentives

There are many ways to try to convince landowners to install conservation practices on their property. Incentives can play a significant role in obtaining voluntary compliance with performance standards and prohibitions. Incentives are usually monetary, but they can also be in the form of public recognition.

Monetary incentives can help defray the costs of installing conservation practices, some of which are very expensive. Often, we connect this type of incentive with participation in federal, state, and local programs. In addition to helping improve and protect the natural resources, the monetary incentives contribute to the economic growth and health of Clark County. Local contractors install the practice and buy supplies locally. The LCD will use monetary incentives to further the goals and objectives of this plan and to gain compliance with the performance standards and prohibitions, see appendix G for Cost Share Rates.

Examples of monetary incentives are:

- Tax Credit: Farmland Preservation Program
- Cost Sharing: Soil and Water Resource Management, Environmental Quality Incentives Program, Targeted Resource Management Grant, Wisconsin Forest Landowner Grant Program
- Rental Payments: Conservation Reserve Program, Conservation Reserve Enhancement Program
- DATCP SWRM & SEG Grants Program

Chapter 6: *Coordination with Other Resource Management Plans and Programs*

To meet the goals established in the Clark County Land and Water Resource Management Plan 2020-2029, citizens can assist by participating in existing and new federal, state, and local conservation programs. There are numerous programs available to landowners to help them comply with the NR151 requirements established by the DNR. The following list of conservation programs is not all-inclusive. Programs may be added or deleted at a later date, subject to the discretion of the Land Conservation Committee. It is the intent of the Clark County Land Conservation Department to utilize all of the following programs to assist county residents. The Clark County Land Conservation Department will make an effort to coordinate the implementation of programs with other local, state, and federal agencies.

Federal Programs

Environmental Quality Incentives Program (EQIP). Provides cost-sharing through NRCS for a variety of conservation practices (see BMP definitions in appendix) to address erosion and nutrient management issues. See <http://www.wi.nrcs.usda.gov/programs/eqip.html>

Conservation Reserve Program (CRP). Provides incentives through the Farm Services Agency to set aside land for conservation purposes. See <http://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=crp>

Conservation Reserve Enhancement Program (CREP). A multi-agency effort that provides incentives from FSA and the State of Wisconsin to create buffers along streams and waterways. See https://datcp.wi.gov/Pages/Programs_Services/CREP.aspx

Agricultural Conservation Easement Program (ACEP). Provides cost-sharing from NRCS to conserve agricultural lands (Agricultural Land Easements) and wetlands and their related benefits (Wetlands Reserve Easements). See <https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/wi/programs/easements/acep/>

Conservation Stewardship Program (CSP). Encourages farm and forestry landowners to maintain existing conservation practices and adopt new ones. Administered by NRCS. See <http://www.wi.nrcs.usda.gov/programs/csp/cstp.html>

State Programs

Working Lands Initiative/ Farmland Preservation Program (WLI/FPP). This program, which became law in 2009, includes the ability for farmers and local governments to establish voluntary Agricultural Enterprise Areas, landowners to sign farmland preservation agreements, and the option for local zoning jurisdictions to adopt farmland preservation zoning. See https://datcp.wi.gov/Pages/Programs_Services/FarmlandPreservation.aspx

Targeted Resource Management Program (TRM). Targeted Runoff Management Program (TRM). Provides grants for a variety of conservation practices to address severe water quality problems. See <https://dnr.wi.gov/Aid/targetedRunoff.html>

Notice of Discharge/Notice of Intent Program (NOD/NOI). Notice of Discharge (NOD) Project Grants are provided to local units of government (typically counties) by the Department of Natural Resources and the Department of Agriculture, Trade, and Consumer Protection. The purpose of these grants is to provide cost sharing to farmers who are required to install agricultural best management practices to comply with Notice of Discharge requirements. See <https://dnr.wi.gov/topic/nonpoint/noticesOfDischarge.html>

Soil and Water Resource Management Program (SWRM). Grants awarded to counties through this program fund county conservation staff and finance cost-share projects for landowners. See https://datcp.wi.gov/Pages/Programs_Services/SWRMResourcesForCounties.aspx

Lake Management and Planning Grants. DNR provides funding to local governments and lake management organizations for the collection and analysis of information needed to manage lakes.

River Management and Planning Grants. River planning grants are intended to provide assistance in the formation of river management organizations and provide support and guidance to local organizations that are interested in helping to manage and protect rivers, particularly where resources and organization capabilities may be limited. See <https://dnr.wi.gov/Aid/documents/SurfaceWater/RiverGrantOverview.pdf>

Aquatic Invasive Species Grants (AIS) The AIS Prevention and Control grants are used to provide information and education on types of existing and potential aquatic invasive species in Wisconsin, the threats that invasive species pose to the state's aquatic resources, and available techniques for invasive species control. These grants also assist in the planning and implementation of projects that will prevent the introduction of invasive species into waters where they currently are not present, controlling and reducing the spread of invasive species from waters where they are present, and restoring native aquatic communities. See <https://dnr.wi.gov/Aid/documents/SurfaceWater/AISGrantOverview.pdf>

Managed Forest Law (MFL). The Managed Forest Law (MFL) program is a landowner incentive program that encourages sustainable forestry on private woodland. MFL is the only forest tax law that is open to enrollment. Land enrolled in the MFL program must be managed according to a plan agreed to by the landowner. See <https://dnr.wi.gov/topic/forestlandowners/mfl/>

Agricultural and Household Clean Sweep. Wisconsin Clean Sweep is a grant program that provides reimbursement to communities that collect and dispose of household hazardous wastes, agricultural pesticides, and prescription drugs. Grants may be awarded to counties, towns, villages, cities, tribes, sanitary and sewerage districts, or regional planning commissions. Grants can support collection and disposal of these products. Prescription drug grants can also be used to buy drop boxes. See https://datcp.wi.gov/Pages/Programs_Services/CleanSweep.aspx

County Programs

Clark County Animal Manure Management Ordinance. Administered by the Clark County LCD to assure all construction, alteration, and closure of manure storage systems meet NRCS standards.

Clark County Nonmetallic Mining Reclamation Ordinance. Administered by the Clark County Planning and Zoning Department to assure proper closure of nonmetallic mines. This ordinance also addresses erosion control at mine sites.

Clark County Shoreland Zoning Ordinance. Administered by the Clark County Planning and Zoning Department for the purpose of controlling the intensity of development and creating buffers in water quality management areas.

Clark County Landspreading of Petroleum Contaminated Soils Ordinance

Clark County Agricultural Study Farmland Preservation Plan 2017 and revision 2018

Heart of America’s Dairyland Agricultural Enterprise Area

Wildlife Damage and Abatement Claims Program

Clark County Forest, 15 Year Comprehensive Land Use Plan 2006-2020

Clark County Outdoor Recreation Plan 2016-2021

Clark County Natural Hazards Mitigation Plan 2015

PL566 Poplar River Flood Protection Program (Sportsman Lake)

Lake Arbutus Management Plan 2007

Mead Lake Management and TMDL Implementation Plan 2010

Copies of Clark County Ordinances can be found in the Clark County Code Book in the office of the County Clerk—517 Court Street, Room 301, Neillsville, WI—and also online at the Clark County webpage under “Code of Ordinances”.

Chapter 7: *Evaluation and Monitoring*

The Clark County Land Conservation Department utilizes a Geographic Information System (GIS) developed by the county's Planning and Zoning Department. The department will use GIS to inventory evaluated farms for compliance with NR151 standards. The department will link compliance determinations with parcel identification numbers for future monitoring purposes.

The Clark County Land Conservation Department administers the Farmland Preservation Program for DATCP. The Farmland Preservation Program (FPP) is a 15-year agreement with the state that a landowner signs to maintain their land in cropland if they are eligible. In return, the landowner will receive between \$5-\$10 per acre per year income tax break. In order to be eligible the land must meet the state's soil and water conservation standards (NR 151). Currently there are 289 landowners enrolled in FPP in Clark County with two more Townships in the process of being certified to offer the FPP. The Land Conservation Department uses four-year inspections to make sure conservation standards are being met. Also yearly self-certification are required of all landowners enrolled. In the event that a landowner is determined to not be meeting conservation standards, the landowner is required to bring the issue into compliance before they are eligible to receive their tax credit. In 2019 the Clark County Land Conservation Department started using FPP tracking software developed by Transcendent Technologies as way to more efficiently track enrolled landowner compliance for FPP.

Surface Water—Sediment Delivery

Erosion rates from Clark County crop fields will be evaluated using the soil erosion transect survey method and through the RUSLEII and Snap Plus computer programs.

Evaluators will submit these accomplishment reports to the Land Conservation Committee, DATCP, and DNR. These reports will summarize the number of cropland acres that had conservation plans developed and/or maintained on them. The report will also show the number and type of best management practices installed through the Soil and Water Resource Management Program and other grant programs.

Surface and Groundwater—Nutrient Delivery

The Clark County Land Conservation Department will use the GIS to inventory the number of waste storage facilities permitted to be constructed, altered, or closed during the year. The department will also use GIS to locate crop acres that have implemented nutrient management plans.

The department will submit an accomplishment report to DATCP, DNR, and the Clark County Land Conservation Committee that will show the number and type of animal manure management permits issued and the number of cropland acres with implemented nutrient management plans. The report will also indicate the installed number and type of best management practices under the Soil and Water Resource Management Program and other grant programs.

Wildlife: Flora and Fauna

The department will submit an accomplishment report to DATCP, DNR, and the Clark County Land Conservation Committee that will summarize the activities conducted by the Land Conservation Department with regard to invasive species monitoring and inventorying as well as any control methods used. These reports will also list the number of acres reforested/afforested and the number of acres planted to native prairie and other vegetation. The report will also indicate the installed number and type of best management practices under the Soil and Water Resource Management Program and other grant programs.

Wetlands and Riparian Corridors

The department will submit an accomplishment report to DATCP, DNR, and the Clark County Land Conservation Committee that will summarize the activities conducted by the Land Conservation Department with regard to the number of acres of wetlands restored and the number of acres/linear feet of streambank and lakeshore stabilization projects. The report will also indicate the installed number and type of best management practices under the Soil and Water Resource Management Program and other grant programs.

Water Resources Inventory

It is the goal of the Land Conservation Department to increase the level of knowledge about Clark County's surface and groundwater resources. With the assistance of the DNR, Clark County will conduct more stream water quality monitoring. The Land Conservation Department will also apply for grants to fund a groundwater quality and quantity study. The department will submit an accomplishment report to DATCP, DNR, and the Clark County Land Conservation Committee that will summarize the number, location, and quality of surface and groundwater samples. The department will inventory data in the county's GIS for future reference and evaluation.

Chapter 8: *Information and Education Strategy*

Previous chapters listed a variety of action items relating to information and education. These items, including announcements on conservation practices and cost-sharing, will be accomplished with the development of brochures, individual contacts with landowners, group meetings and demonstrations, newspaper articles, LCD websites, and educational curriculums in schools. The department will emphasize and implement Demonstration Plots, which demonstrate practices for improving soil health and reducing soil and nutrient runoff with the help of LCD, NRCS, UW-Extension, and DNR.

In addition to the previously mentioned items, University of Wisconsin Extension- Clark County hosts and conducts several educational workshops and programs throughout the year that include numerous topics related to conservation issues. The educational programming by UW Extension includes:

A series of three UW Extension updates for Agronomy Professionals, with the focus on pest management, soil and nutrient management, and general crop management in the major crops grown in the region.

- Summer field days for farmers and crop management updates for farmers held in the winter.
- Workshops for livestock farmers that include pasture management
- On-farm trials with cooperating farmers.
- Stewardship Recognition Program
- Clark County Dairy Breakfast
- Nutrient Management Training for Farmers in the winter

The above meetings typically have topics related to conservation tillage, nutrient management, and the Farmland Preservation Program. They often also include updates on cost-share programs and needed conservation practices from USDA-NRCS and the Land Conservation Department.

Media

We are updating the Clark County website to include valuable tools for disseminating information. The Website contains information on The Clark County Manure Storage Ordinance, CREP, Farmland Preservation, Cost Share Program, information on Clark County Watersheds, the county's No-Till Drill, etc.

Educational programming

Environmental Programs in Clark County schools will always be an LCD priority, as our kids hold our future. Each year, the Land Conservation Department is involved in organizing the Wisconsin Land and Water Associations Poster & Speaking Contest. It provides students with the opportunity to attend one of the environmental camps offered in Wisconsin with scholarships. We give presentations to school age children and adults on environment topics like protecting ground and surface water.

The major goals of our information and education activities are as follows:

- Make landowners and the public aware of NR-151 standards and prohibitions.
- Make landowners and the public aware of services offered by Clark County LCD to address NR 151 issues.
- Make the public aware of the problems caused by nonpoint source pollution.

- Make landowners and the public aware of programs and practices available from all agencies to address nonpoint source pollution issues.
- Make the public aware of rules and regulations administered by all agencies and assist them in following the rules and regulations.
- Make construction contractors aware of their obligations to learn about and follow natural resource rules and regulations.
- Assist local schools with environmental education, especially regarding soil and water conservation.

ACRONYMS

BMPs: Best Management Practices

CREP: Conservation Reserve Enhancement Program

CRP: Conservation Reserve Program

DATCP: Department of Agriculture, Trade, and Consumer Protection

DNR: Department of Natural Resources (Wisconsin)

EPA: Environmental Protection Agency

EQIP: Environmental Quality Incentives Program

FPP: Farmland Preservation Program

FSA: Farm Service Agency

FWS: Fish and Wildlife Service

GIS: Geographic Information System

GRP: Grassland Reserve Program

LWCC: Land & Water Conservation Committee

LWCD: Land & Water Conservation Department

LWRM: Land and Water Resource Management Plan

NMP: Nutrient Management Plan

NPM: Nutrient and Pest Management

NPS: Non-Point Source Pollution

NRCS: Natural Resources Conservation Service

RC&D: Resource Conservation and Development

SAPS: State Agricultural Performance Standards

SWRM: Soil and Water Resource Management Program

SEG: Segregated Revenue

T: Tolerable Soil Loss

TRM: Targeted Runoff Management

USDA: United States Department of Agriculture

UWEX: University of Wisconsin-Extension

WHIP: Wildlife Habitat Incentives Program

Appendix A: Citizens Survey

Natural Resources Opinion Survey 2018 Results

1571 Sent 13 Undeliverable 207 Responses (13.3% return) ** updated 8/20/2018**

What local natural resources are you most concerned about? (Please rank top five concerns, #1 being the highest concern.)

TOP FIVE RESULTS IN EACH CATEGORY HIGHLIGHTED

#2 497 Agricultural Land

124 Peace, Quiet and Solitude

#5 (tie) 273 Air

51 Public Recreational Lands and Trails

136 Fisheries and Wildlife

#5 (tie) 273 Soil

#3 340 Forest and Woodlands

56 Unobstructed Countryside/Night sky Views

50 Grasslands

67 Wilderness and Unique Landscapes

#1 605 Groundwater

103 Wetlands

#4 300 Lakes, Rivers and Streams

Other Water quality

population control of wildlife

Loss of bees

(deer, elk, crane) Grassland Butter

Lake access boat landing

contamination of air and water Remove

Non-farm homes being built in rural areas

dead deer on roads

Too many wolfs

Good roads, get steel wheels off
blacktop roads

Waterway erosion

Industrial Agriculture

Concerning public lands and trails, they need to keep clean - stop litter

Markets- Milk & grain & cattle and regulations hindering the ability to make a living on the farm.

What following items are the biggest threat to your natural resources concerns? (Please rank top five concerns, with #1 being of the highest concern.)

#2 308 Agricultural cropping practices (e.g. soil erosion, nutrient runoff/leaching) **as in using high salt fertilizers** Chemicals that kill the bees**

#3 293 Agricultural livestock operations (e.g. noise, odor, location, size, dust, traffic)

#4 248 Agricultural land clearing (e.g. sodbusting, swampbusting)

#1 318 Agricultural manure/waste storage and landspreading (e.g. unpermitted facilities, water pollution)

45 Construction site or road construction (e.g. soil erosion control, stormwater runoff) * Deteriorating rural roads*

138 Domestic solid waste disposable (e.g. open burning of garbage, illegal dumping)

148 Exotic invasive plant and animal species (e.g. displacement of native species, habitat loss)

123 Fish and/or wildlife excessive harvesting (e.g. poaching, not following bag limits)

196 Forest management (e.g. poor forestry practices including harvesting, regeneration, road construction)

169 Industrial and municipal sludge and wastewater disposal (e.g. unpermitted facilities, water pollution) *City of Greenwood*

40 Jet ski and motorboat use (e.g. habitat destruction, noise, user conflicts)

111 Non-metallic mining/gravel pits (e.g. soil erosion, water pollution, aesthetics, reclamation)

88 Off road vehicle use- ATV, RTV, dirtbikes (e.g. soil erosion, water/air pollution, noise, user conflicts)

Residential property management (e.g. lawn fertilizer/chemicals, pesticides, pet waste)

#5 232 Rural residential development (e.g. loss of farmland/open space, loss of wildlife habitat)

29 Waterfront development (e.g. shoreline erosion, water pollution, loss of solitude, aesthetics)

149 Wetland and stream alteration - tiling, ditching and/or filing (e.g. water pollution, soil erosion)

Other Public ignorance of agriculture and why farmers do what they do

Property taxes not in ag land. Larger Ag farm impact ie pigs and cows. Every gravel road on ATV trail

Political regulations instead of common sense and high cost.

Too much chemical use - loss of bees

ATV- our road is listed as a trail. The ATVers ride by in large groups speeding raising lots of dust and need enforcement

Population management of wildlife that threaten the very existence of farms, gardens, cranberry marshes, etc.

Landfill development

High property taxes on forest land

Grassland butter polluting land with excess waste. They spread on frozen ground. Jump in Feb lays on soil & stinks with runoff until May planting

Opposite of above. Too many restrictions of tiling, ditching and/or filing as proper drainage improves ease of farming and productivity of the land. Nevertheless drainage should be done in a way with little erosion such as grass waterways, etc.

County forest management we need a virgin timber plan

Cell towers on Elliot Sudas Farm. 2 towers within 500' of each other

"High" tax on non-farming (recreational) land (US) "Much" lower tax on farm land whereas farming practices are the "Cleaner" threat to our natural resources according to the above list

The land we live on is our greatest legacy to pass on to future generations. As an owner of both forest and farmland, preserving these resources is becoming next to impossible. The small farmer is being choked out of business by the large farmer and forests are being cut to pay the high taxes as it is regarded as recreation land.

Loss of forest land

Government doing what they feel like. Even those effected cave

Chemical pesticides, herbicides &

GMO seeds Deer herd too large to

maintain woodlands

I worry about all the UNFAIR rights the Indians have with hunting and fishing- That's my concerns

The new dump in the town of Reseburg creating an eyesore in a now beautiful area with many residents

Don't have more than 3 concerns in my area. However I am on an ATV route and I don't feel they need to fly past at 40 mph or above!! This endangers my pets, the wildlife & also their lives. They hit loose gravel. The ATV

goes out of control (It has happened! Ive had to call 911

High property taxes forcing people off their land, after generations of ownership

USDA Perona coming up with rules that crowd out the small family farms and stores. Overabundance of deer & turkey thus eating the farmer's crops at nite and in daylight hours stay in posted ??? owned by city folk. Overabundance of squirrel due to not letting Hmong freely eat them. Now chew up sap bags. Grey wolves tearing up livestock, ripping out guts in heifers and tearing open udders in milk cows. Elk in the wild walking thru fences meant to contain livestock. DNR officers fresh out of school letting high education come in way of common sense. The small family farmers are mostly good stewards or would not be in that business. Do we need more ordinances or laws in this line?

habitat to help reduce spread of disease and virus.

Not exactly related- Property taxes biggest threat to homeowners and landowners

Incentives for farmers to keep hay in rotation. No till without cover crops= too much pesticides= dead soil

What services should be emphasized by the local, state and federal conservation staff. (Please rank the top five concerns, #1 being of the highest concern):

#2 **261 Animal Manure Management Ordinance implementation**

173 Conservation best management practice information and technical assistance

26 Construction site erosion control assistance

#4 **197 Cost-sharing/Financial assistance to landowners for conservation practice installation**

#3 **261 Drinking water well testing** ** County should provide as a free service ** test for glyphosphate
**

61 Environmental education programs for adults

95 Environmental education programs for children

#5 **189 Farmland preservation and agricultural economic development**

100 Field Day Demonstrations (showing how to reduce soil erosion and improve soil health)

125 Forest management assistance

#1 **404 Groundwater Protection**

73 Invasive species (aquatic and terrestrial plants and animals) information and technical assistance

61 No-till corn planter for rental to farmers

103 Nutrient management planning for farmers

8 Shoreland Zoning Ordinance implementation

3 Shoreland protection education/technical/financial assistance

169 Surface water (lakes, rivers, and wetlands) protection

155 Tree Planting .:

38 Urban stormwater and erosion control assistance

103.Water quality monitoring of lakes and streams

68 Well sealing/abandonment assistance for unused private wells

74 Wetland enhancement and/or restoration

122 Wildlife habitat enhancement and/or restoration

Other Dust control on country roads

I noticed certain groups get away with wetland destruction, even after I reported them to DNR and Corps of Engineers. Why?

Grassland with this HUGE dairy herd using all that water- This is Good? Farmers should clean up the manure and mud they leave behind on the roads

Enforcing of septic requirements.

Provide education and management plans for Mennonite community. They seem to do what they want with no restrictions.

Please enforce the current laws on all people, including Mennonites. Ex. Sod-busting, swamp draining, steel wheels on

blacktop (ruining our roads.

All new buildings or larger additions should have to add holding ponds or retention holding ponds to slow our runoff. More needs to be done helping lakes. Mead is a mess.

Having a good working system to maintain road ditches, waterways, small streams, culverts, etc. Reduce mosquito

Cut paperwork and regulation

I do not know if these are educated enough responses..would hate to heighten costs on these responses

Heavy rain downpours biggest concerns

Promote more organic practices. Round-up is a threat to wildlife

Uncontrolled over-abundance of deer

It's time to do something about weekend idiots and 4 wheelers

How to no-till with manure without loss of nutrients (How to cash flow) In change of equipment and management practices

Monitor Grassland waste injection and top dress

on soil Large farms being regulated for waste

runoff/disposal

Manure spread too thick on land. We don't need more regulations, just education

Wildlife Mgmt assistance

Mailing by county to non-farming land owners as to available services and tax incentives

There are 100s of acres of old farmland pastures and abandoned fields that should be reforested. Our county and state forestry Depts. Are really lax in promoting landowners to reforest these lands.

Bring back senior recreation card. Eliminate stamps if you buy a license to hunt any species.

Reduce deer herd to allow growth of young trees, trilliums, etc

Stop taxing people off their land. Give a break to people who want to preserve woodlands Educate farmers on negatives of continuous multiple application of glyphosphate and too much tillage

Questions or Comments:

You give farmers all the breaks on property taxes while taxing the hell out of those that own a forest

Forest/woodlands are being destroyed at an alarming because of the high taxation on these lands. Many are converting their woodlands to farmland because farmland is at a higher premium than forests. As a owner of forestland, I feel strongly that as the price of corn/beans increases, the more likely we'll lose our trees and forests. Thank you for your time

To many choices

Thank you for soliciting our input. Will be waiting to see the results of the survey action taken

Current tax laws are actually accelerating woodlands losses to agriculture. Many farmers are clearing woodlands because taxes are too high on "recreational land".

It seems to me education and a few rules are better than paying people to do the right thing

This whole list is very important

Eliminate trail passed for registered snowmobiles, etc

This is a complete bias survey. Why is ag listed first in every question. Was this intentional. Looks like someone in your office has a issue with ag in ClarkCo. (*no responses on survey*)

Thank you. Good luck!

I see two invasive species taking over

pastureland Stronger county level rules to

stop erosion in ag Great survey, keep at it

Why are Amish allowed to drain wetlands w/o permits

We are very concerned and disappointed that the dump was allowed in this area

While hard to number priorities, my greatest concern is soil erosion and runoff due to cropping

practices We have enough laws and rules now. Do not look to regulate more things.

As a farmer/landowner I care about the issues you have listed here. I am aware that it's not mine to ruin but no one helps with my tax bills.

Appendix B: Cost Sharing Rates

2017-2026 COST-SHARE RATES AND MAXIMUM PAYMENTS

STRUCTURAL PRACTICES:

COST-SHARE RATES MAY NOT EXCEED 70% OF TYPICAL OR MAXIMUM COSTS FOR THE CONSERVATION PRACTICE AS DETERMINED BY THE LCD EVEN IF ACTUAL COSTS ARE HIGHER.

THE LCD MAY REQUIRE COMPETITIVE BIDDING AND MAY DETERMINE A COST-SHARE GRANT AMOUNT BASED ON A LOW BID COST.

CLARK COUNTY COST SHARING PRIORITIES:

The list of priorities will be reviewed and updated each year by the LCC.

Current priorities are ranked as follows:

	PRACTICE	COST SHARE LIMIT
HIGH	Well Decommissioning	\$1,000
	Waste Storage Closure	
	Waterway System	
	Riparian Land Removed from Production	CREP Funds
	Riparian Buffers	
	Streambank and Shoreline Protection	*50%
	Stream Crossing	*50%
	Diversion	
	Critical Area Stabilization (Seeding)	
	Wetland Development or Restoration	* 50%
	Livestock Fencing	
	Trails and Walkways	
	Livestock Watering Facility	
	Prescribed Grazing	
MEDIUM	Barnyard Runoff Control System	
	Milking Center Waste Control System	
	Feed Storage Runoff Control System	
	Sediment Basin/Waste Separation Facility	
	Wastewater Treatment Strips	
	Waste Transfer System	
	Roof Runoff System	*50%
	Underground Outlet	
	Access Road	*50%
Roofs		

	Subsurface Drain	
	Filter Strip (Not a waste treatment strip)	
LOW	Waste Storage System	
	Water and Sediment Control Basin	
	Terrace System	
	Relocating or Abandoning Animal Feeding Operations	
	Pesticide Management Plan (structures)	
	Grade Stabilization Structure	
	Field Windbreak	
	Land Taken out of Ag Production	
	Sinkhole Treatment	
	Engineering Services-Completed CS Project	
	Other with DATCP Written Approval	

- * Limited to 50% unless landowner is required to implement to achieve compliance with agriculture performance standards

Appendix C: Conservation Practices

Manure storage systems - a system of one or more practices, facilities, techniques, or measures used to prevent or reduce pollutants associated with manure.

Manure storage systems closure - permanently disabling and sealing a leaking or improperly sited manure storage system.

Barnyard runoff control - a system of facilities or practices used to contain, divert, retard, treat, or otherwise control the discharge of runoff from outdoor areas of concentrated livestock activity.

Access road - a road or pathway that confines or directs the movement of livestock, farm equipment, or vehicular traffic designed and installed to control surface water runoff, to protect an installed practice, or to prevent erosion.

Trails and walkways - a travel lane to facilitate movement of livestock or people.

Contour farming - plowing, preparing, planting, and cultivating sloping land on the contour and along established grades of terraces or diversions.

Cover crop - close-growing grasses, legumes, or small grain grown to control erosion, add organic matter to soil, or to improve soil infiltration, aeration, or tilth.

Critical area stabilization - planting suitable vegetation on erodible areas such as steep slopes and gullies, to reduce soil erosion or pollution from agricultural nonpoint sources. "Critical area stabilization" may also include treating areas that drain into bedrock crevices, openings, or sinkholes.

Diversions - a structure installed to divert excess surface runoff water to an area where it can be used, transported, or discharged without causing excessive soil erosion. "Diversion" includes a channel with a supporting earthen ridge on the lower side, installed across the slope with a self-discharging and non-erosive gradient.

Feed storage runoff control systems - a system of facilities or practices to contain, divert, retard, treat, or otherwise control the discharge of leachate and contaminated runoff from livestock feed storage areas.

Field windbreaks - a strip or belt of trees, shrubs, or grasses established or renovated within or adjacent to a field, so as to control soil erosion by reducing wind velocities at the land surface.

Filter strips - an area of herbaceous vegetation that separates an environmentally sensitive area from cropland, grazing land, or disturbed land.

Grade stabilization structures - a structure which stabilizes the grade in a channel in order to protect the channel from erosion, or to prevent gullies from forming or advancing.

Livestock fencing - excluding livestock, by fencing or other means, in order to protect an erodible area or a practice.

Livestock watering facilities - a trough, tank, pipe, conduit, spring development, pump, well, or other device or combination of devices installed to deliver drinking water to livestock.

Milking center waste control systems - a system of facilities or equipment designed to contain or control the discharge of milking center waste.

Nutrient management - controlling the amount, source, form, location, and timing of plant nutrient applications, including application of organic wastes, commercial fertilizers, soil reserves, and legumes, in order to provide plant nutrients while minimizing the movement of nutrients to surface water and groundwater.

Pesticide management - controlling the storage, handling, use, and disposal of pesticides used in crop production in order to minimize contamination of water, air, and non-target organisms.

Prescribed grazing - a grazing system which divides pastures into multiple cells, each of which is grazed intensively for a short period and then protected from grazing until its vegetative cover is restored.

Relocating or abandoning animal feeding operations - discontinuing an animal feeding operation in order to prevent surface water or groundwater pollution from that animal feeding operation or discontinuing an animal feeding operation at one site and commencing that operation at a suitable alternate site in order to minimize the amount of surface water or groundwater pollution from that animal feeding operation.

Residue management - Preparing land surfaces for the planting and growing of crop plants using methods that result in a rough land surface which is covered in varying degrees by vegetative residues of a previous crop, and which provides a significant degree of resistance to soil erosion by raindrop impact, surface water runoff, or wind.

Riparian buffers - an area in which vegetation is enhanced or established to reduce or eliminate the movement of sediment, nutrients, and other nonpoint source pollutants to an adjacent surface water resource or groundwater recharge area, to protect the banks of streams and lakes from erosion, and to protect fish habitat.

Roofs - a weather-proof covering that shields an animal lot or manure storage structure from precipitation, and includes the structure supporting that weather-proof covering.

Roof runoff systems - facilities for collecting, controlling, diverting, and disposing of precipitation from roofs. A "roof runoff system" may include gutters, downspouts, erosion-resistant channels, subsurface drains, and trenches.

Sediment basins - permanent basins that reduce the transport of waterborne pollutants such as eroded soil sediment, debris, and manure sediment. Sediment basins may include containment walls or berms, pickets or screens to filter debris, orifices or weirs to control discharge, and conduits to direct runoff to treatment or discharge areas.

Sinkhole treatment - modifying a sinkhole, or the area around a sinkhole, to reduce erosion, prevent expansion of the hole, and reduce pollution of water resources. Include the diversion of runoff around a sinkhole, or the alteration of a sinkhole by excavation, cleanout, filter treatment, sealing, or refilling.

Streambank or shoreline protection - waterbody-specific treatments used to stabilize and protect the eroding banks of streams or constructed channels, and shorelines of lakes, reservoirs, or estuaries. Designed and installed to provide water quality benefits or control soil erosion including degradation from livestock, the practice may protect fish habitat as an incidental benefit.

Stream crossing - a road or pathway which confines or directs the movement of livestock, farm equipment, or vehicular traffic over a stream, and which is designed and installed to improve water quality, reduce erosion, protect an installed practice, or control livestock access to a stream.

Strip cropping - growing crops in a systematic strip arrangement in which strips of grass, legumes, or other close growing crops are alternated with strips of clean tilled crops or fallow, and in which all of the strips are established on the contour or across a slope to reduce water or wind erosion.

Subsurface drains - a conduit installed below the surface of the ground to collect drainage water and convey it to a suitable outlet.

Terrace systems - a system of ridges and channels installed on the contour with a non-erosive grade and suitable spacing.

Underground outlets - a conduit installed below the surface of the ground to collect surface water and convey it to a suitable outlet.

Waste transfer systems - components such as pumps, pipes, conduits, valves, and other structures installed to convey manure and milking center wastes from buildings and animal feeding operations to a storage structure, loading area, or treatment area.

Wastewater treatments strips - an area of herbaceous vegetation that is used as part of an agricultural waste management system to remove pollutants from animal lot runoff or wastewater, such as runoff or wastewater from a milking center.

Water and sediments control basins - an earthen embankment or a ridge and channel combination installed across a slope or minor watercourse to trap or detain runoff and sediment.

Waterway system - a natural or constructed waterway or outlet that is shaped, graded, and covered with a vegetation or another suitable surface material to prevent erosion by runoff waters.

Well decommissioning - permanently disabling and sealing a well to prevent contaminants from reaching groundwater.

Wetland development or restoration - the construction of berms, or the destruction of tile line or drainage ditch functions, to create or restore conditions suitable for wetland vegetation.

Appendix D: NR 151 Standards & Implementation

NR 151.02 Sheet, Rill and Wind Erosion

1. 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.
2. This section applies to livestock pastures and winter grazing areas after July 1, 2012.

NR 151.03 Tillage Setback

1. No tillage operation shall impact stream integrity or deposit soil directly in surface waters.
2. No tillage conducted within five (5) feet of the top of the channel of surface waters. Tillage setbacks greater than five (5) feet but no more than 20 feet may be required to meet this standard.
3. Producers shall maintain the five (5) foot tillage setback in sod or vegetative cover.

NR 151.04 Phosphorus Index Performance Standards

1. Croplands, pastures and winter grazing areas shall average a Phosphorus Index of six (6) or less over the accounting period and may not exceed an index of 12 in any individual year. The Phosphorus Index shall be calculated using the version of the Wisconsin Phosphorus Index available as of January 1, 2011.

NR 151.05 Manure Storage Facilities Performance Standards

1. All new or substantially altered manure storage facilities built after October 1, 2002 shall comply with this section.
2. All new or substantially altered manure storage facilities shall be designed, constructed and maintained to minimize failure.
3. All facilities built or altered after January 2, 2011 shall contain the additional runoff volume of a 25-year, 24-hour storm.
4. A manure storage structure where usage has ceased for 24 months shall be abandoned.
5. Facilities where future use is anticipated may be retained under specific conditions.
6. Facilities in existence as of October 1, 2002 that pose an imminent threat to public health, aquatic life or groundwater shall be upgraded, replaced or abandoned in accordance with this section.
7. Manure storage levels in new or existing (based on the definitions of new and existing) may not exceed the margin of safety.

NR 151.055 Process Wastewater

1. All livestock producers shall comply with this section.
2. There may be no significant discharge of process wastewater, defined by NR 243.03(53) to waters of the state.

NR 151.06 Clean Water Diversion

1. All livestock producers shall comply with this section.
2. Runoff shall be diverted from contacting feedlots, manure storage and barnyard areas within the Water Quality Management Area.
3. Private wells only need protection when located downstream of feedlots and barnyards. NR

151.07 Nutrient Management

1. All crop producers and livestock producers that apply manure or other nutrients directly or through contact to agriculture fields shall comply with ATCP 50 technical standards.
2. Manure, commercial fertilizer, and other nutrients shall be applied in conformance with an approved NRCS 590 nutrient management plan.

NR 151.08 Manure Management Prohibitions

1. All livestock producers shall comply with this section
2. All livestock operations shall have no overflow of manure storage facilities.
3. A livestock operation shall have no unconfined manure pile in a water quality management area.
4. A livestock operation shall have no direct runoff from a feedlot or stored manure into the waters of the state.
5. A livestock operation may not allow unlimited access by livestock to the waters of the state where high concentrations of animals prevent the maintenance of adequate sod cover.

Appendix E: Farmland Preservation Inspection Report

Department of Agriculture, Trade and Consumer Protection Model Form

Farmland Preservation Program (FPP) Farm Inspection Report

V 4-11-14

Farm Inspection Requirements

Farm inspections are required every four years to determine compliance with the soil and water conservation standards for Farmland Preservation Program (FPP) eligibility. To claim the farmland preservation tax credits in under s. 71.613 Stats. of \$5, \$7.50, \$10 per acre, landowners can only certify that they are in compliance on their tax return if the farm either:

- 1) Complies with the state agricultural performance standards and prohibitions incorporated into ATCP 50, Wis. Admin. code. Some standards have a delayed implementation date of January 1, 2016,
or
- 2) Is covered by a performance schedule that enables the landowner to comply with state conservation standards by a specific deadline set by the county. The performance schedule, including amendments or extensions, may not allow the landowner more than 5 years from the time they are informed of their compliance obligations to achieve compliance with all applicable conservation standards.

If there is a failure to agree on needed measures to achieve compliance, or a failure to achieve compliance in the agreed upon timeframe defined in the performance schedule, the county may issue a notice of noncompliance under s. 91.82(2), Stats., to suspend the landowner's eligibility for tax credits.

County: _____ Inspection date: _____

Name of inspector: _____ Phone: _____

Signature of inspector: _____ Date: _____

Landowner Information

Name(s): _____

Phone: _____ E-mail: _____

Property Information Location(s) of land for which credit is claimed:

TOWNSHIP	RANGE	SECTION	TOWN, VILLAGE, CITY	PARCEL TAXID #'S

Farmland Preservation Program (FPP) Farm Inspection Report

Conservation Compliance Checklist

Landowner(s): _____ Inspection Date: _____

FPP participants continuously claiming tax credits are not required to implement the *italicized* standards until after January 1, 2016.

Cropland & Pasture Standards	In Compliance	Will Achieve Compliance (Season, Year)	Does not Apply
<p>A current nutrient management plan (NM) has been developed and implemented according to NRCS 590 standard which may be submitted to the county conservation office as a NM Plan Checklist form.</p> <ul style="list-style-type: none"> Fields must have initial soil tests conducted by 2016 and follow crop management practices that are planned to comply with the 590 standard across the crop rotation. The NM plan must include current soil tests conducted by DATCP certified lab. Fields in a NM plan must: 1. Be updated when cropping systems change, 2. Include maps identifying NRCS 590 nutrient application restriction areas, 3. Have phosphorus applications planned over the entire rotation, and 4. Show no visible signs of gully erosion. Pastures are exempt from NM plan requirements if the pasture is a feedlot, or when the pasture's average stocking rate is 1 AU/acre or less during grazing season and no nutrients are mechanically applied [ATCP 50.04(3)(b)]. When the pasture's average stocking rate is more than 1 AU/acre over the grazing season, a planner may assume soil test values of 150 ppm P and 6% organic matter content [ATCP 50.04(3)(d) and (de)]. 	<input type="checkbox"/>		<input type="checkbox"/>
<p>Cropped fields and pastures meet tolerable soil loss "T".</p> <p>Method used to calculate "T":</p> <p>SnapPlus <input type="checkbox"/> RUSLE 2 <input type="checkbox"/> WEPS <input type="checkbox"/></p> <ul style="list-style-type: none"> Fields must follow crop management practices that are planned to comply with the 590 standard across the crop rotation. Soil erosion rates should be estimated using the latest prediction models: Soil Nutrient Application Planner, Revised Universal Soil Loss Equation 2 and Wind Erosion Prediction System [ATCP 50.04(2)Note]. 	<input type="checkbox"/>		<input type="checkbox"/>
<p><i>Cropland and pasture areas average a phosphorus index of 6 or less over the accounting period and do not exceed a phosphorus index of 12 in any individual year within the accounting period.</i></p> <ul style="list-style-type: none"> All cropland and pastures must comply with the Phosphorus Index (PI) standard [NR 151.04] [ATCP 50.04(1)]. A NM plan meeting the standard in ATCP 50.04(3) may be used to demonstrate compliance with DNR's PI standard. 	<input type="checkbox"/>		<input type="checkbox"/>
<p><i>No tillage conducted within a minimum of 5 feet of surface water.</i></p> <ul style="list-style-type: none"> Cropland must be managed to include a minimum setback of 5 feet from the top of the channel of surface waters. No tillage can occur and 70% vegetative cover must be maintained in that tillage setback zone to ensure bank integrity. Cost-sharing is not required to implement this practice [ATCP 50.04(4)(a); NR 151.03]. When establishing the setback width, start with 5 feet. If it is determined that 5 feet may not be adequate to maintain bank stability, county land conservation staff should [ATCP 50.04(4)(b)]. <ul style="list-style-type: none"> Use best professional judgment to increase setback width based on factors including bank materials, height, slope, cause of bank erosion, and soil type. Increase the tillage setback width by smallest increment necessary to maintain bank stability. Follow a consistent approach when making setback width determinations by consulting with NRCS or DATCP engineers or technicians. Consider enrolling riparian areas in the Conservation Reserve Enhancement Program (CREP) can achieve compliance with the tillage setback standard. [ATCP 50.04(4)(b) Note] 	<input type="checkbox"/>		<input type="checkbox"/>

Livestock Standards	In Compliance	Will Achieve Compliance (Season, Year)	Does Not Apply
<p>How many of the following facilities or structures are located in a Water Quality Management Area (WQMA)?</p> <p>Feedlots: Barnyards: Manure storage:</p> <ul style="list-style-type: none"> The clean water diversion from feedlots and unconfined manure pile standards reference a water quality management area (WQMA). A WQMA is 1,000 feet from a lake, pond, or flowage or 300 feet from a stream, or in areas susceptible to groundwater contamination [NR 151.015]. 			<input type="checkbox"/>
There are no unconfined manure piles in a WQMA.	<input type="checkbox"/>		<input type="checkbox"/>
Runoff is diverted away from all feedlots, manure storage areas, and barnyards within WQMAs.	<input type="checkbox"/>		<input type="checkbox"/>
<p>There is self-sustaining sod or vegetative cover adequate to preserve streambank or lakeshore integrity in areas where livestock have access.</p> <ul style="list-style-type: none"> This does not apply to properly designed, installed and maintained livestock or farm equipment crossings. 	<input type="checkbox"/>		<input type="checkbox"/>
How many manure storage facilities are located on the entire farm?			<input type="checkbox"/>
Facilities have no visible signs of leakage or failure.	<input type="checkbox"/>		<input type="checkbox"/>
Facilities are maintained to prevent overflow.	<input type="checkbox"/>		<input type="checkbox"/>
Each storage facility that has not had manure added or removed from the facility for a period of 24 months has either been closed in a manner that will prevent future contamination of ground or surface water or has been approved by DNR for continued use.	<input type="checkbox"/>		<input type="checkbox"/>
Facilities constructed or substantially altered after 2002 meet the NRCS 313 standard.	<input type="checkbox"/>		<input type="checkbox"/>
<i>There are no significant discharges of process wastewater to waters of the state from feed storage or other sources.</i>	<input type="checkbox"/>		<input type="checkbox"/>
<p>There are no channels or other visible signs of significant discharge from a feedlot or stored manure into waters of the state.</p> <ul style="list-style-type: none"> Livestock operators must prevent a "significant" discharge from manure and feed storage, feedlots, and process wastewater. A "significant" discharge is based on factors such as volume, frequency, receiving waters, and slope. DATCP grant funds may be used to provide cost-sharing for a feed storage runoff control system as long as the system meets applicable standards including NRCS technical guide waste treatment standard 629 [ATCP 50.705]. Livestock operators may consider low cost options for removing "significant" direct feedlot runoff such as: 1. Grazing cattle on nearby fields. 2. Collecting lot manure on a consistent basis and field applying in accordance with a nutrient management plan. 3. Removing channels with roof gutters, clean water diversions, or rock spreader diversions with harvested vegetative runoff filters. 	<input type="checkbox"/>		<input type="checkbox"/>

**NOTICE OF
PUBLIC HEARING
TO ADOPT THE UPDATE TO THE CLARK
COUNTY LAND AND WATER RESOURCE
MANAGEMENT PLAN AND TO ADOPT THE
UPDATE TO THE CLARK COUNTY MANURE
STORAGE AND MANAGEMENT ORDINANCE**

PUBLIC HEARING

A public hearing will be conducted by the Clark County Board of Supervisors on August 15, 2019, at 6:30 p.m. at the Clark County Courthouse in Room 501 at 517 Court St., Neillsville, WI 54456. The purpose of the public hearing is to receive comments regarding the draft update to the Clark County Resource Management Plan and the Clark County Manure Storage and Management Ordinance.

Prior to the meeting, copies of the draft plan, which includes maps, and the Manure Storage and Management Ordinance can be reviewed at the Clark County Land Conservation Department during normal business hours. The draft plan and draft ordinance can also be found on the Clark County website at www.co.clark.wi.us.

For questions and additional information, please contact Jim Arch, County Conservationist, at 715.743.5102.

Written comments on the draft plan are also invited and should be sent to the Clark County Board of Supervisors, c/o Christina M. Jensen (County Clerk) at 517 Court St., Room 301, Neillsville, WI 54456. Written comments must be received before August 14, 2019.

74837 WNAXLP

Appendix G: Transect Survey 2013-2018

<u>Watershed</u>	<u>Avg. "T" value</u>
Dill Creek-Big Eau Pleine River	1.9
East Fork of the Black River	.28
Lake Arbutus-Black River	6.0
Little Eau Pleine River	1.5
North Fork Eau Claire River	1.5
Popple River	5.5
Rock Creek-Black River	5.5
Rocky Creek-Yellow River	.63
South Fork Eau Claire River	.26
Trappers-Pine Creeks-Black River	1.3
Wedges Creek	1.9

Appendix H: Current Conservation Partners

Natural Resources Conservation Service (NRCS) – NRCS draws on a long history of helping people help the land. For more than 80 years, NRCS and its predecessor agencies have worked in close partnerships with farmers and ranchers, local and state governments, and other federal agencies to maintain healthy and productive working landscapes. They provide American’s farmers and ranchers with financial and technical assistance to voluntarily put conservation on the ground, not only helping the environment but agricultural operations, too.

Farm Service Agency (FSA) – FSA serves all farmers, ranchers, and agricultural partners through the delivery of effective, efficient agricultural programs for all Americans. FSA’s responsibilities are organized into five areas: Farm Programs, Farm Loans, Commodity Operations, Management and State Operations. The agency continues to provide America’s farmers with a strong safety net through the administration of farm commodity programs. FSA also implements ad hoc disaster programs.

U.S. Forest Service (USFS) - USFS is a multi-faceted agency that manages and protects 154 national forests and 20 grasslands in 43 states and Puerto Rico. The agency’s mission is to sustain the health, diversity, and productivity of the nation’s forests and grasslands to meet the needs of present and future generations.

U.S. Fish and Wildlife Service (USFWS) – USFWS assist in the development and application of an environmental stewardship ethic for our society, based on ecological principles, scientific knowledge of fish and wildlife, and a sense of moral responsibility. They guide the conservation, development, and management of the Nation’s fish and wildlife resources. They administer a national program to provide the public opportunities to understand, appreciate, and wisely use fish and wildlife resources.

Wisconsin Department of Natural Resources (DNR) – DNR works with the citizens and businesses of Wisconsin to preserve and enhance the natural resources of Wisconsin. Through partnership with individuals and organizations, DNR staff manage fish, wildlife, forests, parks, air and water resources while promoting a healthy, sustainable environment and a full range of outdoor opportunities.

UW-Extension – UW-Extension works with the people of Wisconsin to solve their most pressing issues and uncover their most promising opportunities. It is their mission to provide the people of Wisconsin and beyond access to university resources and engage them in learning, where they live and work.

Local units of Government – Cities, Villages, Townships, and private landowners.

United States Army Corps – USACE is a U.S. federal agency under the Department of Defense and a major Army command made up of some 37,000 civilian and military personnel, making it one of the world’s largest public engineering, design, and construction management agencies. Although generally associated with dams, canals and flood protection in the United States, USACE is involved in a wide range of public works throughout the world. The Corps of

Engineers provides outdoor recreation opportunities to the public, and provides 24% of U.S. hydropower capacity.

West Central Wisconsin Regional Planning Commission – WCWRPC is an extension of local government in West Central Wisconsin. They provide low cost expert planning, economic development services, and GIS services to the county, city, village, and town governments of their seven county jurisdiction (Barron, Chippewa, Clark, Dunn, Eau Claire, Polk, and St. Croix). They assist local communities to save both time and money while planning for the future.

Appendix I: Advisory Committee Agendas

***Technical Advisory Committee Meeting for LWRM Update #1
Monday, March 5th, 2018
Clark County Courthouse, Auditorium
10:00 a.m.-12:00 p.m.***

AGENDA

1. Call Meeting to Order
2. Introductions
3. Discussion on the Diversity of Farms in the County
4. Discussion on Recreation in the County and the LWRM
5. What are the Soil & Water Resource issues in the County?
6. Looking out the next 10 years what changes do you see occurring in your agency and how might that affect the LWRM?
7. Adjourn

Persons needing special accommodations to attend or participate in this meeting may call the Land Conservation Department at 743-5102.

***Technical Advisory Committee Meeting for LWRM Update #2
Wednesday, August 22, 2018
Clark County Courthouse, Room 305
1:00 p.m.-3:00 p.m.***

AGENDA

1. Call Meeting to Order
2. Introductions

3. Review of minutes from the 1st TAC meeting
4. Review the result of the mail survey that was sent out.
5. Discussion on solutions to the identified problems and where do we target our energy?
6. What are the ultimate and achievable goals for the LWRM
7. Adjourn

Persons needing special accommodations to attend or participate in this meeting may call the Land Conservation Department at 743-5102.

***Technical Advisory Committee Meeting for LWRM Update #3
Monday, July 1, 2019
Clark County Courthouse, Room 305
10:00 p.m.-12:00 p.m.***

AGENDA

1. Call Meeting to Order
2. Introductions
3. Review of minutes from the 2st TAC meeting
4. Review the drafted version of LWRM Plan
5. Open discussion and recommendations for LWRM Plan draft
6. Time table for LWRM Plan
7. Adjourn

Persons needing special accommodations to attend or participate in this meeting may call the Land Conservation Department at 743-5102.

***Citizens Advisory Committee Meeting for LWRM Update #1
Thursday, March 22th, 2018
Clark County Courthouse, Room 307
1:00 p.m-3:00 p.m.***

AGENDA

1. Call Meeting to Order
2. Introductions
3. What is this LWRM Plan about?
4. Discussion on farming in the County and the new LWRM Plan
5. Discussion on recreation in the County and the new LWRM Plan
6. The Land Conservation Department will be sending out a survey to a random number of county residence. What questions would you like to see on the survey?
7. What should be the top goals of the new LWRM Plan?
8. Adjourn

Persons needing special accommodations to attend or participate in this meeting may call the Land Conservation Department at 743-5102.

Please remember these meetings are meant to have meaningful discussions on the current and future goals for preserving and protecting the land and water resources of Clark County.

***Citizens Advisory Committee Meeting for LWRM Update #2
Thursday, September 6, 2018
Clark County Courthouse, Room 202
1:00 p.m-3:00 p.m.***

AGENDA

9. Call Meeting to Order
10. Introductions
11. Review of Minutes from the 1st meeting.
12. Review the result of the mail survey that was sent out.
13. Discussion on solutions to the identified problems and where do we target our energy?
14. What are the ultimate and achievable goals for the LWRM
15. Adjourn

Persons needing special accommodations to attend or participate in this meeting may call the Land Conservation Department at 743-5102.

Please remember these meetings are meant to have meaningful discussions on the current and future goals for preserving and protecting the land and water resources of Clark County.

***Citizens Advisory Committee Meeting for LWRM Update #3
Monday, July 8, 2019
Clark County Courthouse, Room 305
1:00 p.m.-3:00 p.m.***

AGENDA

1. Call Meeting to Order
2. Introductions
3. Review of minutes from the 2st CAC meeting
4. Review the drafted version of LWRM Plan
5. Open discussion and recommendations for LWRM Plan draft
6. Time table for LWRM Plan
7. Adjourn

Persons needing special accommodations to attend or participate in this meeting may call the Land Conservation Department at 743-5102.

Appendix J: Resources

Soil Survey of Clark County Wisconsin, 1993. United States Department of Agriculture, Natural Resource Conservation Service

Clark County Outdoor Recreation Plan, 2016-2021. Clark County Forestry and Parks Department, West Central Regional Planning Commission

Census of Agriculture, 2017. United States Department of Agriculture – National Agricultural Statistics Service.

Clark County Land and Water Resource Management Plan 2012-2016. Clark County Land Conservation Department.

Department of Natural Resources Website. <http://dnr.wi.gov>

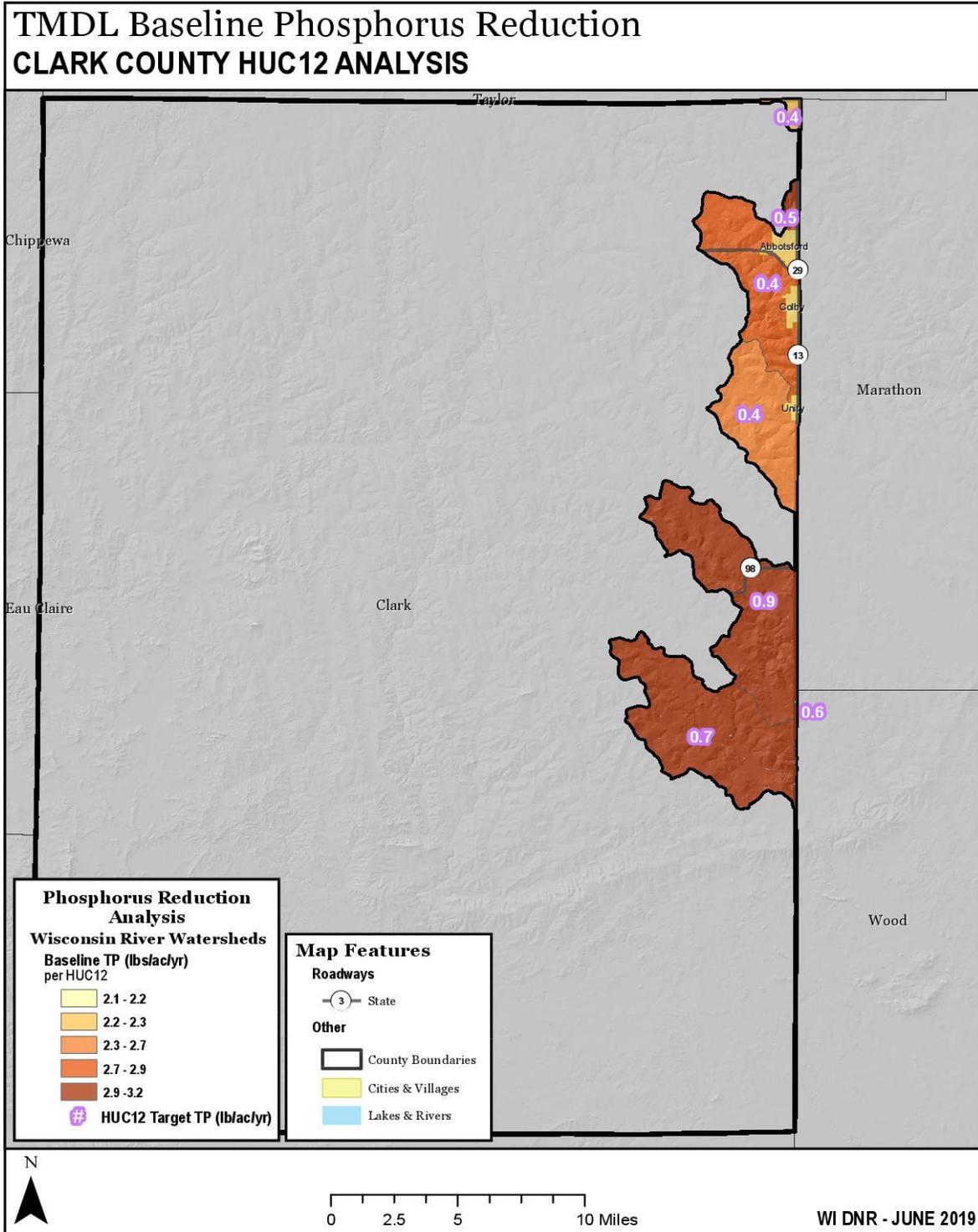
Mead Lake TMDL. Wisconsin Department of Natural Resources

International Journal of Cancer. Schullehner J, et al. Int J Cancer. 2018.
<https://onlinelibrary.wiley.com/doi/abs/10.1002/ijc.31306>

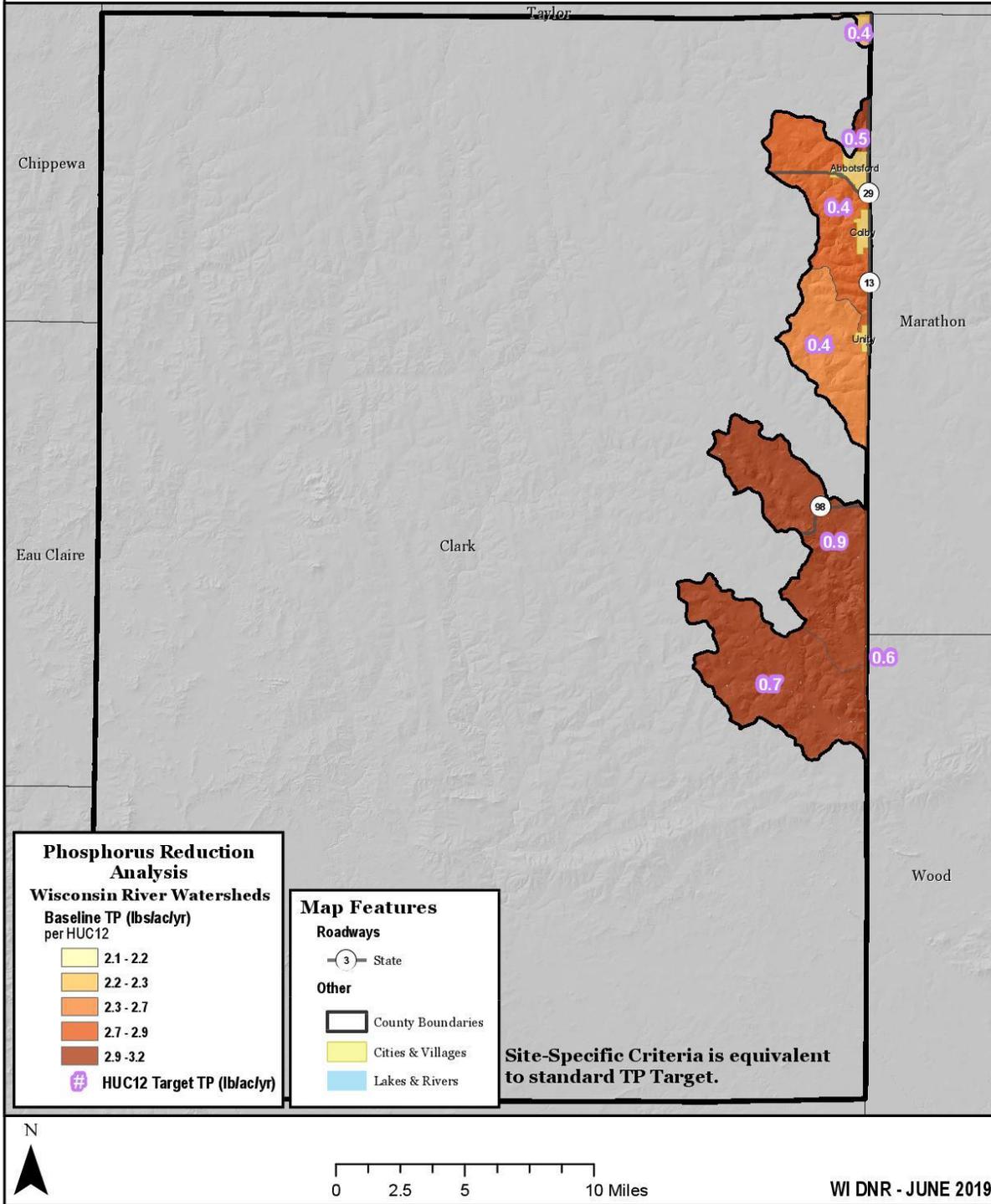
Historical Photos of Clark County. Clark County Historical Society

2019-2028 Taylor County Land and Water Resource Management Plan. Taylor County Wisconsin

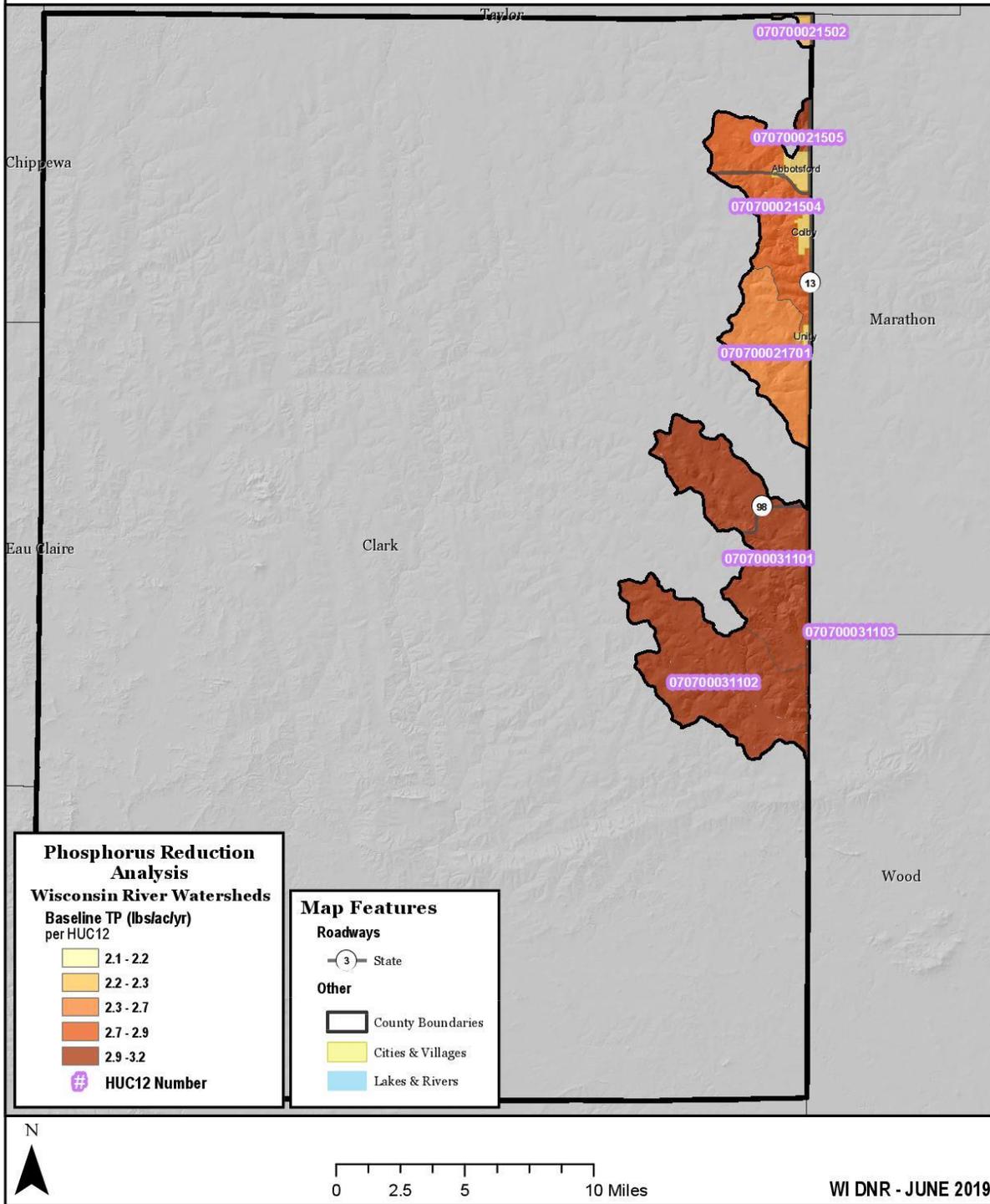
Appendix K: Wisconsin River TMDL Maps



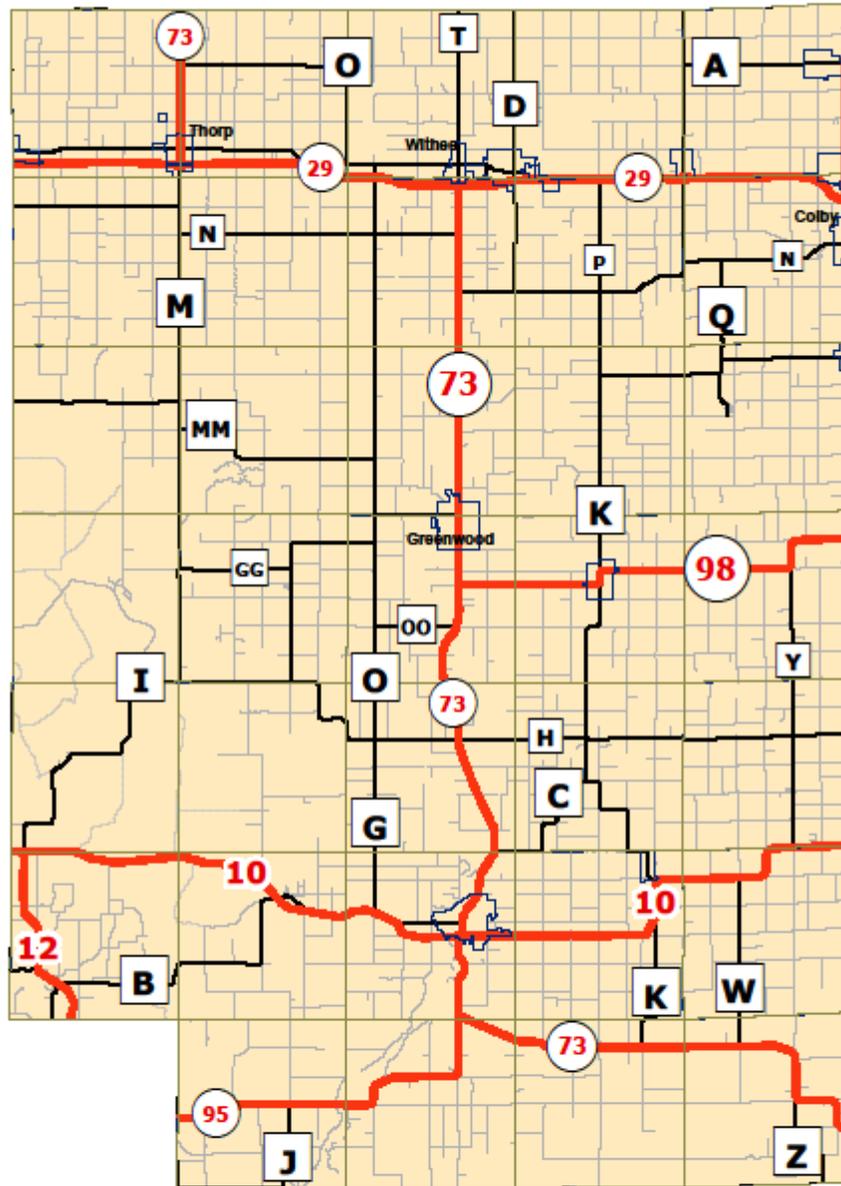
TMDL Baseline Phosphorus Reduction CLARK COUNTY HUC12 ANALYSIS - Site Specific Criteria



TMDL Baseline Phosphorus Reduction CLARK COUNTY HUC12 REFERENCE MAP



Appendix L: Municipal Well Head Protection Map



Clark County Land & Water Resource Management Plan

- | | |
|-------------------------|----------------------|
| City & Village Boundary | Federal or State Hwy |
| County Boundary | County Rd |
| | Forest Rd |
| | Town Rd |

