

**Jefferson County
Land & Water Resources Management Plan
FINAL DRAFT 2021 - 2030**

Prepared by:
Jefferson County Land & Water Conservation Department

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Plan Summary

The Jefferson County Land and Water Resource Management Plan for 2021-2030 is an update of the 2011-2020 plan. Based on an assessment of the land and water resources in the county, this report sets forth a strategic work plan for achieving goals toward protection and enhancement of those resources. The overall goal of the Land and Water Resources Management Plan is:

The overall goal of this plan is to restore, improve, and protect land and water resources in Jefferson County because families and individuals deserve to have productive farmland, healthy natural areas, and clean water to use and enjoy.

The Land and Water Conservation Department (LWCD) will implement the work plan through various federal, state, and local programs and funding mechanisms. It is important to note that the implementation of the work plan is dependent on receiving adequate financial resources to cover staff and the various cost-sharing programs.

The plan first details the many accomplishments from 2015-2020. Of particular note are numerous practices implemented in the last 5 years with a total of \$100,084.68 in state funds. These practices controlled soil erosion, protected water quality, and enhanced wildlife habitat.

The plan development process and the involvement of the public and a variety of partners is detailed in the plan. An Advisory Committee was assembled to consider the resource issues and develop a work plan. Members of the Committee either attended the meeting held in September 2020 or submitted their written comments and suggestions to the LWCD. The Department of Agriculture, Trade, and Consumer Protection, the Department of Natural Resources, and the Farm Service Agency were all solicited for their input. The public was invited to become involved in the review of the plan through a public hearing held on December 1, 2020. A Class I Public Notice appeared in the Daily Jefferson County Union and a press release was sent to the newspapers in the county to inform the public about the hearing and the availability of the plan for review.

Information is detailed on the land and water resources in Jefferson County. Jefferson County has approximately half of its land area in agriculture, at the same time, rural development issues are increasing due to the development pressures that exist from being situated between the Madison and Milwaukee metropolitan areas. Surface water and wetland resources cover almost 20% of Jefferson County, making conservation practice implementation critical in both agricultural and developed areas. The most current data on the resources is presented in the plan as well as some of the projects and partners involved in ongoing management activities.

The goals, objectives, and actions of the work plan are contained in a table that details timing, estimated staff resources, and estimated cost share resources. Items in bold in this work plan are priorities for the Land and Water Conservation Department. These priority activities are listed below:

- Implement the NR151 Agricultural Performance Standard to Protect County Resources.
 - Provide technical assistance and cost-sharing so that farms attain compliance with the NR 151 Agricultural Performance Standards.
 - Educate landowners about NR 151 rules.
- Implement the Farmland Preservation Program to protect county resources.
- Ensure that livestock facilities expand according to standards that protect County resources.
- Reduce sediment and phosphorus delivery in the Rock River Basin to help implement the Rock River Recovery Plan and restore nutrient or sediment impaired waters.
- Protect surface water resources and habitat quality by implementing best practices.
 - Provide landowners with technical assistance and cost-sharing on Healthy Lakes and River projects (shoreland gardens, rain gardens, water diversions, rock infiltration and fish sticks) and erosion control projects.
- Provide cost-sharing for the closure of wells.
- Ensure decision-makers and citizens have resource information and tools necessary to achieve protection of lakes, rivers, and wetlands.
- Implement the County's Purchase of Agricultural Conservation Easements program.
- Ensure that non-metallic mines are reclaimed according to state standards.
- Document the potential reduction in soil erosion on cropland.
- Document the location and trends of livestock in the county.
- Track compliance with the Farmland Preservation Program and NR 151 rules.
- Determine progress in maintaining and improving the quality of lakes, rivers, and wetlands.
- Support the development of a producer-led council and partner with them to support soil health education.

The Land and Water Resource Management Plan contains information on implementation, laws and ordinances involved in management, and the goals, objectives, and actions of the work plan. Components of the plan will be implemented in accordance with various state and county ordinances and regulations including: the county's Animal Waste Storage and Nutrient Management as well as Livestock Siting (ATCP 51) Ordinances, the county's Nonmetallic Mining Reclamation Ordinance, the county's Shoreland Zoning Ordinance, and the state's Runoff Management Administrative Code (NR 151).

A Priority Farm Strategy is used to implement the performance standards and prohibitions in State Administrative Code NR 151 in a priority driven manner. The Priority Farms include the following: farms receiving a DNR notice of discharge or notice of intent, farms identified as having significant manure management problems, farms that have cropland erosion in excess of tolerable soil loss, farms located with a watershed with a nine key element plan (when developed), and farms with land in a water quality management area that also have livestock, farms within a water quality management area of an impaired water that is impaired due to sediment or nutrients.

The strategy for implementing the Farmland Preservation Program Working is included in the plan.

An implementation strategy for NR 151 is included in the plan. This strategy includes the following items:

- Implementing information and education activities to educate landowners.
- Determining compliance including a records inventory and onsite evaluations.
- Developing a compliance report to be sent to each landowner that will report their status of compliance. If they are noncompliant, then it will further explain the necessary steps to attain compliance.
- Working with landowners who voluntarily take steps to achieve compliance.
- Issuing a notification to landowners who do not take steps to achieve compliance. This notification will explain the process to attain compliance and the possible consequences of failing to comply.
- Assisting farms with attaining compliance through technical assistance, best management practices, and cost-sharing.
- Implementing any necessary enforcement actions.
- Monitoring farms to verify ongoing compliance.
- Developing an annual report of activities relating to the implementation of NR 151, and sharing reports with DNR and DATCP.

Monitoring and evaluation is an integral component to the success of the Land and Water Plan and its goals. It will be an ongoing process that is implemented in a variety of ways. Throughout this process, necessary adjustments will be made to how actions in the work plan are implemented to ensure achievability of the goals. Monitoring and evaluation of the land and water resources in the county will be achieved through the following: compliance tracking for NR 151 (via a database and GIS), conservation practice implementation, Farmland Preservation Program farm checks, implementation of Livestock Siting, livestock inventory, manure complaint investigations, nonmetallic mine tracking, nutrient management plan implementation, transect survey, and water quality monitoring in lakes and streams.

Monitoring and evaluation of the administrative side of the Jefferson County LWCD will be achieved through the following: evaluating and refining administration of programs and financial and staff resources; reviewing and refining administration of cost-share programs; coordination of activities between LWCD, Farm Service Agency, and the Natural Resources Conservation Service; annual financial audit of grant revenues and expenditures; and periodic LWCD staff meetings.

2016-2020 Accomplishments

Goal #1: Improve and protect soil, surface water, and groundwater quality through the implementation of the Working Lands Initiative and the Agricultural Performance Standards.

Farmland Preservation

- On-farm compliance checks are completed for each participant once every four years. The County has been divided up into four quadrants. Field checks are rotated between different quadrants each year.
- FPP participants are required to have a nutrient management plans in place prior to June 30th of each year.
- FPP participants are required to meet all livestock and cropland performance standards.
- As of December 2016, all FPP participants received Certificates of Compliance. New Certificates are issued as needed (such as when land is purchased or sold).
- As of November 2020, there are 619 participants and 106,426 acres enrolled in FPP. Additionally there are six farms that have signed Agricultural Enterprise Area contracts with the State covering 756 acres.

Agricultural Performance Standards

- Agriculture performance standards have been met on farms through technical assistance, cost-sharing, the Farmland Preservation Program, the Animal Waste Storage and Nutrient Management Ordinance, and the Livestock Siting provisions for expanding livestock operations. Please see Table 1 for the achievements of the cost-share program. Map 15 displays the location of the practices cost-shared from 2010 to 2020.
- As of October 2020, there are 137,737 acres of farmland that have nutrient management plans.
- Since December 2010, staff conducted 10 classes for farmers/landowners to learn how to write their own nutrient management plan. In total, 82 people have been trained. In addition 32 classes have been held for those who want/need assistance with updating their plans.
- Updated the Animal Waste Storage and Nutrient Management Ordinance in 2014 to be in line with some of the requirements contained in ATCP 51 Livestock Facility Siting.

Goal #2: Protect and enhance surface water, ground water, and wetland quality, and associated habitat areas.

Livestock Siting

- Livestock facilities have expanded according to standards that protect resources. Staff have reviewed 6 permit applications for livestock expansions and 15 amendments to the worksheets that did not include livestock expansions.

Rock River Recovery

- LWCD staff provided advice and resources to the City of Oconomowoc who is working to implement an adaptive management program to reduce phosphorus delivery to the Oconomowoc River.
- The LWCD received funding from the Multi-Discharger Variance Program in 2020 and will be working on a plan to use that money to make offers of cost share to reduce phosphorus sources and meet NR 151 agricultural performance standards.

Water Resource Protection through Conservation Programs

- Protected surface water resources and habitat quality through implementation of the Conservation Reserve Enhancement Program. 32 stream buffer projects were implemented.
- 2 native gardens (each 350 ft²), 1 rain garden, and 2 fish stick projects were implemented through the Healthy Lakes Program
- 1 streambank protection project (185 feet) was implemented through State cost-sharing. Staff provided technical assistance to numerous landowners on shoreline and streambank erosion control projects.
- 4 well closures have been implemented through cost-sharing.
- Train, equip, and support watercraft inspectors to educate boaters about aquatic invasive species laws via the Clean Boats, Clean Waters Program.

Water Resource Technical Expertise

- Completed the following plans/reports: Rock Lake Management Plan; Rock Lake Shoreland and Shallows Survey report.
- LWCD staff provides data, data analysis, maps, educational resources, and technical assistance to municipalities, citizens, water resource groups, and other County Departments.
- Expertise is provided on a wide range of topics including water quality monitoring and data analysis, shoreland habitat protection, shoreland zoning, DNR waterway permits, wetland disturbance and restoration, construction site erosion control and ordinances, aquatic plant monitoring and data analysis, and groundwater protection.

Goal #3: Preserve and protect natural areas, woodlands, open space, and farmland for the benefit of Jefferson County citizens and visitors.

Jefferson County's Purchase of Agricultural Conservation Easement Program (PACE)

- The County's PACE program was moved to be under the management of the Jefferson County LWCD (from the Zoning Department) in 2014.
- 5 permanent easements agreements have been issued covering 633 acres, and are monitored for compliance annually.
- Continue to pursue grant funding to allow additional purchases and agreements.
- Working budget of approximately \$232,000 of County funds.
- See Map 13 Agricultural Easements (PACE), for locations

Tree Seedling Program

- From 2016-2020, 28,305 trees and shrubs were sold to the public via the annual sale.
- LWCD helped distribute free trees to the public through Living Lands & Waters Million Trees Project.

Nonmetallic Mines

- Ensured that mines have reclamation plans that meet standards and adequate financial assurance to allow for reclaiming all disturbed acreage.
- Currently there are 23 active permits covering 550 acres, of which 420 acres will require reclaiming.
- Since 2015, approximately 75 acres have been reclaimed, while operators are encouraged to practice contemporaneous reclamation.
- See Map 14 Non-metallic Mine Permits – 2020, for locations

Goal #4: Monitor and assess the state of soil, water, and natural resources.

Transect Survey

- Perform annual survey each June to document cropland conditions including residue and erosion at over 900 farm field locations. There are nearly 20 years of data compiled by Jefferson County.
- Agricultural Performance Standards concerns are identified and solutions are pursued.

Quality of Water Resources

- Performed the following surveys/monitoring: annual aquatic plant surveys on Lower Spring Lake; shoreland and shallows survey of Rock Lake, monthly (in the summer) water quality sampling on Rock Lake.
- Train, equip, and support citizen lake monitors. In 2019 (pre-covid) there were 6 lakes monitored by volunteers. Data is tracked and analyzed.
- Train, equip, and support citizen stream monitors with assistance from the Rock River Coalition. In 2019 (pre-covid) there were 15 sites on 11 streams in the County that were monitored.

Goal #5: Educate and inform the public regarding Jefferson County resources and LWCD services.

Educational Efforts

- Staff presented at a number of events (the majority of which staff assisted in organizing): Shoreland and Rain Garden Tour, Native Plant Gardening Workshop, Lake Lot 101 Workshop, Lake Ripley pontoon classroom, Rock Lake pontoon educational tour, Jefferson County Board of Realtors presentation on shoreland issues, and water drawdowns on Lower Spring Lake to reduce the presence of Eurasian water milfoil.
- LWCD staff attended numerous meetings of citizen organizations to update them on resource issues.

- Several press releases are issued each year regarding LWCD programs and projects which have resulted in articles in area newspapers and radio interviews.
- Staff also interact with the public and provide information via one-on-one conversations, e-mail, LWCD website, and direct mail.

Table 1. Cost-Sharing Program Accomplishments (see Map 15 for locations).

Year	SEG \$ Cost Shared	BOND \$ Cost Shared	Best Management Practices Installed
2016	\$2,668	\$18,495.08	78 Acres Nutrient Management Plans 1 Barnyard Runoff System 1 Well Closure 1 Underground Outlet 1 Roof Runoff System
2017	\$770	\$23,187.50	27.5 Acres Nutrient Management Plans 2 Well Closures 1,236 Feet Grassed Waterway 687 Feet Clean Water Diversion
2018	0	\$26,273.90	185 Feet Streambank Protection 540 Feet Clean Water Diversion
2019	0	\$25,250	1 Well Closure 2 Manure Storage Closures
2020	0	\$6,878.20 so far	1 Manure Storage Closure Planned: grassed waterway, manure storage closure, well closure, shoreland stabilization
Totals	\$3,438	\$100,084.68	105.5 Acres Nutrient Management Plans 1 Barnyard Runoff System 4 Well Closure 1 Underground Outlet 1 Roof Runoff System 1,236 Feet Grassed Waterway 1,227 Feet Clean Water Diversion 185 Feet Streambank Protection 3 Manure Storage Closures

Plan Development Process and Public Participation

In 2020, the Jefferson County Land and Water Conservation Department (LWCD) worked on the update of the Land and Water Resource Management Plan. The following steps were taken:

The 2016-2020 work plan was reviewed to determine accomplishments, continued needs, and activities that were implemented by other entities. This review was helpful in setting future goals, objectives and action items for the 2021-2030 plan.

An Advisory Committee met on September 9, 2020. The group gave their input on the 2021-2030 work plan. Please see a list of Advisory Committee members on page 1.

The Department of Agriculture, Trade and Consumer Protection and the Department of Natural Resources were given a copy of the revised work plan for comment.

A first draft of the full Land and Water Resources Management Plan was provided to DATCP, DNR, and the Advisory Committee in November 2020. Comments received from them were incorporated into the plan.

A public hearing on the final draft Land and Water Resource Management Plan was held on Tuesday, December 1, 2020 in the Jefferson County Courthouse. The meeting was also available via the use of video-conferencing. A Class I Public Notice on the hearing was printed by the Daily Jefferson County Union. In addition, a press release was sent to newspapers in the county to inform people about the plan, public hearing, and the availability of the plan for review.

Input received from the public, Advisory Committee, DATCP, DNR, and the Land and Water Conservation Committee were incorporated into the final plan. The State Land and Water Board will consider the Jefferson County Land and Water Resources Management Plan at their February 2, 2021 meeting. The Jefferson County Board of Supervisors will consider adoption of the Land and Water Resources Management Plan at their February 9, 2021 meeting.

Jefferson County Land & Water Resources

Jefferson County is located in south central Wisconsin. With a total of approximately 373,000 acres of land, the county consists of many land and water resources including agricultural land, natural areas, parks, rivers, lakes, and wetlands. Situated between the Madison and Milwaukee metropolitan areas, there are concerns over the increasing development pressures on Jefferson County and its resources. The population of Jefferson County for 2019 was estimated to be 84,769 by the U.S. Census Bureau.

Topography

The topography of Jefferson County is characteristic of a glaciated region. A conspicuous result of the glaciations is the large number of drumlins that occur throughout the region north of the Bark River and east of the Rock River. The drumlins in this area form a series of parallel ridges running in a general north-south direction. Throughout this region the intervening low areas consist of peat marshes. In general, the drumlins lying south of the Bark River and west of the Rock River are higher with more irregular outlines; and the intervening land usually consists of uplands.

Another pronounced topographic feature is the Kettle Moraine, which crosses the southeastern corner of the county. It covers approximately six square miles and attains the highest elevation in the county of 1,061 feet (see Map 1 - Topography).

Land Uses

The different land uses in Jefferson County are detailed in Table 2 (see Map 2 for locations).

Table 2: Land Uses (2018 Land Use Inventory)

Land Use	Acres	% of Total Acres
Agriculture (cropland, orchards, tree nurseries, etc.)	188,757	50.6%
Wetlands (designated by DNR)	55,518	14.9%
Urban and Roadway Corridors (developed urban land and all road right of ways)	36,330	9.7%
Rural Developed (rural homesteads, farm buildings, churches, cemeteries, government facilities, etc.)	23,997	6.4%
Rural Open (rural uncultivated, vacant lots 5 or more acres, landfills)	23,453	6.3%
Upland Woods (wooded areas in both rural and urban areas, not in wetlands)	19,832	5.3%
Surface Water	17,440	4.7%
Recreation (public parks, golf courses, gun clubs, and non-public campgrounds)	6,502	1.7%

Land Use	Acres	% of Total Acres
Commercial and Industrial (retail shops, manufacturing, machine shops, rail right of ways, communication facilities, utilities, etc.)	1,137	0.3%
Totals	372,964	100%

Soil Resources and Agriculture

Jefferson County lies on the northern edge of the Corn Belt. Most of the soils are derived from parent material that was influenced by the glacier. The most common parent materials are loess, glacial till and outwash material, and lacustrine deposits. Characteristics of each soil type located in the county can be found in Soil Survey of Jefferson County.

Many Jefferson County soils are considered prime farmland or prime if drained (see Map 3 – Prime Soil Classification). Productivity of these soils is fairly high and can be sustained using proper conservation practices.

According to the latest USDA Census of Agriculture from 2017, farming has a major economic impact on Jefferson County with over \$305 million in agricultural products being sold. There were 1,098 farms in the county with an average size of 202 acres. These farms cover a total of 221,355 acres. Since 1997, there has been a reduction in the number of farms and acres in farms in the county (Table 3).

Table 3: Farms in Jefferson County (2017 USDA Census of Agriculture)

	1997	2002	2007	2012	2017	% Change from 1997 to 2017
Number of Farms	1,493	1,421	1,434	1225	1098	-26.5%
Average Farm Size (acres)	173	174	170	186	202	+16.8%
Farm Acreage	258,414	247,914	244,238	227,901	221,355	-14.3%

As the downward trend in dairy farm numbers continues, new technology and cropping patterns are emerging. We have seen a marked increase in the use of cover crops and double cropping with twin row technology. A number of county farmers are embracing the new opportunity of hemp farming. No-till popularity is still strong. The use of vertical tillage and variable rate fertilizer applications are also on the increase. Many of these innovations have been adopted to meet conservation standards.

Combating Erosion

In an effort to more consistently estimate soil loss on an annual basis, LWCD began conducting the Soil Loss Transect Survey in 1999.

The Transect Survey was developed by Purdue University and estimates soil loss county-wide with an accuracy rate of over 95%. Department staff drives a designated route through the County, stopping every half mile or so to evaluate present and previous crops, type of tillage, and the slope of the field. The data is collected and calculated by using the SNAP-Plus Nutrient Management Planning software.

Data gathered in the survey includes overall soil loss, evaluation of tillage systems being used, and crop rotation. This information can be further delineated into varying subsets for each of the county's 13 watersheds or other various analytical uses.

The latest survey was conducted in June of 2019 with the following conclusions:

- 70% of all fields were at or below the level of soil loss established by the USDA as tolerable
- The average county soil loss is 3.0 tons/acre/year
- 77% of the crop ground was planted to corn or soybeans
- 14% of the crop ground was planted to hay/alfalfa
- 40% of the crop ground was tilled using minimum tillage
- 25% of the crop ground was no-tilled

When staff are performing the Transect Survey or doing other work through the county, they note any areas experiencing erosion. Staff then will work to identify landowners and talk to them about the erosion, set up any necessary site visits and engineering assistance, and work to install any necessary conservation practices.

Farmland Preservation Program and Conservation

In the mid-1980s, the State of Wisconsin began to require all participants in the Wisconsin Farmland Preservation Program (FPP) have and follow an approved soil and water conservation plan. FPP underwent significant change in 2010 under DATCP's Working Lands Initiative. Among the components of the Working Lands Initiative was the modernization and expansion of the existing Farmland Preservation Program. The tax credit itself changed from an income/property tax basis to a flat per acre rate for lands in exclusive agricultural zoning. There is no cap on the amount of acreage you can claim nor is there a minimum acreage requirement. The farm still must produce \$6,000 in gross farm profits each year and you must meet new conservation criteria.

The new conservation criterion is the same as the NR 151 agricultural nonpoint performance standards. These rules can be divided into two parts; rules for crop producers and rules for

livestock producers. The following is a breakdown of the rules:

Cropland Conservation Standards:

- A soil and water conservation plan meeting applicable sheet, wind, and rill soil erosion standards must be followed.
- A yearly nutrient management plan meeting the current standards (including P-index standards) must be followed.
- Cropland must be managed to include a minimum setback of 5 feet from the top of the channel of surface water where no tillage can occur and 70% self-sustaining vegetative cover is maintained to ensure bank integrity.

Livestock Conservation Standards:

- Any manure storage facility constructed after 2002 must meet NRCS Standards, have no visible signs of leakage or failure, and be maintained to prevent overflow.
- Manure storage facilities in existence as of October 1, 2002, that pose an imminent threat to public health, fish and aquatic life, or groundwater shall be upgraded, replaced, or properly abandoned.
- All clean water must be diverted away from all feedlots, manure storage areas, and barnyards within Water Quality Management Areas (WQMA = areas within 300 feet of streams, rivers or wetlands and within 1000 feet of lakes and in areas susceptible to ground water contamination such as wells and sinkholes).
- Idle manure storage structures must be properly abandoned.
- No unconfined manure stacks in a WQMA.
- Streambanks and lakeshores where animals have access must have self-sustaining sod or vegetative cover to preserve bank integrity.
- No significant discharge from a feedlot or stored manure into waters of the State.
- Pastures must be included in nutrient management plans unless exceptions outlined in State Statute are met.
- No significant discharge of processed waste water to waters of the State from feed storage, milk house waste or other sources.

The farmland that is in compliance with the agricultural performance standards (NR 151) are displayed on Map 4. This land was certified as being in compliance through the Farmland Preservation Program.

On farm status reviews are conducted once every 4 years to insure compliance with the conservation standards.

Participation in FPP has been declining over the last 32 years. Table 4 shows a comparison of FPP participation from 1988 to 2020. Some factors that have contributed to the decline in participation include:

- Farm consolidations

- New compliance requirements, most notably the requirement for nutrient management plans
- Smaller tax credit with new per acre rate for smaller farms
- Elimination of inactive participants from database
- Development and rezoning, including changes to the County’s Farmland Preservation Plan

While landowners who are no longer enrolled in FPP are not required to follow their plan, the exposure to conservation planning should have positive lingering effects.

Table 4. Farmland Preservation Program Participation

	1988	2005	2010	2020	% Change from 1988 to 2020
FPP Participants	1,082	1,039	996	639	-40.9%
Acres in FPP	176,000	149,653	145,478	109,534	-37.8%

Agricultural Enterprise Area

Jefferson County has one AEA; the Scuppernong AEA which covers parts of Sullivan and Palmyra Township. Currently there are six farms in the AEA with signed State Agreements covering 755.72 acres. These farms are able to claim the higher per acre FPP tax credit.

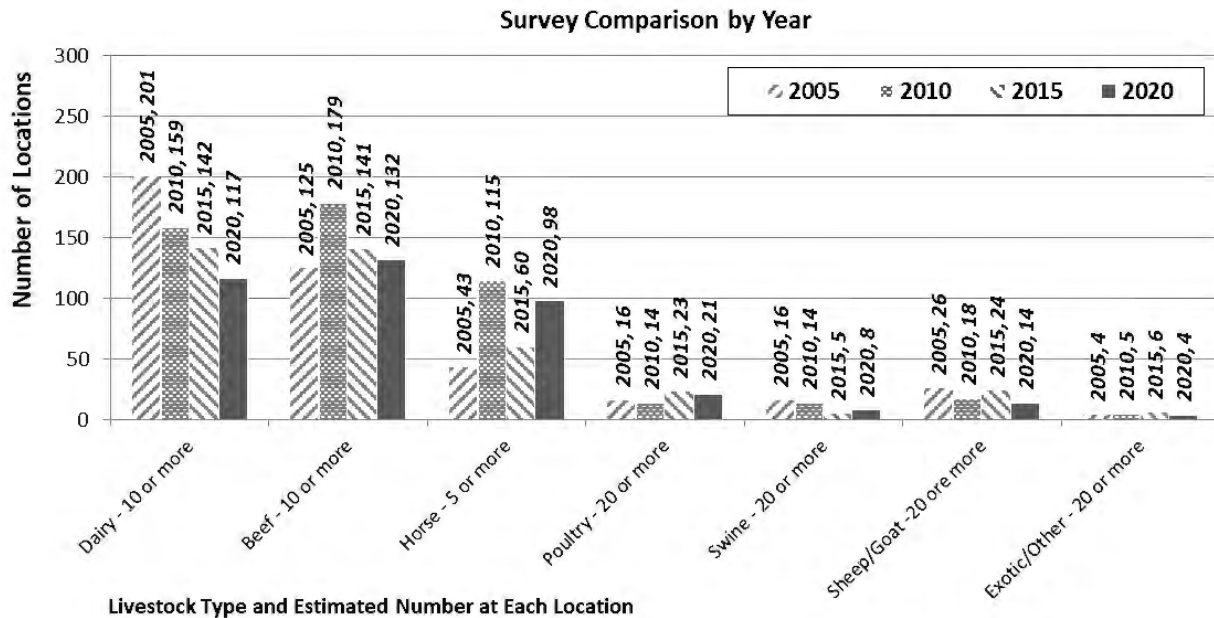
Livestock

The Land and Water Conservation Department conducts a livestock survey every 5 years to identify the location and types of animals. Locations are recorded for farms with 5 or more horses; 10 or more of dairy, and beef; and 20 or more of sheep/goat, swine, commercial chicken operations and other/exotic species that could include donkey, bison, deer, llama, alpaca, duck, geese, pheasant, peacock, honeybee, and fish.

The 2020 survey recorded 394 livestock locations in the county. Distribution of the livestock types was fairly consistent throughout the townships, with the exception of Palmyra and Sullivan where there is a noticeable cluster of horse farms.

Possible trends can be seen when comparing the data from all the recent livestock surveys (Chart 1). Dairy locations continue to decline in the county. It should be noted that this survey does not count the actual number of livestock, but estimates and groups them by abundance. Beef locations varied over time, with some operations increasing in size.

Chart 1. Survey of Livestock and Locations



Wildlife Resources

The Department of Natural Resources maintains a list, known as the Natural Heritage Inventory, of endangered, threatened, and special concern species, as well as a list of high-quality native communities. The list can be found on their website. As of 2020, this species list includes 29 rare plants, 9 rare birds, 7 rare fish, 4 rare reptiles, 3 rare butterflies and moths, 2 rare leafhoppers and true bugs, 2 rare mussels and clams, and one each of rare amphibian, beetle, grasshopper, damselfly, mammal.

The Land and Water Conservation Department administers the Wildlife Damage Abatement and Claims Program for Jefferson County. This program works to minimize wildlife damage to crops and offers partial compensation for damage caused by wild deer, bears, turkeys, and geese.

Natural Areas

Jefferson County currently has 1070 acres of county parkland consisting of 18 parks, and 17 miles of the paved Glacial River Trail. Jefferson County has 182 miles of DNR funded snowmobile trails and 114 miles of club maintained trails for a total of 296 miles. The county parks offer a variety of recreational offerings including hiking trails, cross country ski trails, fishing areas, boat launches, scenic overlooks, picnic facilities and limited overnight camping.

Federal, state, non-governmental organizations and municipal governments own and manage natural areas in Jefferson County. These areas consist of the following:

- Federal - 247 acres
- State - 19,753 acres
- State Trails - 27miles
- Municipal - 875 acres
- Non-governmental Organizations - 656 acres

Environmental Corridors

Environmental corridors are natural areas and environmentally sensitive areas that contain floodplains, wetlands, public parks, recreation lands, conservancy lands, contiguous woodlands of greater than 10 acres, and land with a slope greater than 20% (see Map 5 – Environmental Corridors).

Surface Water Resources

Jefferson County consists of 13 river watersheds of which 12 drain to the Rock River (see Map 6). A small portion of the Southeast corner of Jefferson County drains to the Illinois Fox watershed. The lake watersheds are depicted in Maps 7 and 8. Map 9 depicts the surface water resources of the county.

Exceptional Resource Waters

The entire segment of Allen Creek in Jefferson County has been designated as an Exceptional Resource Water (see Map 10 - Impaired and Exceptional Waters). Exceptional Resource Waters are defined by the State as having excellent water quality and valued fisheries but may already receive wastewater discharges. In some cases, new discharges may be allowed to correct environmental or public health problems. Please see section below on Allen Creek.

Impaired Surface Waters and the Rock River Recovery

The DNR lists surface waters in the state that are impaired in that they do not meet water quality standards or designated uses. Table 5 is the 2018 list of impaired waters for Jefferson County (see Map 10 - Impaired and Exceptional Waters). Once a water body is on the impaired list, the DNR is required to develop and implement the “total maximum daily load” (TMDL) process. This process includes the identification of all point and nonpoint sources of the pollutants of concern, allocation of total maximum daily discharges from all sources, and monitoring and modeling to restore impaired waters and meet water quality standards. A phosphorus and sediment TMDL for the Rock River, called Rock River Recovery, was approved by DNR and the U.S. Environmental Protection Agency in 2012. The Rock River Recovery plan divides the Rock River watershed into 83 sub-basins called reaches. Each reach has phosphorus and sediment reduction goals to meet water quality standards. The reaches in Jefferson County and displayed in Map 11 and the associated phosphorus baseline losses and reduction targets

are presented in Table 6. Please note that the small watershed in the southeast corner of the County is not included as it is in the Fox River Basin and is not part of the Rock River Recovery. The LWCD will continue to rely upon existing programs and authorities to implement the Rock River Recovery plan. The LWCD will consult with DNR when working on determining phosphorus losses as compared to TMDL reduction targets.

Table 5. 2018 Impaired Waters (Source: DNR)

Water Body (stream miles)	Priority & Status	Pollutants	Impairments*
Ashippun River 0-33.17	Low priority, 303d listed 2014	Total phosphorus	unknown
Bark River 0-12.46	Medium priority, 303d listed 2016	Total phosphorus	Degraded biological community
Crawfish River 0-11.04	Medium priority, 303d listed 2016	Total phosphorus	Water quality use restrictions
Hoopers Millpond	Low priority, 303d listed 1998	PCBs	contaminated sediment
Johnson Creek 0-17.5	TMDL approved	Sediment, total suspended solids, total phosphorus	degraded habitat and biological community
Koshkonong Creek 0-27.27	Low priority, 303d listed 2016	Total phosphorus	Water quality use restrictions
Koshkonong Creek 27.27-48.42	Low priority, 303d listed 2012 & 2016	Total phosphorus	Degraded biological community, water quality use restrictions, elevated water temperatures
Lake Koshkonong	TMDL approved	sediment, total suspended solids, total phosphorus	low dissolved oxygen, eutrophication, degraded habitat, turbidity
Lower Spring Lake	Low priority, 303d listed 2012	Total phosphorus	unknown
Maunsha River 0-13.21	TMDL approved	sediment, total suspended solids, total phosphorus	degraded habitat, low dissolved oxygen
Mud Lake (Lake Mills)	Low priority, 303d listed 2018	Total phosphorus	Eutrophication, excess algal growth
Rock Creek 2.21-3.14	Low priority, 303d listed 2018	Total phosphorus	unknown
Rock River 213.62-249.13	TMDL approved	Total phosphorus	low dissolved oxygen, degraded biological community, eutrophication

Water Body (stream miles)	Priority & Status	Pollutants	Impairments*
Rock River 249.13-293.25	TMDL approved	Sediment, total suspended solids, total phosphorus	Degraded habitat
Scuppernong River 0-13	Low priority, 303d listed 2014	Total phosphorus	unknown
Spring Creek 0-4.52	TMDL approved	sediment, total suspended solids, total phosphorus	degraded habitat, elevated water temperature
Steel Brook 1.7-2.7	TMDL approved	sediment, total suspended solids, total phosphorus	elevated water temperature, degraded habitat, low dissolved oxygen
Stony Brook 0-15.43	TMDL approved	Sediment, total suspended solids	degraded habitat
Unnamed stream (Lake Ripley inlet) 0-3.62	Medium priority, 303d listed 2016	Total phosphorus	unknown

Table 6. Rock River Recovery Reaches and Associated Phosphorus Baseline Losses and Reduction Targets (Source: DNR)

Waterbody Reach	Extent	Baseline P loss (lbs/ac/yr)	Required % Reduction	P Reduction Target (lbs/ac/yr)
56 Bark River	Scuppernong River – Mile 35	6	33%	4
53 Crawfish River	Rock River – Beaver Dam River	6	18%	4.9
30 Johnson Creek	Mile 0 – 17.5	6	24%	4.6
83 Lake Koshkonong		6	37%	3.8
46 Maunsha River	Mile 5.5 – 13.2	6	37%	3.8
47 Maunsha River	Stony Brook – mile 13.2	6	41%	3.5
25 Oconomowoc River	Battle Creek – Mason Creek	6	52%	2.9
27 Oconomowoc River	Rock River – Battle Creek	6	10%	5.4
20 Rock River	Mile 270 - 293	6	27%	4.4
21 Rock River	Mile 270-293	6	27%	4.4
28 Rock River	Mile 249 – Oconomowoc River	6	15%	5.1
29 Rock River	Johnson Creek – mile 249	6	36%	3.8
31 Rock River	Crawfish River – Johnson Creek	6	47%	3.2
54 Rock River	Bark River – Crawfish River	6	36%	3.8
60 Rock River	Mile 213 – Bark River	6	23%	4.6

Waterbody Reach	Extent	Baseline P loss (lbs/ac/yr)	Required % Reduction	P Reduction Target (lbs/ac/yr)
57 Spring Creek	Mile 0 – 5	6	49%	3.1
58 Steel Brook	Mile 3 – 4	6	26%	4.4
59 Steel Brook, Scuppernong River, Bark River	Rock River to Steel Brook, Spring Creek	6	41%	3.5
48 Stony Brook	Mile 0 – 15	6	28%	4.3

Note: The majority of the reaches (except for 30, 31, and 54) are partially contained in other Counties and therefore some of the load reductions could occur outside of Jefferson County.

Streams and Rivers

Jefferson County has numerous streams and rivers. Table 7 provides information on the major streams and rivers including biological use categories and environmental problems occurring at each river.

The Rock River Coalition trains and equips volunteers to monitor streams throughout the Rock River watershed. The Jefferson County LWCD assists with training, places monitors at their locations, and supports the monitors in various ways. The following parameters are monitored monthly from May to October (depending on stream conditions): dissolved oxygen, clarity, temperature, water flow, and stream insects that give an indication of the health of the stream. Currently, the streams that are being monitored include Allen Creek, Bark River (2 sites), Battle Creek, Lake Ripley’s inlet stream (4 sites), Lake Ripley’s outlet stream, Mud Creek, Rock Creek (3 sites), and Stony Brook. When looking at the last 10 years, the following addition streams/ivers have been monitored by citizens: Oconomowoc River, Maunasha River, Koshkonong Creek, and Johnson Creek.

Table 7. Characteristics of Streams (Source: DNR)

Stream	Length (miles)	Existing Use	Attainable Use	Fish & Aquatic Life Condition
Allen Creek ¹	0 - 7.52	WWSF	WWSF	Good
Ashippun River ¹	0 - 31.8	FAL	WWSF	?
Bark River ¹	0 - 12.46	FAL	FAL	Poor
	12.46 - 25.95	FAL	FAL	Good
	27.95 - 35	FAL	FAL	?
Battle Creek	0 - 2.1	FAL	WWFF	Good
Crawfish River ¹	0 - 11.04	FAL	FAL	Poor
	11.04 - 20.94	FAL	FAL	Excellent
Deer Creek	0 - 3.65	WWSF	WWSF	Good
	3.65 - 8.22	FAL	FAL	?

Stream	Length (miles)	Existing Use	Attainable Use	Fish & Aquatic Life Condition
Duck Creek	0 - 11.83	WWSF	WWSF	Good
Galloway Creek ¹	0 - 9.36	WWFF	WWFF	Good
Johnson Creek	0 - 17.5	LFF	WWSF	Poor
Koshkonong Creek ¹	0 - 48.2	WWSF	WWSF	Poor
Maunasha River ¹	0 - 13.21	FAL	FAL	Poor
Mud Creek	0 - 7.97	FAL	FAL	Excellent
Oconomowoc River ¹	0 - 13.95	FAL	FAL	Fair
Otter Creek ¹	0 - 15.25	WWSF	WWSF	Good
Rock Creek	0 - 1.77	FAL	FAL	Good
	2.21 - 3.14	FAL	FAL	Poor
	3.14 - 4.46	FAL	FAL	Good
	6.44 - 7.51	FAL	FAL	Good
Rock River ¹	207.32 - 286-97	WWSF	WWSF	Poor
Scuppernong River	0 - 12.46	FAL	WWSF	Poor
Spring Creek ¹	0 - 4.52	LFF	WWFF	Poor
Steel Brook ¹	0 - 1.7	FAL	WWFF	?
	1.7 - 2.7	FAL	WWFF	Poor
	2.7 - 4.15	FAL	WWFF	?
Stony Brook ¹	0 - 15.43	LFF	WWSF	Poor
	1.44 - 2.18	FAL	FAL	?
Whitewater Creek ¹	0 - 8.08	WWSF	WWSF	Good

Allen Creek

The creek is designated by the Department of Natural Resources as an exceptional resource water with good ecological diversity. The Allen Creek watershed is just over 9 square miles. Wetlands cover approximately 11% of the watershed area. The wetlands that are adjacent to the stream help buffer it from pollution. However, sediment and nutrient loads are increasing due to historic ditching of tributaries, polluted runoff from stream bank pasturing, and steep slopes. Road salt runoff from Business Highway 26 also affects the creek.

The Friends of Allen Creek Watershed formed in 2005 to understand and protect the Allen Creek Watershed, and to promote the natural communities in the basin. To this end, the FACW received a river grant from the Department of Natural Resources. The following is an excerpt of their work regarding water quality:

“Allen Creek is a high quality, cool water stream that possesses excellent physical and chemical factors important for stream biota. The combination of cool surface waters, high transparency, high dissolved oxygen, and low total dissolved solids suggest that the water flowing from upstream-to-downstream is in excellent condition and does not tend toward a decrease in photosynthesis, which is important in ecosystem function.”

Currently, the watershed group is not active. However, citizen stream monitoring has been done on and off in the last 10 years.

The least darter, a fish species on the State Special Concern list, is found in Allen Creek. Northern pike spawning habitat is found in wetlands adjacent to the stream and the Rock River.

Johnson Creek

The Johnson Creek Watershed Alliance was formed and became a chapter of the Rock River Coalition in 2014. The group has done stream monitoring, stream clean-ups, and partnering with the local school in its activities.

The following invasive species have been found in Johnson Creek: curly-leaf pondweed, rusty crayfish.

Koshkonong Creek

Koshkonong Creek has been free flowing since the removal of the Rockdale dam in 2001. Stream bank restoration and re-vegetation projects were implemented after the dam removal to reduce sedimentation downstream. However, agricultural operations in the watershed continue to affect the water quality.

The stream is classified as a warm water sport fishery. However, bullhead and rough fish dominate the fishery. Rusty crayfish, and invasive species, has been documented in the stream. Wetlands near the mouth of the creek at Lake Koshkonong provide spawning areas for northern pike.

The Department of Natural Resources completed a watershed assessment of the creek in 2016. Some notable information from this assessment is as follows:

- A large percentage of the original wetlands in the watershed were drained for agricultural purposes.
- Wetland loss, ditching, and use of field tiles has allowed signification nutrient and sediment loads to the creek.
- There were 42 fish species identified in the creek and its tributaries. The majority are tolerant species. However, there were some sensitive species found including banded darters and blackside darters.

The assessment noted some possible actions to improve the creek's quality:

- Soil health and cover crop practices could be used to work on reducing sediment and nutrient levels in the stream.
- When Drainage Districts implement water flow improvements, they should also take efforts to protect in-stream habitat and ensure riparian habitat is protected from erosion and wetland degradation.

Maunasha River

The Maunasha River Alliance was formed and became a chapter of the Rock River Coalition in 2014. The early work of the organization concentrated on citizen stream monitoring. There were a few years that the group became inactive – but a new Board was formed in 2019. This group has been very active with stream clean ups including clearing trees for navigation.

Mud Creek

Mud Creek is located in the Towns of Sullivan and Palmyra. The DNR fisheries biologist recommended it be monitored through the citizen stream monitoring program because it could be a potential candidate for the stocking of brook trout, a Wisconsin native. Citizens have monitored this stream at Hwy CI since 2015. A constant temperature recording device has been placed in the water at this site each monitoring season to determine if the stream's temperature range can support brook trout. With 5 years of data, more work will need to be done to determine the suitability of the stream for brook trout.

Lakes

Jefferson County has 25 lakes that are an important resource not only for recreation, but also for plant and animal habitat. The lakes encompass 14,587 acres of water and 97 miles of shoreline. Table 8 lists some pertinent information on the lakes.

Though there are many lakes in the county, only a few of them have undergone water quality and habitat analysis. Because of their designation by the Department of Natural Resources as Long Term Trend Lakes, Lake Ripley and Rock Lake have benefited from such analyses. The other lakes in the county with more than basic data collection are those that have organized lake management districts and include Blue Spring Lake, Lake Ripley, Lower Spring Lake, and Lake Koshkonong.

Table 8. Characteristics of Lakes.

Name	Surface Area (acres)	Max Depth (feet)	Mean Depth (feet)	Public Access	Lake Type	Fish & Aquatic Lake Condition
Bean Lake	33	6		T	SE	Suspected Poor
Blue Spring Lake*	141	26	7	BR	SP	Good
Golden Lake	250	46	13	BR	SP	Good
Goose Lake	143	4		NO	DG	Good
Hahns Lake	88	10	2	NW	DG	Suspected Poor
Haumerson Pond	4	3		R	SE	?
Hope Lake	126	24	5.4	BR	SE	Good
Kurtz Pond	4	3		NO, S	DG	?
Lake Koshkonong*	10,460	7	5	BR	DG	Poor

Name	Surface Area (acres)	Max Depth (feet)	Mean Depth (feet)	Public Access	Lake Type	Fish & Aquatic Lake Condition
Lake Ripley	418	44	18	BR	DG	Excellent
Lower Spring Lake*	109	11	4	BR	DG	Poor
Mud Lake, Sumner	318			NW		?
Mud Lake, Sullivan	0.3			NO		?
Mud Lake, Lake Mills	95	22	7.4	BR, T	DG	Poor
Mud Lake, Concord	8	6		NO, S	DG	?
Perch Lake	5	7		NO, S	SE	?
Red Cedar Lake	336	6		BR, T	SE	Good
Rock Lake	1,371	56	16	BR	DG	Excellent
Rome Mill Pond*	448	7	2	BR	DG	Good
Rose Lake	140	10		T	SE	Good
Round Lake	2	3		NO, S	SE	?
Sindon/Weegs Pond	10	12		NO, S	DG	?
Spence Lake	33	6		T		Fair
Upper Spring Lake*	24	11	4	NO	DG	Good

* Impoundment

Lake Table Key

Public Access

BR – Boat ramp

R – Roadside access

NO – No access

T – Walk-in trail

NW – Navigable water access to lake

X – Access not specified

Lake Hydrologic Types

Drainage Lake (DG): Impoundments and natural lakes with the main water source from stream drainage. Has at least one inlet and one outlet.

Spring Lake (SP): Seldom has an inlet but always has an outlet of substantial flow. Water supply is dependent upon groundwater rather than surface drainage.

Seepage Lake (SE): Landlocked. Water level maintained by groundwater table and basin seal. Intermittent outlet may be present.

Blue Spring Lake

Blue Spring Lake has a Lake Management District. Since 2013, there has not been a water quality monitor for the lake. However, that changed in 2020. The lake is characterized as a mesotrophic lakes characterized by moderately clear water, but these lakes have an increasing chance of low dissolved oxygen in deep water during the summer.

In 2019, an aquatic plant management plan was developed for the lake. The lake has two invasive aquatic plants: Eurasian water milfoil and curly-leafed pondweed. The lake also has a hybrid of Eurasian water milfoil and Northern water milfoil that can be invasive. The Lake

District does own and operate a mechanical harvester to help manage the invasive and nuisance aquatic plants. Nuisance plants such as Eurasian water milfoil and curly-leaf pondweed can crowd out other more desirable plants, resulting in a loss of biodiversity.

The invasive species banded mystery snail has been documented in the lake.

Golden Lake

The Department of Natural Resources (DNR) and the Wisconsin Geological and Natural History Survey analyzed the aquatic plants in eight littoral areas in Golden Lake. Though this was not a comprehensive plant survey, the results indicate that the lake supports a diversity of plants - 21 different species of aquatic plants were identified.

In 2006, the DNR designated the northern basin of Golden Lake as a sensitive area. Sensitive areas are those that offer “critical or unique fish and wildlife habitat, including seasonal or life stage requirements, or offering water quality or erosion control benefits to the body of water” (WI Administrative Code NR 107.05 (3)(i)(1)). A total of 19 aquatic plant species were identified in this area. The sensitive area designation report states the following: “This sensitive area, with its rich ecological diversity, serves as a nutrient buffer for reducing algae blooms, a biological buffer reducing the likelihood of exotic species invasions, a physical buffer against shoreline erosion, a micro-habitat increasing biodiversity, and allows for sediment stabilization.”

Golden Lake has the following invasive species: curly-leaf pondweed, Eurasian water-milfoil, a hybrid between Eurasian water milfoil and the native northern water-milfoil, purple loosestrife, and zebra mussel.

Hope Lake

In 2007, the LWCD received a DNR Lake Planning grant to collect water quality and biological information in order to develop a management plan for Hope Lake. The study found that Hope Lake is mesotrophic. There are approximately 26 species of aquatic plants, 3 of which are invasive species: curly-leaf pondweed, Eurasian water milfoil, purple loosestrife. A variety of fish were found in the lake, but it is thought that winter kill and low dissolved oxygen due to over productivity is a problem. The black tern, a Species of Greatest Conservation Need, was found nesting on Hope Lake.

Lake Koshkonong

The Rock Koshkonong Lake District formed in 1999 to better manage the resources of the Rock River and Lake Koshkonong. The district boundary starts at the Indianford Dam on the Rock River, includes Lake Koshkonong and continues north to the limits of the City of Jefferson. The district has mainly worked on water level issues.

The lake has had a citizen lake monitor since 2015. The lake is characterized as a eutrophic lake. Lake Koshkonong has the following invasive species: curly-leaf pondweed, flowering rush, and zebra mussel.

The Lake Koshkonong Wetland Association works to educate the public about the benefits of wetlands.

Lake Ripley

In 1993 Lake Ripley became a Priority Lake Project because it was recognized that (1) the lake provided valuable recreational and economic amenity for the area, (2) it was significantly threatened by the effects of nonpoint source pollution, and (3) there was a high potential for overall improvement once appropriate management strategies were implemented.

The Lake Ripley Management District has staff that work on implementing recommendations of their lake management plan. This plan is currently being updated and may be revised to include the U.S. Environmental Protection Agency's nine key elements. The existing plan (2009) has the following goals: clean, clear water; thriving, native aquatic life; safe, fair and responsible lake use; cost-effective management action; and a well-informed and engaged citizenry. The plan includes many recommendations that aim to achieve the goals of the plan.

Since 1998, Lake Ripley has had consistent water quality monitoring taken by citizens. The water quality condition of the lake is on the line of eutrophic and mesotrophic. Phosphorus and sediment are pollutants of concern for Lake Ripley's water quality. The sources of these pollutants are mainly nonpoint source pollution from agriculture and intensive development.

The Lake District implements its own cost-sharing program to install practices on private lands that will work to reduce erosion and pollution as well as increasing habitat.

Lake Ripley contains several invasive species including Eurasian water milfoil, a hybrid of Eurasian water milfoil and the native northern water-milfoil, curly-leaf pondweed, phragmites, and zebra mussel. The lake manages nuisance aquatic plant species in certain locations with a mechanical harvester that cuts the plants, which are then disposed of on land.

Wetlands, important for fish and wildlife habitat and pollutant filtration, have significantly decreased in the Lake Ripley watershed. A 1903-1908 mapping effort documented 1,500 acres of wetlands. In the 2006-2010 plan, we reported that there were approximately 385 acres of wetlands in the watershed, which represents a loss of 1,115 acres, mostly attributed to agricultural tillage, drain modification, and development. The Lake Ripley Management District has worked to restore and prevent the loss of wetlands in the watershed.

Studies and reports on Lake Ripley include: lake management plan, aquatic plant management plan, lake capacity study, near-shore fish surveys, and a study on the impacts of pier shading on the near shore environment.

Lower Spring Lake

The Lower Spring Lake Protection and Rehabilitation District consists of citizens with lake property. The district's main activity is to work on managing the invasive plant species on the lake.

In 2005, the Lower Spring Lake Protection and Rehabilitation District had an aquatic plant management plan completed because of excessive aquatic plant growth and the desire to improve the recreational and environmental aspects of the lake. The plan was updated in both 2011 and 2018. In the past, the District funded chemical treatment to control invasive plants along the shorelines of developed lots. From 2010 to 2017, the District implemented multiple whole-lake chemical treatments. However, due to the flushing rate of the lake, these treatments were not successful in achieving long-term management of the invasive plant species. A mechanical harvester is used all summer to prevent aquatic plants from reaching the surface of the lake. These measures were done to improve navigation, recreation, and riparian access.

In the winter of 2019-2020, the lake implemented a 4 foot water drawdown to try to kill Eurasian water milfoil in the exposed sediments. This management technique provides a lower cost alternative to chemical treatment. It is most effective when there is a prolonged period of frozen ground with little snow cover. At this point, the results of this drawdown have not been fully analyzed.

The lake has many years of water quality data (2004-2020) on it as a citizen collects the data via the Citizen Lake Monitoring Network.

Mud Lake – Lake Mills

In 2007, the LWCD received a DNR Lake Planning grant to collect water quality and biological information in order to develop a management plan for Mud Lake. The study documented Mud Lake to be eutrophic. A total of 13 fish species were documented in the lake in 2007. In addition, 19 species of aquatic plants were found, one of which is invasive: curly-leaf pondweed. The Blanding's turtle, a Wisconsin Threatened Species, was viewed in the lake.

Since 2017, there are 2 citizens who collect water quality data on the lake. Curly-leaf pondweed is an invasive species that has been documented on the lake.

Red Cedar Lake

Red Cedar Lake has had a water quality monitoring performed on it by a citizen since 2004. It is a eutrophic lake.

Purple loosestrife, an invasive wetland plant, has been documented along the shoreline of the lake.

Rock Lake

Rock Lake has 2 lake groups: the Rock Lake Improvement Association and the Joint Rock Lake Committee that provides advice to both the City and Town of Lake Mills. In 2018, the Rock Lake Management Plan was updated. The vision of the Rock Lake Management Plan is to “work in partnership with our community to protect and enhance water quality, habitat, and recreational assets in Rock Lake and its watershed for current and future generations.” The goals are:

- Improve the water quality of Rock Lake by reducing the summer average phosphorus level in Rock Lake by 20% by the year 2028.
- Measure the health of lakes and streams in the Rock Lake Watershed with volunteers and applicable technologies to track trends and identify sources of pollutants.
- Achieve a diverse ecosystem in the water and on the land for native plants and animals to thrive.
- Ensure a safe and healthy multipurpose recreational environment.
- Achieve a more knowledgeable and active public in regards to Rock Lake, the watershed, and the lake management plan.

There are many recommendations under each goal.

Rock Lake has good water quality but nonpoint source pollution and degrading nearshore habitats threaten the water quality and fish and wildlife habitat functions of the lake.

Wetlands and upstream lakes in the watershed have effectively protected Rock Lake’s water quality. Throughout the years, these resources function as filters that remove phosphorus and other pollutants before they reach Rock Lake. However, their ability to trap pollutants is declining and the phosphorus loading, especially to Mud Lake, is degrading the water quality of these “buffer” lakes and wetlands.

Fish and wildlife habitat is threatened in the lake and watershed due in part to water quality impairments, and the effects of development and recreation. Rock Lake’s diverse aquatic plant community has been impaired due to the extensive piers, seawalls, and motor boat traffic. The lake has the following invasive species: banded mystery snail, Chinese mystery snail, curly-leaf pondweed, Eurasian water-milfoil, a hybrid of Eurasian and northern water-milfoil, yellow iris, and zebra mussel. Drained wetlands and wetlands with declining water quality also result in reduced fish and wildlife habitat in the watershed.

Additional studies and reports on Rock Lake include an aquatic plant survey, a study of the impacts of pier shading on the near shore environment, near-shore fish surveys, several reports on the watershed draining to the Miljala channel on the west side of the lake, and the shoreland and shallows survey.

Wetland Resources

Jefferson County has 55,518 acres of wetlands that are designated by the Department of Natural Resources (see Map 12). The Land and Water Conservation Department provides resources to landowners about protecting the wetlands on their property.

Groundwater Resources

Groundwater recharge takes place in the uplands, which consist of glacial till. The groundwater moves downward toward areas of lower elevation. In places, these low areas are overlain with silt and clay deposits of low permeability. This results in artesian conditions, particularly evident in the Scuppernong Creek and Bark River basins where flowing wells and springs are numerous and where peat mounds developed over some of the springs.

As part of a State requirement, source water areas for each municipal well in the county were delineated. Municipal officials used a 1,200 foot radius surrounding the wells to determine the source water areas.

The Land and Water Conservation Department provides well water testing information to citizens. It is recommended that citizens who live in rural areas test their wells every year.

Goals, Objectives, Activities

The Jefferson County Land and Water Resources Management Plan was developed to plan for a ten year period from 2021 through 2030. The plan goals, objectives, and activities will be reviewed after 5 years as required by the state.

Overall Goal of Land and Water Resources Management Plan

The overall goal of this plan is to restore, improve, and protect land and water resources in Jefferson County so that families and individuals can have access to productive farmland, healthy natural areas, and clean water to use and enjoy.

The work plan contained below details all of the goals, objectives, and activities of the Jefferson County Land and Water Resources Management Plan. This work plan was developed to achieve the overall goal listed above. It also was developed given the conservation needs identified through the public process that included the Advisory Committee and the public hearing.

The LWCD knows that changes to the climate will result in impacts to our land and water resources. Threats to our resources consist of increased extreme weather events and warmer climates that could result in a number of impacts including: changes to fish, plant, and wildlife communities; increased flooding; increased soil erosion, and increased invasions of nuisance aquatic and terrestrial species.

The LWCD staff attend educational sessions, when available, on climate change and possible adaptation practices or strategies that could help ease the impacts of climate change. One strategy is wetland restoration as restored wetlands can hold water during extreme precipitation events and have the potential to reduce the amount of flooding. Climate adaptation practices and strategies will be incorporated into the work of the LWCD as they become available.

The Work Plan is detailed below. Items in the Work Plan that are identified in bold are priority activities for the Land and Water Conservation Department. Benchmarks for priority items, including anticipated outcomes, are included in the Work Plan also. It is important to note that the implementation of the work plan is dependent on receiving adequate financial resources to cover staff and the cost-sharing programs.

Jefferson County Land and Water Resources Management Plan Work Plan 2021-2030

The Jefferson County Land and Water Resources Management Plan was developed to plan for a ten year period from 2021 through 2030.

Overall Goal of Land and Water Resources Management Plan:

Restore, improve, and protect land and water resources in Jefferson County so that families and individuals can have access to productive farmland, healthy natural areas, and clean water to use and enjoy.

The work plan details the goals, objectives, and activities of the Jefferson County Land and Water Resources Management Plan. This work plan was developed to achieve the overall goal listed above. Items in the work plan that are identified in bold are priority activities for the Land and Water Conservation Department. It is important to note that the implementation of the work plan is dependent on receiving adequate financial resources to cover staff and the cost-sharing programs.

Goal #1: Improve and protect agricultural land, soil resources, surface and ground water through the implementation of agricultural programs, and State and County laws. The implementation of these programs/laws will also achieve progress on the Rock River Recovery Plan.

Objectives	Activities (Responsible Agencies)	Time Frame, Anticipated Outcome
Implement the NR151 Agricultural Performance Standard to Protect County Resources. Benchmark: Farms achieve standards by using DATCP cost-share funds.	Provide technical assistance and cost-sharing so that farms attain compliance with the Agricultural Performance Standards. (LWCD/NRCS/DATCP)	Fully spend cost-share allocation
	Continue working to engage DNR to develop and sign a Memorandum of Understanding regarding enforcement responsibilities for Ag Performance Standards and Prohibitions. (LWCD/DNR)	2021-2026
	Educate landowners about NR 151 rules (LWCD): <ul style="list-style-type: none"> • Address sheet, rill, gully and wind erosion with conservation planning and implementation 	Ongoing

Objectives	Activities (Responsible Agencies)	Time Frame, Anticipated Outcome
	<ul style="list-style-type: none"> • Require nutrient management plans (NMP) be turned in prior to planting for Farmland Preservation eligibility • Encourage adoption of NMPs by all producers, offering cost-sharing when available • Ensure all manure storage structures meet standards, including no overflow of structures and proper closure of unused storage • Divert clean water from contacting feedlot manure storage areas and barnyards within WQMA • Achieve a P-Index of 6 or less on all cropland and applicable pastures • Maintain adequate tillage setbacks from the top of water channels • Include pastures in NMP unless exempt • Ensure there is no significant discharge of process wastewater to waters of the state. 	
	Provide education on nutrient management planning and implementation - includes teaching farmers how to write and update their own NMPs. (LWCD/UWEX/DATCP)	4 classes/yr
	Educate landowners about manure storage and nutrient management ordinances and permits to ensure that manure storage facilities are built, expanded, and closed according to standards. (LWCD)	As needed; all construction meets standards
<p>Implement the Farmland Preservation Program to Protect County Resources.</p> <p>Benchmark: Complete status reviews & issue compliance timelines in 4 quadrants of county in 4 years.</p>	Require FPP participants to be compliant with NR 151 rules. (See above objective)	Ongoing
	Continue outreach to landowners and partners on the requirements of the program, including newsletters aimed at: program participants, nutrient management planning consultants, and farmers who write their own nutrient management plans. (LWCD/DATCP)	Ongoing 3 newsletters per year
	Perform on-site evaluations to determine compliance status. (LWCD)	Approx. 160-180 per year

Objectives	Activities (Responsible Agencies)	Time Frame, Anticipated Outcome
	Encourage participation in FPP. (LWCD)	Ongoing 10 new participants/ year
	Take necessary steps (plan revisions, practice development, or notice of noncompliance) when landowners are non-compliant with requirements of program. (LWCD)	As needed
Ensure that livestock facilities expand according to standards that protect County resources. Benchmark: Facilities compliant with standards.	Review application materials and worksheets for completion with Livestock Siting rules. (LWCD)	As needed
	Provide information on status of applications to Zoning, Townships, landowners, and DATCP. (LWCD/Zoning)	As needed
	Attend public hearings and meetings. (LWCD)	As needed
Statutes, Administrative Rules, Ordinances: ch. 88 Drainage of Lands, ch. 91 Farmland Preservation, ch. 92 Soil and Water Conservation and Animal Waste Management, ATCP 50 Soil and Water Resource Management Program, ATCP 51 Livestock Facility Siting, NR 151 Runoff Management, NR 243 Animal Feeding Operations, Jefferson County Zoning Ordinance, Jefferson County Animal Waste Storage and Nutrient Management Ordinance.		
Approximate Costs: 5,880 hours of staff time per year, \$30,000 in cost share funds per year		

Goal #2: Protect and enhance surface water, ground water, wetland quality, and associated habitat areas.

Objectives	Activities (Responsible Agencies)	Time Frame, Anticipated Outcome
Protect surface water resources and habitat quality via the Conservation Reserve Enhancement Program.	Work with landowners to implement stream buffers, waterways, and wetland restorations. (NRCS/FSA/LWCD)	Ongoing 1-15 contracts/yr

Objectives	Activities (Responsible Agencies)	Time Frame, Anticipated Outcome
<p>Reduce sediment and phosphorus delivery in the Rock River Basin to implement the Rock River Recovery Plan.</p>	<p>Work with landowners and municipalities to implement practices to achieve pollutant reduction goals with available Multi-Discharger Variance funds. (LWCD/NRCS/FSA/DNR/municipalities)</p>	<p>Ongoing when funds available</p>
	<p>Develop watershed plans, using the 9-key element framework, in impaired/TMDL watersheds. (LWCD/DNR/NRCS)</p>	<p>2 HUC 12 size plans by 2025-30</p>
<p>Protect surface water resources and habitat quality by implementing best practices.</p>	<p>Provide landowners with technical assistance and cost-sharing on Healthy Lakes and River projects (shoreland gardens, rain gardens, water diversions, rock infiltration and fish sticks) and erosion control projects.</p>	<p>2-5 practices/yr</p>
	<p>Assist landowners with the state and county permit process. (LWCD/DNR/Zoning)</p>	<p>As needed</p>
	<p>Direct landowners to cost-sharing programs and technical assistance for wetland restorations. (LWCD/NRCS/DNR)</p>	<p>As needed</p>
	<p>Assist citizens, municipalities, and water resource groups with the implementation of programs and practices to reduce the introduction and spread of aquatic invasive species. (LWCD/UWEX/DNR/water resource groups)</p>	<p>Ongoing</p>
<p>Ensure that groundwater is protected from pollution.</p>	<p>Provide landowners with information on testing their drinking water wells. (LWCD/UW-EX)</p>	<p>As needed</p>
	<p>Provide cost-sharing for the closure of wells. (LWCD)</p>	<p>1 closure/yr</p>
	<p>Determine how to achieve more well water testing by landowners and then implement it. (LWCD/Health/UWEX)</p>	<p>2021-2025, Ongoing</p>
	<p>Obtain a better understanding of the ground water quality (including devise a plan to achieve a ground water quality study,</p>	<p>2022-2027</p>

Objectives	Activities (Responsible Agencies)	Time Frame, Anticipated Outcome
	secure necessary funding, and implement study) and how to protect the quality of the ground water. (LWCD/Health/UWEX)	
<p>Ensure decision-makers and citizens have resource information and tools necessary to achieve protection of lakes, rivers, and wetlands.</p> <p>Benchmark: Provide necessary information to decision-makers</p>	Provide water resource groups and municipalities with data, maps, educational resources and technical assistance. (LWCD/UWEX/DNR/RRC)	Ongoing
	Obtain grants to fill data and information gaps, and develop management plans and programs. (LWCD/DNR/water groups)	Ongoing
	Support the County's efforts to develop and protect green space and environmental corridors that surround lakes, rivers and streams. (LWCD/Parks)	As needed
	Assist the Zoning Department with technical expertise on shoreland zoning decisions. (Zoning/LWCD/DNR)	Ongoing
	Educate the public, land use planning entities, and municipalities about the benefits of wetlands and laws governing wetlands. (LWCD/DNR/Zoning)	Ongoing
	Educate citizens, municipalities, and water resource groups about aquatic invasive species laws and programs.	Ongoing
	Educate citizens and municipalities about construction site erosion control measures and laws including municipality responsibilities and available erosion control inspector trainings. (LWCD/DNR/Zoning)	As needed
<p>Statutes, Administrative Rules, Ordinances: ch. 92 Soil and Water Conservation and Animal Waste Management, ATCP 50 Soil and Water Resource Management Program, NR 115 Wisconsin's Shoreland Management Program, NR 117 Wisconsin's City and Village Shoreland-Wetland Protection Program, NR 40 Invasive Species Identification, Classification and Control, NR 216 Storm Water Discharge Permits, NR 812 Well Construction and Pump Installation, Jefferson County Zoning Ordinance.</p>		
<p>Approximate Costs: 3,220 hours of staff time per year, \$15,000 in cost-share funds per year</p>		

Goal #3: Preserve and protect natural areas, woodlands, open space, and farmland for the benefit of Jefferson County citizens and visitors.

Objectives	Activities (Responsible Agencies)	Time Frame, Anticipated Outcome
Assist the Parks Department with implementation of the Recreation, Parks, and Open Space Plan.	Provide technical support and maps for natural area and agricultural lands protection. (Parks/LWCD/Zoning/LI)	As needed
Implement the County’s Purchase of Agricultural Conservation Easements program (PACE).	Provide administration, document preparation, technical support, maps, and monitoring for PACE program. (LWCD/NRCS)	As needed
	If received, administer PACE program with Regional Conservation Partnership Program grant funds. (LWCD/AFT/NRCS)	2021-2025
	Monitor the donated and purchased easements for compliance. (LWCD)	Annually
Encourage the planting of trees and shrubs.	Promote and implement the trees and shrub sale. (LWCD)	Annually 5,000 trees/yr
Ensure the proper management and protection of woodlands.	Provide landowners with information regarding the Managed Forest Law and direct them to the DNR forester. (LWCD)	As needed
	Provide educational resources and DNR forester contacts to citizens requesting information on woodland issues, including invasive species. (LWCD)	As needed
Maintain the County farmland and the Potter’s Field.	Coordinate maintenance of the County farmland and Potter’s field in accordance with Historical Society guidelines. (LWCD/Parks)	Annually
Ensure that nonmetallic mines are reclaimed according to state standards.	Implement the rules requiring mines operators have reclamation plans that meet standards. (LWCD/Zoning)	Ongoing
	Inspect and certify proper restoration that adheres to planned reclamation standards. (LWCD)	24 site inspections/yr

Objectives	Activities (Responsible Agencies)	Time Frame, Anticipated Outcome
Support implementation of the Wildlife Damage Abatement and Claims Program.	Provide financial support to landowners from the USDA to prevent crop wildlife damage and to compensate for crop losses. (LWCD/USDA)	Quarterly
Implement the Deer & Turkey Donation Program.	Provide financial support from USDA to processors for deer & turkey donations to food pantries. (USDA/LWCD)	Annually
Statutes, Administrative Rules, Ordinances: NR 135 Nonmetallic Mining Reclamation, ch. 157.70 Burial Sites Preservation, HS 1 Burial Sites Preservation Board, HS 2 Burial Sites Preservation Program		
Approximate Costs: 1,895 hours of staff time per year		

Goal #4: Monitor and assess the state of the soil, water, and natural resources.

Objectives	Activities (Responsible Agencies)	Time Frame or Anticipated Outcome
Document the potential reduction in soil erosion on cropland.	Perform transect survey to collect information on cropland residue, tillage systems and calculate soil erosion by using tools such as SnapPlus. Convey the resulting information on maps, graphs or charts. (LWCD)	Annually in June
Document the location and trends of livestock in the county.	Perform livestock inventory and convey the resulting information on maps, graphs or charts. (LWCD)	Every 5 years (2025)
Track compliance with FPP and NR 151 rules.	Update and modify the FPP and NR 151 tracking database application. (LWCD)	2022
	Enter data and produce reports on compliance. (LWCD)	Annually
Determine progress in maintaining and improving the quality of lakes, rivers, and wetlands.	Perform monitoring and/or compile water quality, fish, invasive species, and habitat data. (LWCD/DNR)	Annually
	Recruit and train citizens to perform water quality monitoring and aquatic invasive species monitoring on lakes and rivers. (LWCD/RRC/DNR)	1-2 trainings/yr
	Use maps to display conservation projects and land	On going

Objectives	Activities (Responsible Agencies)	Time Frame or Anticipated Outcome
	preservation associated with lakes/rivers/wetlands. (LWCD)	
Statutes, Administrative Rules, Ordinances: NR 151 Runoff Management		
Approximate Costs: 1,825 hours of staff time per year		

Goal #5: Educate and inform the public regarding Jefferson County resources and LWCD services.

Objectives	Activities (Responsible Agencies)	Time Frame, Anticipated Outcome
Ensure that the public is informed about land and water resources and the services provided by LWCD.	Provide or facilitate educational talks to various groups. (LWCD)	2-6 talks/yr
	Provide information and education to the public via direct mail, press releases, and radio interviews. (LWCD)	As needed
	Create maps for customers depicting a variety of features and data. (LWCD)	Ongoing
	Update the LWCD website. (Administration/LWCD)	As needed
Support the development of a Producer-Led Council and partner with them to support soil health education.	Host workshops on soil health, regenerative agriculture, and cover crops. (LWCD/UWEX/Producer-Led Group/NRCS)	Ongoing
Approximate Costs: 510 hours of staff time per year		

Key to Responsible Agencies:

AFT - American Farmland Trust

DATCP - Department of Agriculture, Trade, and Consumer Protection

DNR - Department of Natural Resources

FSA - Farm Service Agency, U.S. Department of Agriculture

LIO - Jefferson County Land Information Office

LWCD - Jefferson County Land and Water Conservation Department

NRCS - Natural Resources Conservation Service, U.S.

Department of Agriculture

Parks - Jefferson County Parks Department

RRC - Rock River Coalition

USDA - U.S. Department of Agriculture

UW-EX - University of Wisconsin-Extension

Zoning - Jefferson County Zoning and Planning Department

Work Plan Implementation

The work plan will be implemented by the Land and Water Conservation Department. Components of the plan will be implemented in accordance to various state and local ordinances and regulations. Relevant rules, ordinances, and programs are included below.

The Animal Waste Storage and Nutrient Management Ordinance is used to ensure manure storage structures are designed, constructed, altered, and closed according to standards and to ensure nutrient management plans developed in conjunction with the ordinance meet necessary standards. Enforcement matters for the Animal Waste Storage ordinance are handled by the LWCD.

The LWCD will use state cost-sharing to help achieve the goals of the plan. Practices available for cost-sharing are listed in Appendix B.

The livestock siting portion of the Jefferson County Zoning Ordinance was passed in 2006. It consists of a state statute and rule that governs the siting of new and expanding livestock operations. The law details the standards that operators must meet to obtain permit approval. The LWCD reviews the required application, employee training plan, environmental incident response plan, and the 5 worksheets that cover: animal units, odor management, waste and nutrient management, waste storage facilities, and runoff management. The LWCD consults with the Zoning Department on matters of enforcement.

According to Chapter NR 135 of the Wisconsin Administrative Code, the Jefferson County Nonmetallic Mining Reclamation Ordinance and the Jefferson County Zoning Ordinance, nonmetallic mines must have a permit to extract materials and ensure subsequent reclamation of mind lands. The LWCD ensures that the reclamation plans meet standards. The LWCD also inspects mines annually to confirm that standards are met. The LWCD administers an annual certification fee, and has the ability to take enforcement action.

The shoreland provisions in the Jefferson County Zoning Ordinance are used to protect the water resources. The LWCD assists with information to citizens, site visits, review of permit applications as they relate to shoreland vegetation, and identification of violations. Enforcement matters for this ordinance are handled by the Zoning Department.

The Runoff Management Administrative Code (NR 151) for the State is used for implementation and enforcement of the Agricultural Performance Standards and Prohibitions. NR 151 sets performance standards and prohibitions for farms to prevent runoff and protect water quality. The DATCP rule (ATCP 50) identifies conservation practices that farms must follow to meet DNR standards. The agricultural performance standards and prohibitions are as follows:

- Sheet, rill and wind erosion: All cropped fields shall meet the tolerable (T) soil erosion rate established for that soil.
- Tillage setback: No tillage operations may be conducted within 5 feet of the top of the channel of surface waters.
- Phosphorus index: Croplands, pastures, and winter grazing areas shall average a phosphorus index of 6 or less over the accounting period and may not exceed a phosphorus index of 12 in any individual year within the accounting period.
- Manure storage facilities: All new, substantially altered, or abandoned manure storage facilities shall be constructed, maintained or abandoned in accordance with accepted standards. Failing and leaking existing facilities posing an imminent threat to public health or fish and aquatic life or violate groundwater standards shall be upgraded or replaced.
- Process wastewater handling: There may be no significant discharge of process wastewater to waters of the state.
- Clean water diversions: Runoff from agricultural buildings and fields shall be diverted away from contacting feedlots, manure storage areas and barnyards located within water quality management areas (300 feet from a stream or 1,000 feet from a lake or areas susceptible to groundwater contamination).
- Nutrient management: Agricultural operations applying nutrients to agricultural fields shall do so according to a nutrient management plan.
- Manure management prohibitions:
 - No overflow of manure storage facilities
 - No unconfined manure pile in a water quality management area
 - No direct runoff from a feedlot or stored manure into the waters of the state
 - No unlimited access by livestock to waters of the state in a location where high concentrations of animals prevent the maintenance of adequate sod or self-sustaining vegetative cover

A water quality management area (WQMA) is defined as:

- the area within 1,000 feet from the ordinary high water mark of navigable waters that consist of a lake, pond or flowage,
- the area within 300 feet from the ordinary high water mark of navigable waters that consist of a river or stream,
- a site that is susceptible to groundwater contamination, or that has the potential to be a direct conduit for contamination to reach groundwater.

The federal Clean Water Act requires states to identify impaired waters and develop and implement plans to reduce pollutants to those waters to meet water quality standards over time. The Rock River Recovery is the name of Rock River Basin Total Maximum Daily Load (TMDL) implementation process. The pollutants identified for reduction in the Rock River Recovery are sediment and phosphorus. The LWCD will work on implementation of TMDL-based pollutant reductions by working with DNR staff, developing nine-key element watershed

plans, and implementing Department of Agriculture cost-share funds that the office receives each year as well as with the available funds from the DNR's Multi-Discharger Phosphorus Variance (MDV) program. The MDV program enables point-source dischargers to receive a time extension on their phosphorus reduction goals by contributing funds (determined at a price per pound of phosphorus that they are over their permit levels) to Land and Water Conservation Departments in their watershed. The counties then can use these funds to pay for practices that will reduce phosphorus pollution. Additional funds for TMDL implementation may also be obtained by applying for DNR Targeted Runoff Management grants.

Wisconsin Administrative Code NR 216 Storm Water Discharge Permits requires that a notice of intent shall be filed with the DNR by any landowner who disturbs one or more acres of land. This disturbance can create a point source discharge of storm water from the construction site to waters of the state and is therefore regulated by DNR. Agriculture is exempt from this requirement for activities such as planting, growing, cultivating and harvesting of crops for human or livestock consumption and pasturing or yarding of livestock as well as sod farms and tree nurseries. Agriculture is not exempt from the requirement to submit a notice of intent for one or more acres of land disturbance for the construction of structures such as barns, manure storage facilities or barnyard runoff control systems. (See s. NR 216.42(2), Wis. Adm. Code.) Furthermore, construction of an agricultural building or facility must follow an erosion and sediment control plan consistent with s. NR 216.46, Wis. Adm. Code and must meet the performance standards of s. NR 151.11, Wis. Adm. Code. An agricultural building or facility is not required to meet the post-construction performance standards of NR 151.12, Wisconsin Administrative Code.

In addition to the rules and ordinances included above, the LWCD will consult with its partners to ensure water quality objectives and problems are identified. This will include consulting with various DNR personnel to specify water quality objectives for each water basin.

Farmland Preservation Program

State Statutes require the Land and Water Conservation Department conduct on-farm status reviews of all Farmland Preservation participants. Each participant must be reviewed once every four years to determine compliance with soil and water conservation standards.

Beginning in 2011, the Department divided the County into quadrants to streamline the Status Review process. The townships in each of the four quadrants are as follows:

- Quadrant 1 - Koshkonong, Oakland, Sumner, Jefferson
- Quadrant 2 - Lake Mills, Waterloo, Milford, Aztalan
- Quadrant 3 - Ixonia, Watertown, Farmington, Concord
- Quadrant 4 - Palmyra, Sullivan, Cold Spring, Hebron

With the possible exception of the minimum five foot setback from surface water, all Jefferson County Farmland Preservation participants are in full compliance with the soil and water conservation standards. Department Staff are working to educate producers that the setback needs to start at the top of the channel, not at the water's edge.

Nutrient management plan check lists are required for each participant by June 30th of each year. They are required to be on file prior to the landowner completing their Annual Certification of Compliance. Entire plans are not required to be turned in but must be produced upon request of the Department.

Information/Education Strategy

- The Annual Certification mailing goes out to participants on the last business day of the year. The mailing also contains the Department's annual newsletter.
- Each winter, Department staff holds a series of Nutrient Management Update Classes for farmers who write their own plan. These classes offer a chance for the plan writer to learn of new updates to the SnapPlus program and to review the planning process. Class registration is typically mailed out in late October and also contains a newsletter specifically dealing with farmer written plans.
- Post cards are sent out in late May of each year to inform participants of their upcoming on-farm Status Review.
- Post card reminders are mailed out in April to all participants who have not already completed their Annual Certification, and remind them of the late fee after May 1st.
- Post card reminders are sent out in late May to anyone who has not yet turned in a nutrient management plan checklist.
- July through October, on-farm status reviews are written up and mailed to participants. If any problems are found, the review is sent not only to the participant but to the operator (if applicable) as well. Those participants are put on a schedule of compliance to correct the issue.

Priority Farm Strategy

Determining and achieving compliance with the Agricultural Performance Standards is a large task. Therefore, the job will be done based on a priority strategy so that the most critical sites and areas are handled first.

All farms enrolled in the Farmland Preservation Program are in compliance with the Agricultural Performance Standards as of December 2018. If spot checks reveal any compliance issues, the LWCD works with these landowners to achieve compliance. Any landowners interested in joining the FPP are brought into compliance before they can be enrolled.

The remaining land that is not enrolled in the Farmland Preservation Program amounts to approximately 1/3 of the agricultural land in Jefferson County. The following is how this land will be prioritized by the Land and Water Conservation Department as it works toward full compliance with the Agricultural Performance Standards for all agricultural lands in Jefferson County:

1. Farms receiving a notice from the DNR requiring them to come into compliance with the Agricultural Performance Standards.
2. Farms that have significant problems with manure management identified by the LWCD or other cooperating agency.
3. Farms that have cropland erosion compliance issues in excess of tolerable soil loss as identified by the LWCD or a cooperating agency.
4. Farms located within a watershed with a nine key element plan (when developed).
5. Farms with land in water quality management areas that also have livestock.
6. Farms located in watersheds draining to "Impaired Waters" that are impaired due to sediment or nutrients. Because the watersheds of these impaired waters essentially cover the entire county, the only farms that will be included as "priorities" in these watersheds are defined as being within the WQMA of the impaired water.

Implementation Strategy for NR 151

Agricultural Nonpoint Performance Standards and Prohibitions

The Land and Water Conservation Department will implement the following strategy to ensure that farms are in compliance or attain compliance with the Agricultural Nonpoint Performance Standards and Prohibitions.

Information and Education Activities (related to Standards and Prohibitions)

In order to educate landowners about the Agricultural Performance Standards and Prohibitions, including applicable conservation practices and cost-sharing availability, the following will be implemented:

- Articles will be included in the LWCD newsletters.
- Information will be posted on the LWCD website.
- Education materials from DNR and DATCP will be provided to landowners, and made available at the LWCD office, cooperatives in the area, and other partners upon request.

Determining Compliance

Records Inventory

1. Continue to develop and maintain a database for a record of the parcels, fields, and facilities subject to standards and prohibitions.

2. Review available records of conservation programs to determine participants with contracts to install conservation practices. Note: All applicable privacy protection rules and laws will be followed.
3. Determine compliance status of parcels, fields, and facilities that are subject to standards and prohibitions for each landowner.

Onsite Evaluations

1. Determine and prepare a list of the lands that require onsite evaluations.
2. Contact landowners of lands that have no record of compliance and offer a site evaluation.
3. Conduct onsite evaluation for those willing to participate.
 - a. Determine and document the extent of current compliance with each of the NR 151 performance standards and prohibitions.
 - b. If lands are found to be non-compliant, determine practices needed, cost associated with practices, and eligibility for cost sharing.

Compliance Checklist When determining compliance, the LWCD staff will use a Compliance Checklist (Appendix A). The Checklist will be refined as necessary.

Landowner Compliance Notification

1. Prepare an NR 151 Land Owner Notification and send to landowners of evaluated lands. This notification will contain the following:
 - Current status of compliance with each of the performance standards and prohibitions.
 - If lands are non-compliant, identify options for corrective action.
 - Eligibility for cost-sharing.
 - Identification of funding sources and technical assistance including from federal, state, county, and third party service providers.
 - Conditions and technical standards that apply with cost-sharing.
 - Information about voluntary compliance and steps that will be taken if compliance is not voluntary.
 - Signature line indicating landowner agreement or disagreement with report findings.
2. Any Land Owners who refuse an onsite evaluation and have no records of compliance will be note as such in the database and assumed to be non-compliant.
3. The compliance reports will be maintained in the LWCD office.

Voluntary Compliance Protocol

1. Receive request for cost-sharing and/or technical assistance from landowner.
2. Confirm cost-share eligibility and determine availability of technical assistance.
3. If State or County cost-share will be used, develop and issue cost-share contract.
4. If Federal cost-share will be used, initiate and assist with communication between agency staff and the landowner.

Non-Voluntary Compliance Protocol

If the landowner chooses not to install or implement corrective actions after an offer of cost-sharing is made, then LWCD will issue a Landowner Noncompliance according to NR 151.09(5-6) and/or 151.095(6-7).

Landowner Noncompliance letters will be drafted by the LWCD and DNR and will contain the following:

- A description of the performance standard or prohibition being addressed.
- The compliance status determination made in accordance with NR 151.
- The determination as to which best management practices or other corrective measures are needed and which, if any, are eligible for cost sharing.
- The determination that cost sharing is or has been made available, including a written offer of cost sharing when appropriate.
- An offer to provide or coordinate technical assistance.
- A compliance period for meeting the performance standard or prohibition.
- An explanation of the possible consequences if the owner or operator fails to comply with provisions of the notice.
- An explanation of state or local appeals procedures if required.

Implementation of Corrective Action and Cost-Sharing (see cost-share practices in Appendix B)

1. If cost sharing is involved, finalize and execute the cost-share agreement including a schedule for installing or implementing the best management practice(s).
2. Provide technical services and oversight:
 - Provide or review conservation plans.
 - Provide or review engineering designs.
 - Provide construction oversight.
 - Evaluate and certify installation of conservation practices.
3. After corrective measures are applied, conduct evaluation to determine if land is now in compliance with relevant performance standards and prohibitions.
 - If a site is compliant, update NR 151 Compliance Checklist and issue a NR 151 Land Owner Notification. A NR 151 Land Owner Notification serves as an official notification that the site has been determined to be in compliance with applicable performance standards and prohibitions. The issuance of a Letter NR 151 Land Owner Notification could be a joint effort with the DNR in order to give it the significance and standing that it merits.
 - If site is not compliant, seek non-regulatory remedies or initiate enforcement action.

Wisconsin DNR Enforcement with LWCD Partnership

The Land and Water Conservation Department plans to meet with staff from the DNR as necessary (approximately every two years) to determine and review enforcement

responsibilities and protocols for violations to the Agricultural Nonpoint Performance Standards and Prohibitions. DNR staff at the meeting will include applicable DNR personnel that could include Nonpoint Source Coordinators, Water Quality Biologist, Notice of Discharge Program Coordinator, Wastewater Engineer, Wastewater Specialist, Storm water staff, and Conservation Warden. The goal of the meeting(s) will be to develop a Memorandum of Understanding that spells out the protocols for enforcement and the responsibilities of each party. The document will cover the items below:

1. If a landowner does not fix the identified problem by the deadline, then prepare and issue Notice of NR 151 Violation letter, or other appropriate notice per local ordinance, pursuant to NR 151.09(5) or (6), or 151.095(6) or (7).
2. Schedule enforcement conference with DNR and the Land Owner
3. Participate in enforcement conference with DNR and the Land Owner
4. Determine the course of action with DNR for the site.
5. Initiate enforcement action

Compliance Monitoring

1. Conduct periodic evaluations to verify ongoing compliance.
2. Respond to public complaints alleging noncompliance.
3. Ensure new owners are made aware of (and have access to) NR 151 compliance information that may pertain to the property they have just acquired.

Annual Reporting

1. Maintain a record of annual site evaluations including their location and compliance status.
2. Maintain a record showing parcels where cost sharing has been applied to achieve compliance with standards and prohibitions, the amount and source of those funds, and the landowner share.
3. Maintain a record and location of lands receiving a NR 151 Land Owner Notification and Notice of Violation letters.
4. Share reports with DNR and DATCP.

Information and Education Strategy

Education is an integral part of the work of the Land and Water Conservation Department. Ongoing education efforts are implemented in concert with the Land and Water Resource Management Plan to ensure the success of the plan. Some education efforts are done in partnership with other entities including the University of Wisconsin Extension, other government entities, and agricultural and resource groups. The following is a list of typical educational actions that are taken to implement the work plan:

Personal Contacts with Landowners

Demonstration Projects

Workshops

Newsletters – LWCD Conservation Counts, FSA, various Extension newsletters

Press Releases to newspaper, local cable stations, radio stations

LWCD Website and Jefferson County Facebook page

Radio Interviews

Pamphlets and Brochures

The Land and Water Conservation Department and the Federal agriculture departments (FSA and NRCS) in Jefferson County are currently located in two separate locations. This sometimes leads to confusion and inconvenience for the landowners. As a way to be a “one-stop-shop” for the landowners, the LWCD and the federal departments have looked for opportunities to co-locate. In 2020, FSA and NRCS updated their lease and remodeled their offices. So, co-location will not occur in the near future. However, this language is being kept in the plan just in case it is an option in the future.

The LWCD will work with various staff of the University of Wisconsin Extension to plan educational programs/talks that relate to agriculture and the goals contained in this plan.

It is more important than ever (due to budgetary constraints) to have citizens contribute to monitoring of our water resources. In addition, the citizens that use the water resources often are the ones who are able to identify possible problems before they get too big to manage. To this end, the LWCD will train citizens to perform water quality monitoring, and invasive species monitoring.

Monitoring and Evaluation

Monitoring and evaluation is an integral component to the success of the Land and Water Plan and its goals. It will be an ongoing process that is implemented in a variety of ways. Throughout this process, necessary adjustments will be made to how actions in the work plan are implemented to ensure achievability of the goals.

Land and Water Resource Management Monitoring and Evaluation

Agricultural Performance Standards and Prohibitions – annually – track compliance status of farms

Conservation Practice Implementation – ongoing – map completed practices, tally the total practice units, estimate phosphorus and sediment reductions achieved using tools and models (such as SnapPlus), and include DNR staff, as appropriate, to assist with determining pollutant load reductions.

Farmland Preservation Program – annually - FPP participants in one quarter of the county are monitored annually (so the entire county is covered within 4 years) – determine if farms are following required conservation standards

Livestock Inventory – every 5 years – determine location, number of facilities, quantitative ranking, and trend analysis

Manure Complaint Investigations – ongoing – track complaints, identify problems, and track progress toward rectifying problems

Nonmetallic Mines – annually and as needed – track exposed and reclaimed acreage meeting approved plan standards

Nutrient Management Plans – annually – All of the farmer-written plans and a portion of the other plans submitted to LWCD are reviewed for adherence to all applicable standards. The total acreages and landowners with NMPs are tracked.

Transect Survey – annually – estimates soil loss, tracks residue levels and cropping system trends

Water Quality Monitoring in Lakes and Streams – annually and as available – track water quality conditions through monitoring data

Aquatic Plant Surveys – as available – track changes to plant communities, including aquatic invasive species

NOTE: The County's Geographic Information System is an important tool in the monitoring and evaluation process. Much of the information we collect (transect survey, livestock inventory, FPP participation, Nutrient Management Plans, etc.) is entered onto the system. A wide variety of maps can be produced at different scales that will assist in conservation planning and land and water resource protection.

Administrative Monitoring and Evaluation

All Office Programs – annually – review and refine administration of programs, evaluate available financial and staff resources and make necessary adjustments

Cost-Share Programs– annually – review and update ranking system to allocate money to the most critical resource concerns first, regularly review and make necessary changes to implementation procedures, track amount of funds used in implementation of practices
Federal and County Cooperation – quarterly meetings between LWCD, FSA, and NRCS department heads to discuss coordination of activities and programs, twice-a-year meetings with all staff from LWCD, FSA, and NRCS to discuss coordination of activities
Financial Audit – annual audit of grant revenues and expenditures by a 3rd party
LWCD Staff meetings – monthly meetings to discuss coordination of activities and programs

Partners in Management

Many different entities are involved in the management of Jefferson County's land and water resources and the LWCD is dedicated to expanding and diversifying its partnerships. Though each entity has its own mission, jurisdiction, and priorities, they all work towards the goal of protecting and enhancing land and water resources. This section lists a sampling of these governmental and private organizations.

Federal Government

United States Department of Agriculture

Farm Service Agency (FSA) and Natural Resources Conservation Service (NRCS)

FSA is the financial agency responsible for administering the Federal Farm Bill. They manage programs such as Conservation Reserve and Conservation Reserve Enhancement Program, price supports, production controls, and conservation cost sharing.

NRCS is responsible for the soil survey development and updates. They provide technical assistance to local land users and administer programs such as the Environmental Quality Incentives Program, Wildlife Habitat Incentives Program, and the Wetland Reserve...

Army Corps of Engineers (Corps)

The Corps is the federal agency responsible for issuing permits to allow alteration of wetlands.

U.S. Fish and Wildlife Service (F&WS)

Federal agency that has a grant program that supports projects that protect, restore, or enhance wetland and associated upland migratory bird habitats.

State Government

Department of Natural Resources (DNR)

The state agency responsible for managing state-owned lands and protecting public waters. DNR administers programs to regulate, guide, and assist with managing land, water quality, fish, and wildlife. DNR works to assess waterways and has programs to reduce nonpoint and point source pollutants to restore impaired waters via TMDLs and/or nine-key element watershed plans.

Department of Agriculture, Trade, and Consumer Protection (DATCP)

The state agency responsible for establishing and administering statewide soil and water conservation policies and programs. DATCP administers state cost-sharing funds for a variety of LWCD operations, including support of staff, materials, and conservation practices.

University of Wisconsin – Extension (UW-EX)

The outreach of the University of Wisconsin system responsible for formal and informal educational programs throughout the state.

County Government

Farm Drainage Committee

The Jefferson County committee that oversees the legal drainage districts throughout the County.

Land and Water Conservation Department

The Jefferson County Land and Water Conservation Department is responsible for the implementation of land and water conservation practices to achieve greater environmental stewardship of the land.

Land Information Office

The Jefferson County Land Information Office compiles and maintains real estate rolls and maps for property assessment and taxation.

Parks Department

The Jefferson County Parks Department is responsible for maintaining and improving the park facilities within the park system, as well as expanding the system as the demand for additional recreational facilities increases.

Zoning and Sanitation Department

The Jefferson County Zoning and Sanitation Department advises applicants about required permits and approvals, issues permits, makes inspections, and takes enforcement actions under the Jefferson County Zoning, Land Division/Subdivision, Floodplain, and Sanitation Ordinances.

Town Organizations

Jefferson County Towns Association

Agricultural Organizations

Jefferson County Farm Bureau

Lake, River and Wetland Organizations

Blue Spring Lake Management District
Golden Lake Association
Johnson Creek Watershed Alliance
Joint Rock Lake Committee
Lake Ripley Management District
Lower Spring Lake Protection and Rehabilitation District

Maunsha River Alliance
Rock Koshkonong Lake District
Rock Lake Improvement Association
Rock River Coalition
Rock River Rescue Foundation
Rome Lake Improvement Association
Lake Koshkonong Wetland Association

APPENDIX A

Jefferson County Land and Water Conservation Department NR 151 Compliance Checklist

Landowner:	Parcel Numbers:
Conservation Compliance Standard (Shaded boxes indicate non-compliance)	Yes No
Sheet, Rill, Gully, and Wind Erosion	
Cropland soil erosion meets tolerable soil loss and all concentrated flow channels are addressed.	
Nutrient Management	
Is there a nutrient management plan on all cropland that meets the NRCS 590 Standard?	
All Manure Storage Facilities Must Be Complaint With The Following	
If the manure storage facility was constructed after 10/2002 it must meet NRCS Standards.	
If an existing storage structure has been substantially altered it must meet NRCS Standards.	
If a manure storage structure has not had manure added or removed for a period of 24 months it must be properly abandoned.	
If a manure storage structure poses an imminent threat to public health, fish and aquatic life, or is causing a violation of groundwater standards it must be abandoned.	
Clean Water Diversion	
Has runoff been diverted from contacting feedlot manure storage areas and barnyard areas within water quality management area (WQMA)?	
Manure Management Prohibitions	
Is there any overflow of manure storage structures?	
Are there any unconfined manure stacks in a WQMA?	
Is there direct runoff from a feedlot or stored manure into waters of the state?	
Is there unlimited access by livestock to waters of the state in where high concentrations of animals prevent the maintenance of adequate sod or self-sustaining vegetative cover?	
New Conservation Compliance Standards *December 31, 2018 Compliance Deadline*	
Are there adequate tillage setbacks (minimum of 5 feet) from top of channel of surface water?	
Are pastures included in NMP?	
Is there significant discharge of processed wastewater to waters of the State?	
Notes: Conservation plan appears to be followed. Ok for Farmland Preservation.	

Final Compliance Status

Compliance

Non-Compliance

Completed By LWCD Staff:	Date:
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This report contains details of the status review that was conducted on your farm for the Wisconsin Statue NR 151. If you have questions on this status review, please contact the Jefferson County Land and Water Conservation Department at (920) 674-7110.

Definitions

Adequate Sod or Self-sustaining Vegetative Cover: The maintenance of sufficient vegetation so that the physical integrity of a stream bank or lakeshore is preserved. Self-sustaining vegetative cover includes grasses, forbs, and sedges.

Direct Runoff: A discharge of a significant amount of pollutants to waters of the state resulting from any of the following:

1. Runoff from a manure facility
2. Runoff from an animal lot that can be predicted to reach surface water of the state through a defined or channelized flow path or a man-made conveyance
3. Discharge of leachate from a manure pile
4. Seepage from a manure storage facility
5. Construction of a manure storage facility in permeable soils or over fractured bedrock without a liner designed in accordance with NR 154.04 (3)

NRCS Standards for Manure Storage: Refers to NRCS 313 Standard for construction of manure storage facilities.

Unconfined Manure Stack: A quantity of manure that is at least 175 cubic feet in volume which covers the ground surface to a depth of at least 2 inches and is not confined within a manure storage facility. For example, a typical 140 bushel manure spreader contains about 175 cubic feet of manure.

Water Quality Management Area (WQMA): The area within 1,000 feet from the ordinary high water mark of navigable waters of a lake pond or flowage; the area within 300 feet from the ordinary high water mark of navigable waters of a river or stream; a site that is susceptible to groundwater contamination or that has the potential to be a diet conduit for contamination to reach groundwater. A site susceptible to groundwater contamination means the following:

1. An area within 250 feet of a private well
2. An area within 100 feet of a municipal well
3. An area within 300 feet upslope or 100 feet down slope of karst features
4. A channel with a cross-sectional area equal to or greater than 3 square feet that flows to a karst feature
5. An area where the soil depth to groundwater or bedrock is less than 2 feet
6. An area where the soil above groundwater or bedrock does not exhibit one of the following:
 - At least a 2 foot soil layer with 40% fines or greater
 - At least a 3 foot soil layer with 20% fines or greater
 - At least a 5 foot soil layer with 10% fines or greater

Waters of the State: All lakes, bays, rivers, streams, springs, ponds, wells, impounding reservoirs, marshes, water courses, drainage systems or other surface water or ground water, natural or artificial, public or private within the state or under its jurisdiction except those waters that are entirely confined and retained completely upon the property of a person.

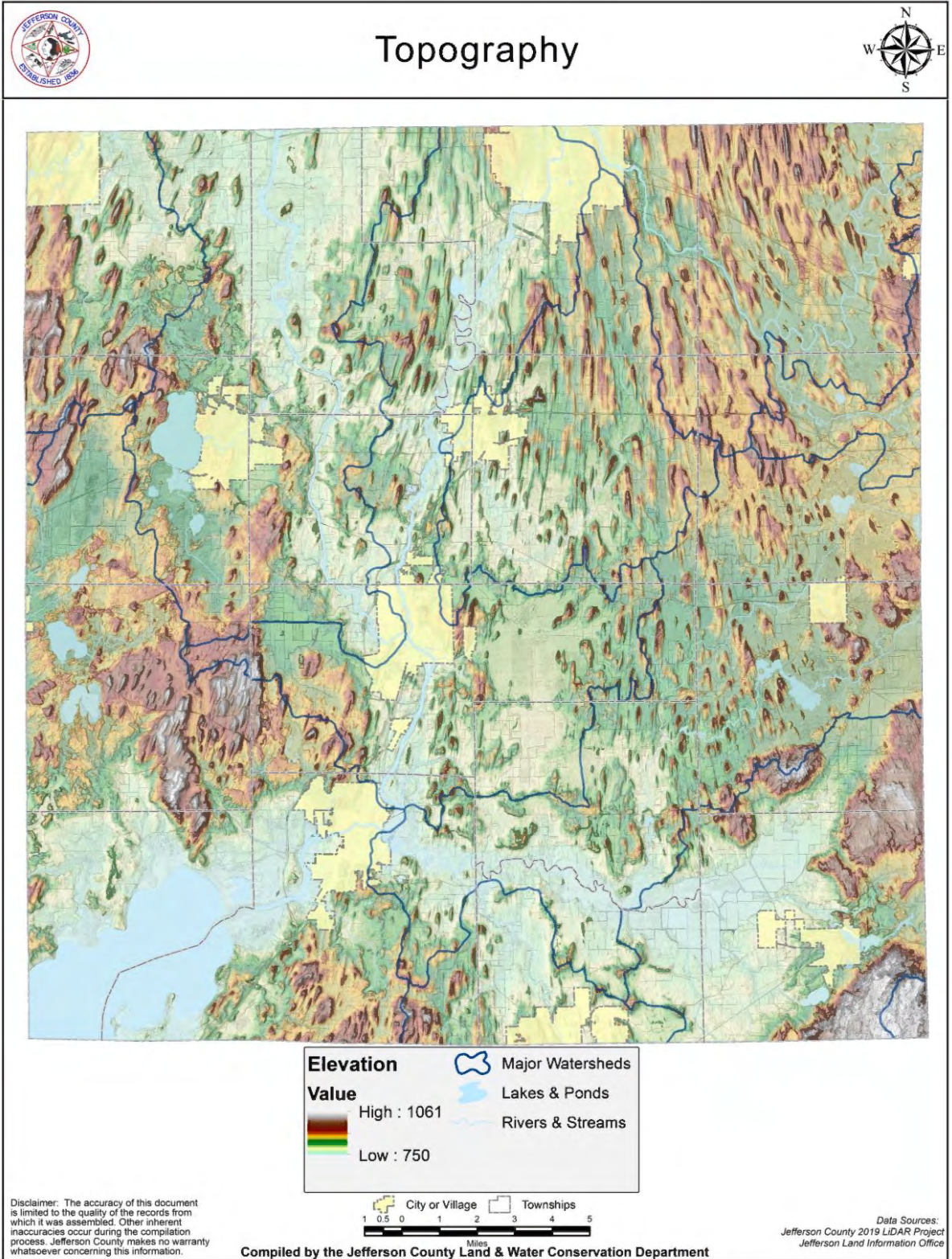
APPENDIX B

Cost-Share Practices

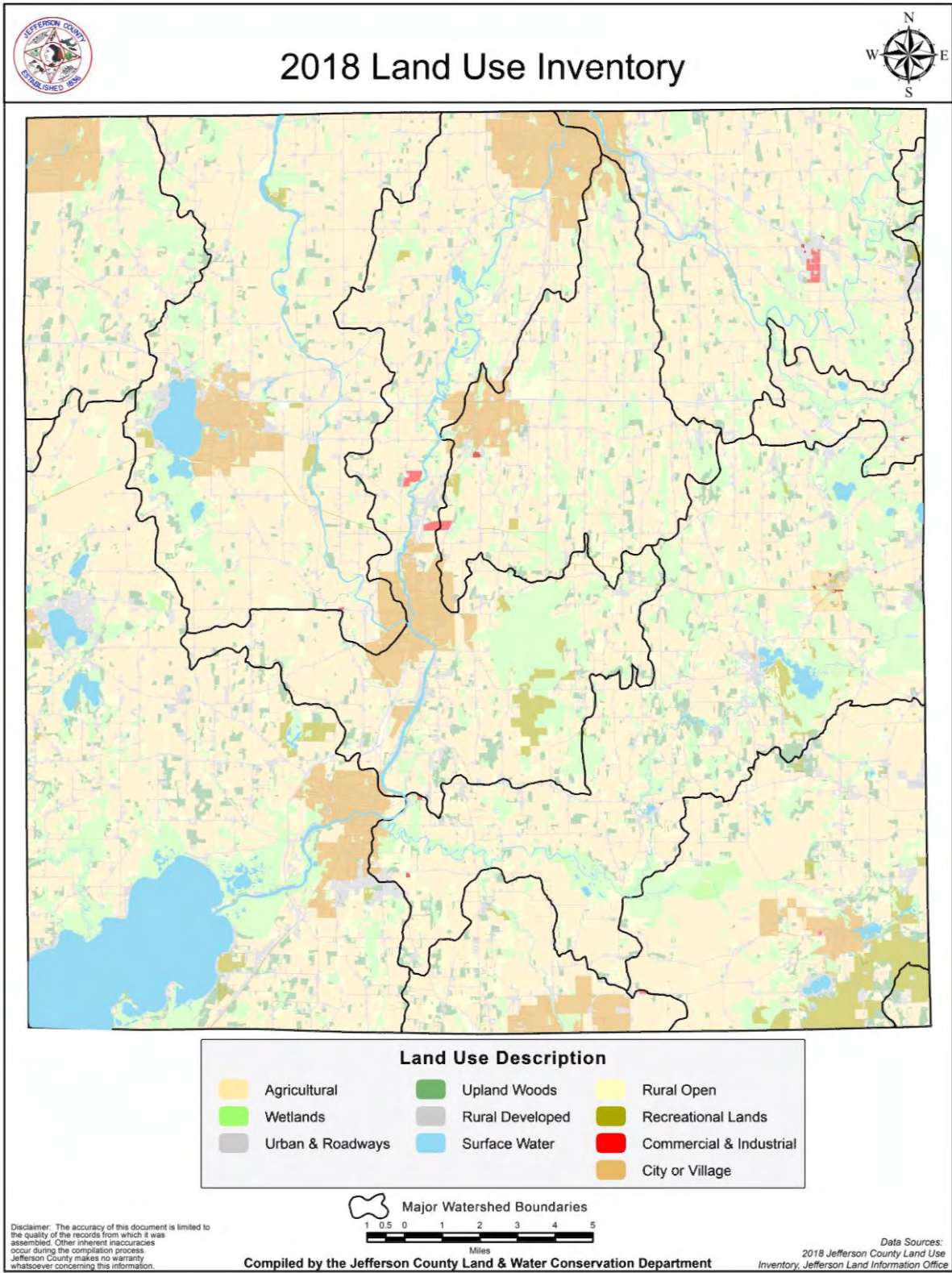
Land taken out of agricultural production
Riparian land taken out of agricultural production
Manure storage systems
Manure storage closure
Barnyard runoff control systems
Access road
Trails and walkways
Contour farming
Cover and green manure crop
Critical area stabilization
Diversions
Field windbreaks
Filter strips
Feed storage runoff control systems
Grade stabilization structures
Livestock fencing
Livestock water facilities
Milking center waste control systems
Nutrient management for cropland or pasture
Pesticide management plans (management plans & structures)
Prescribed grazing (management plan, permanent & non-permanent fencing, establish permanent pasture with seeding)
Relocating or abandoning animal feeding operations
Residue management
Riparian buffers (installation, and mowing and maintenance beyond initial 10 year period)
Roofs
Roof runoff systems
Sediment basins
Sinkhole treatment
Stream bank and shoreline protection
Stream crossing
Strip-cropping
Subsurface drains
Terrace systems
Underground outlet
Waste transfer systems
Water and sediment control basins
Waterway systems
Well decommissioning
Wetland restoration
Engineering services in connection with completed cost-share practices which uses bond revenue
Other practices with DATCP's written approval

MAPS

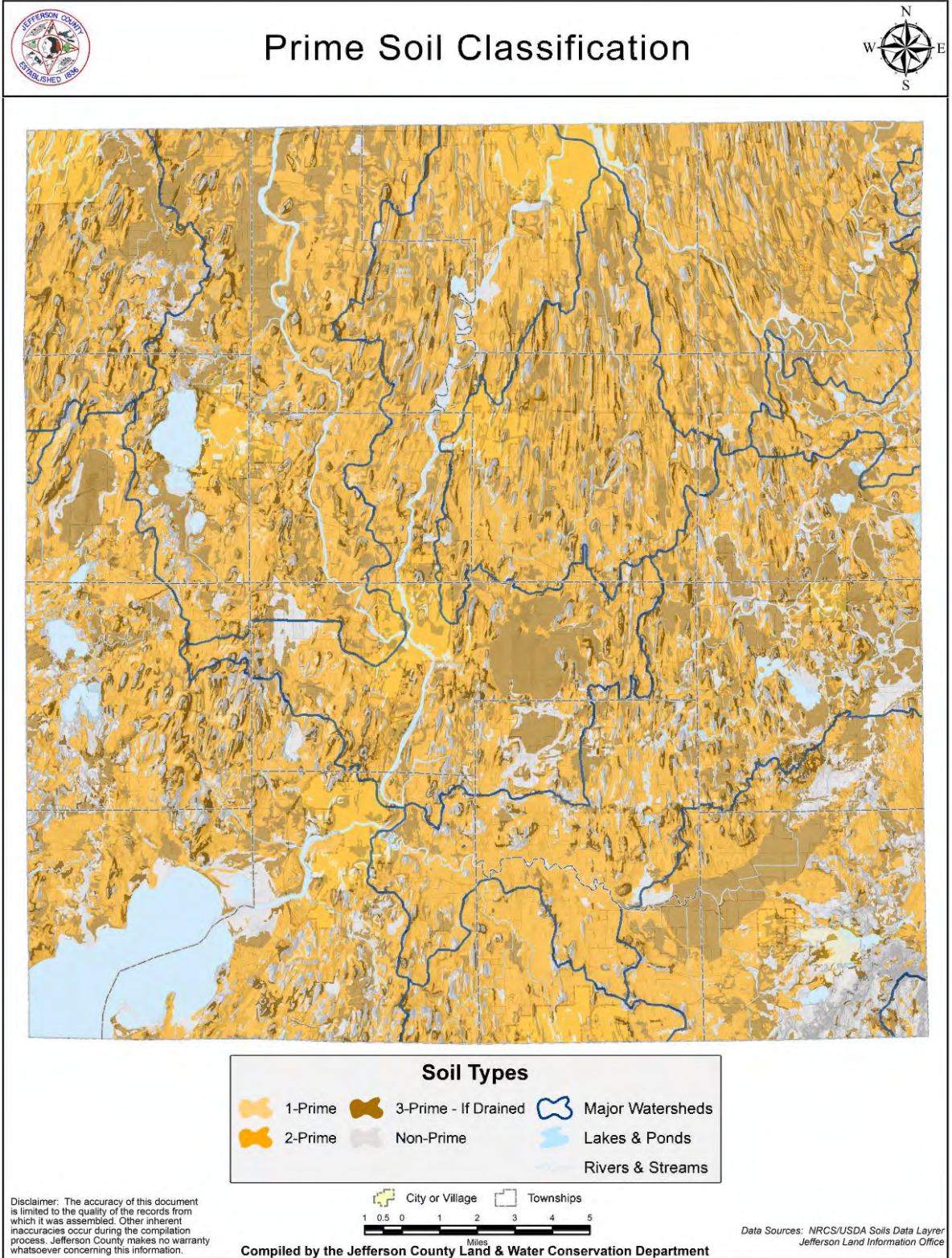
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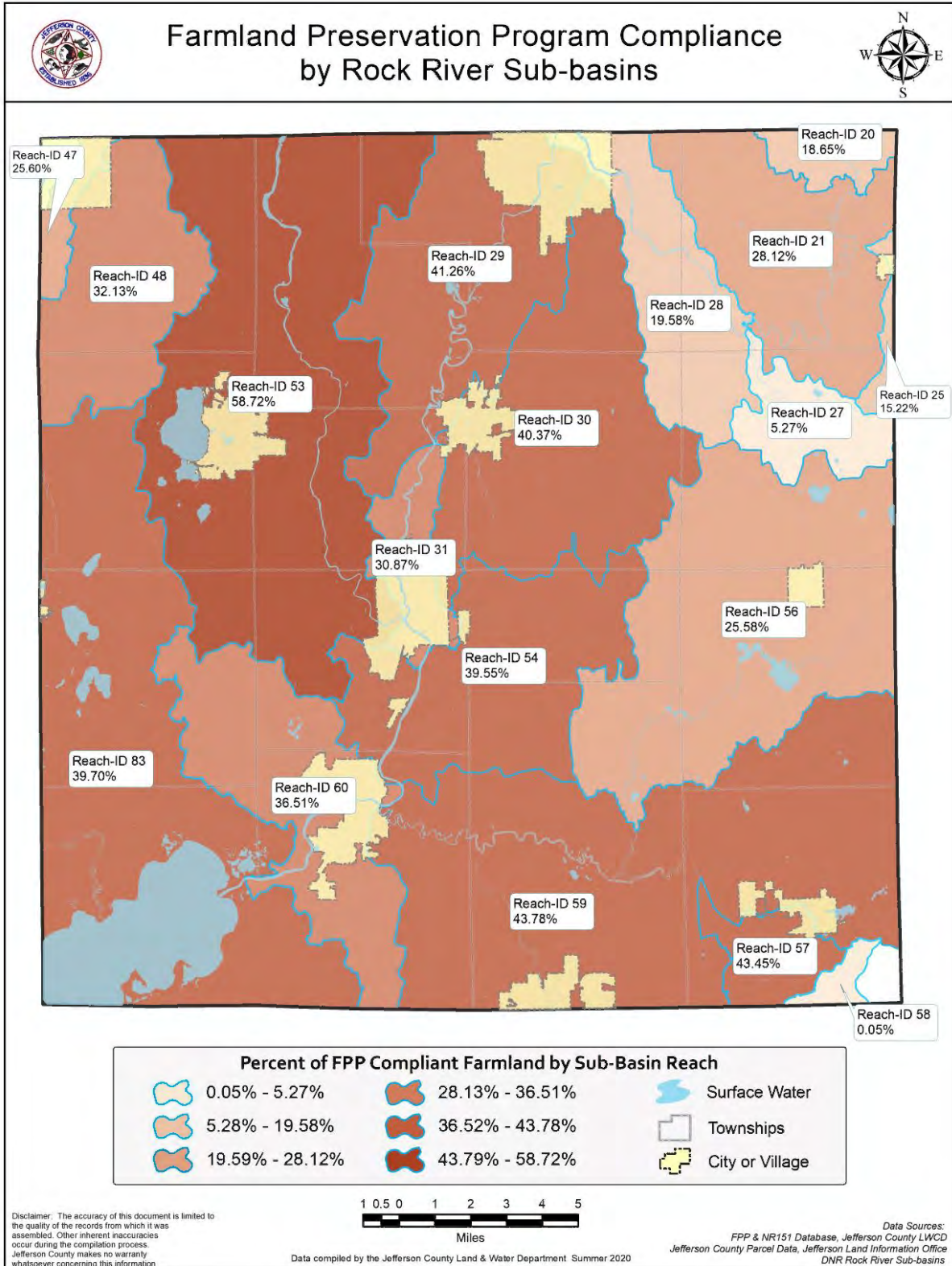
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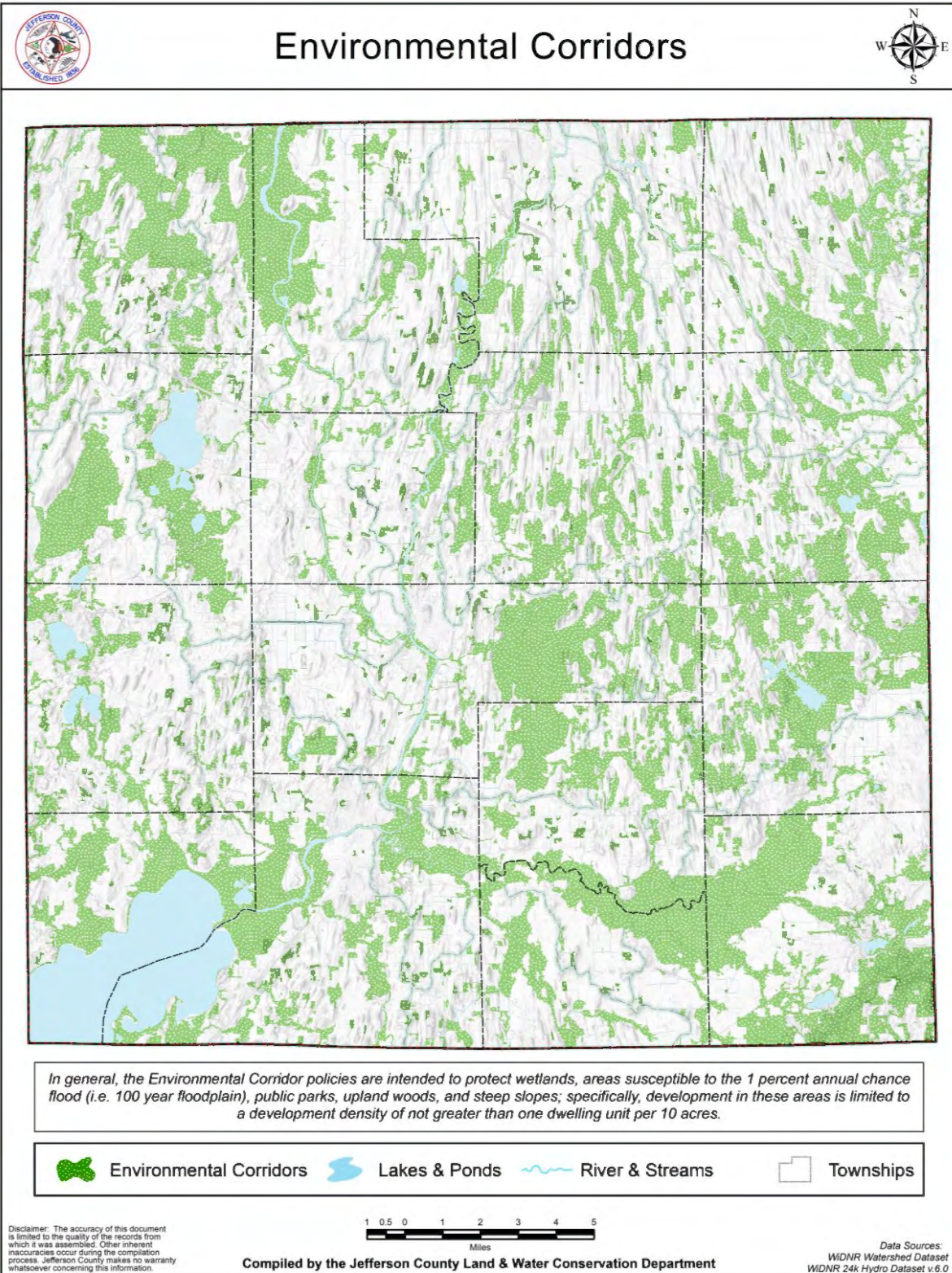
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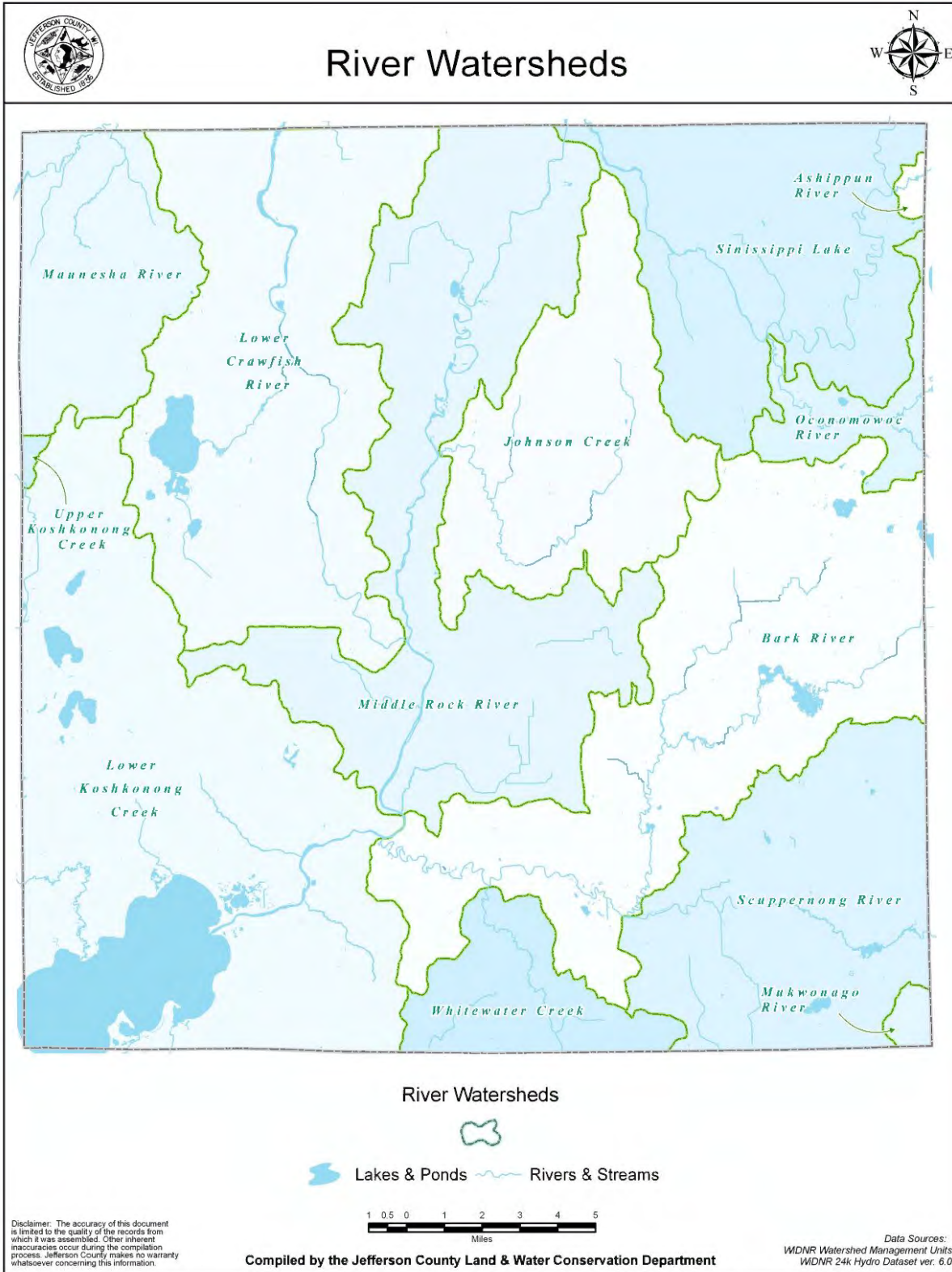
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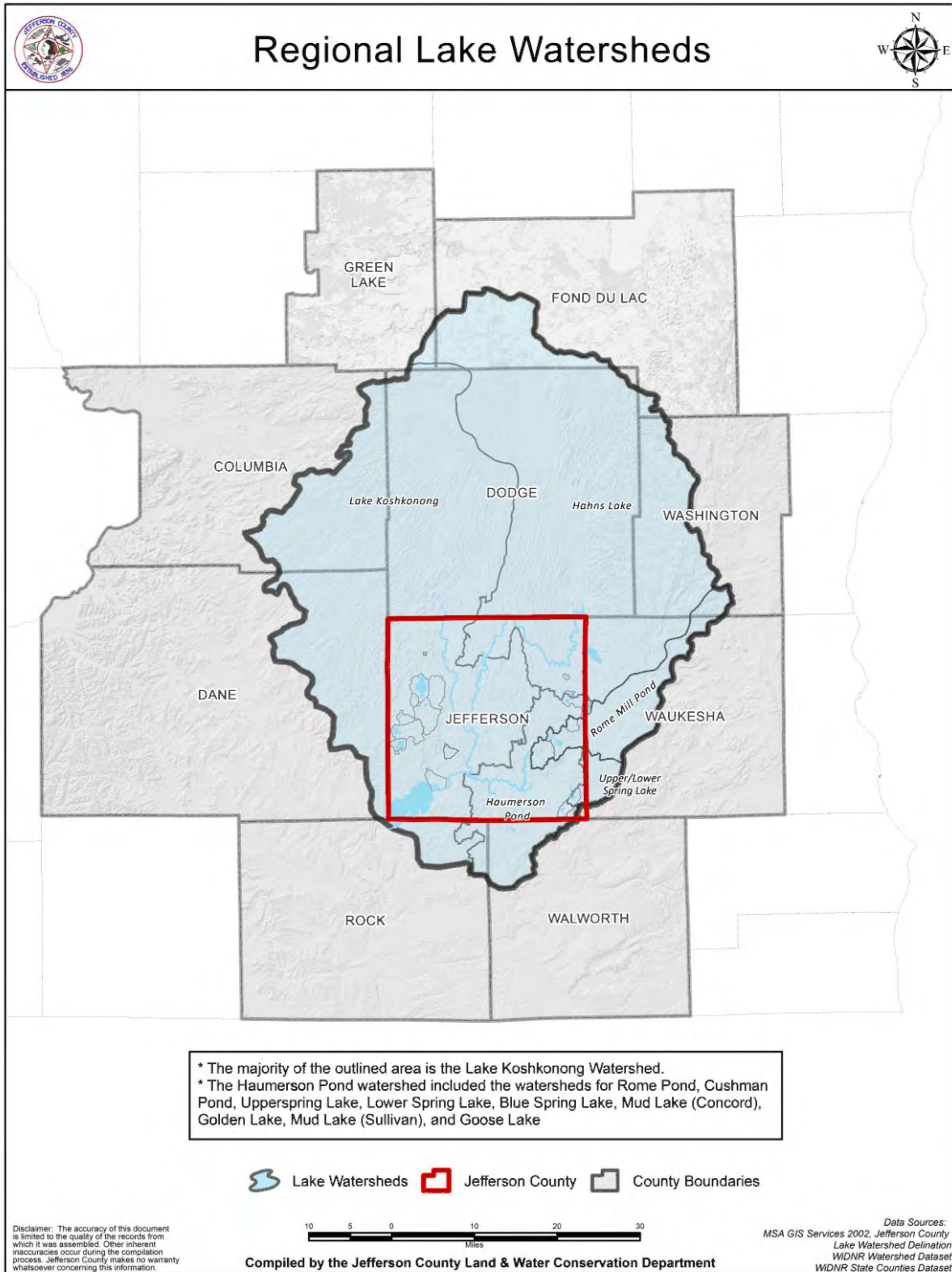
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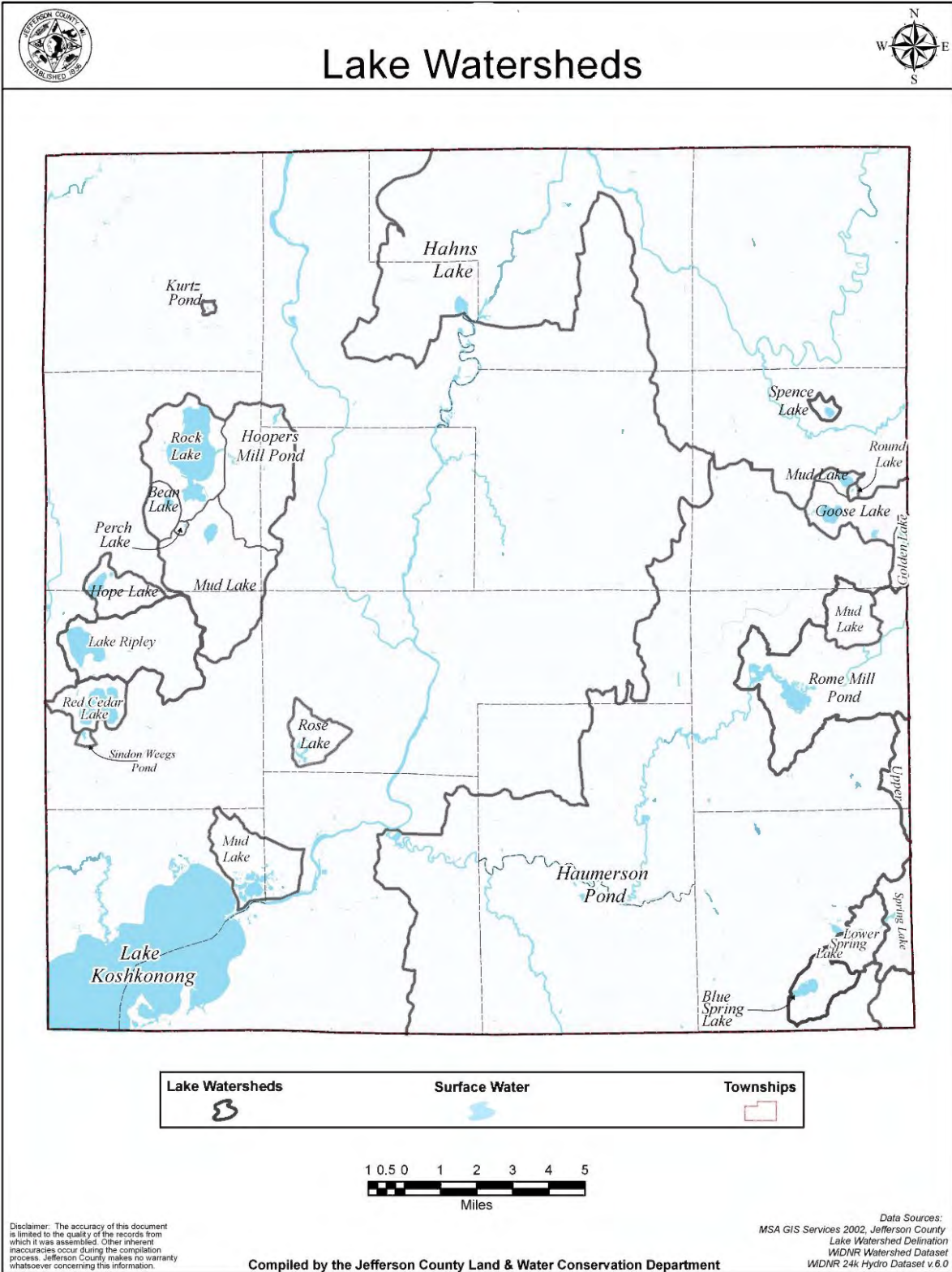
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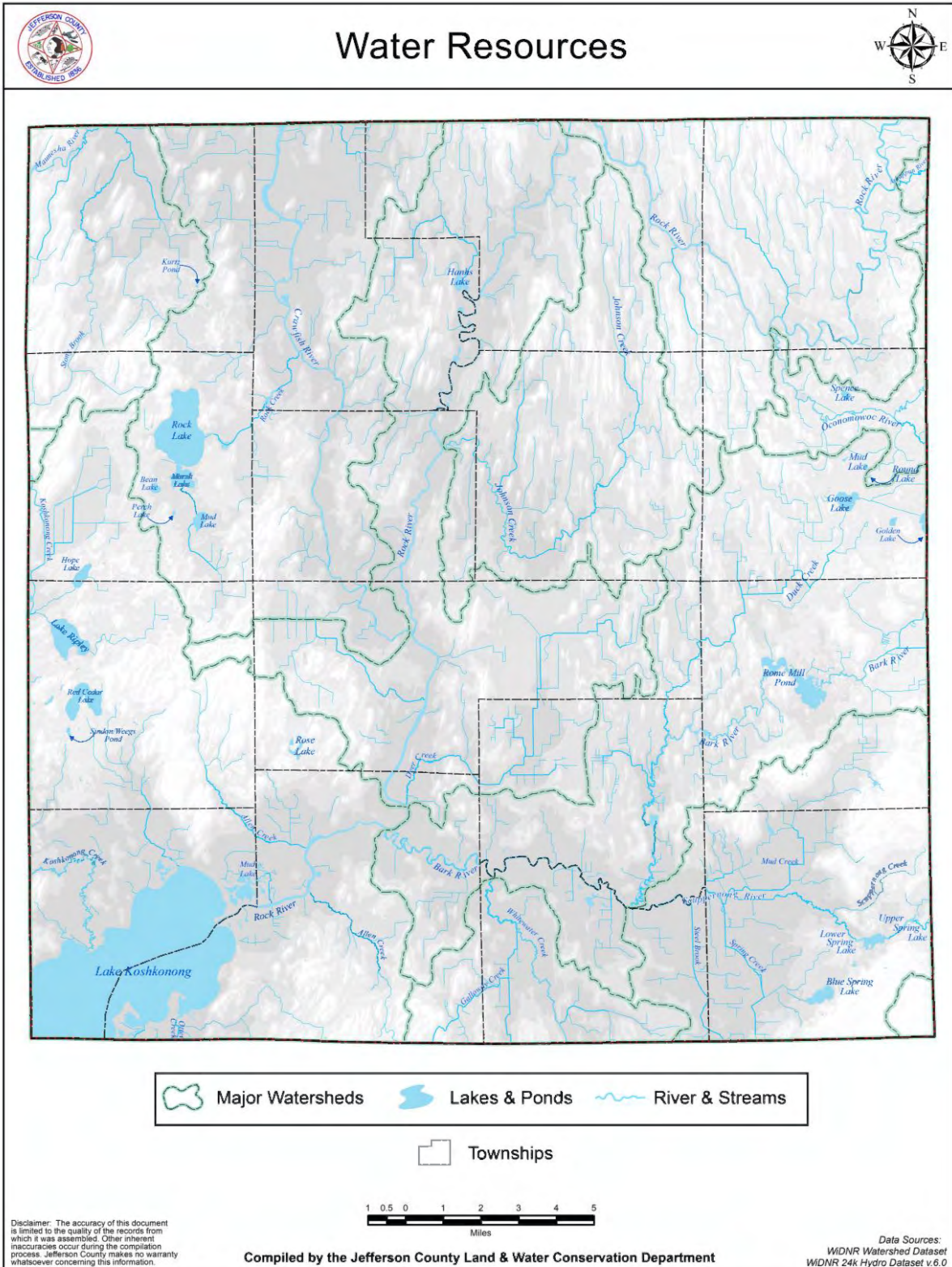
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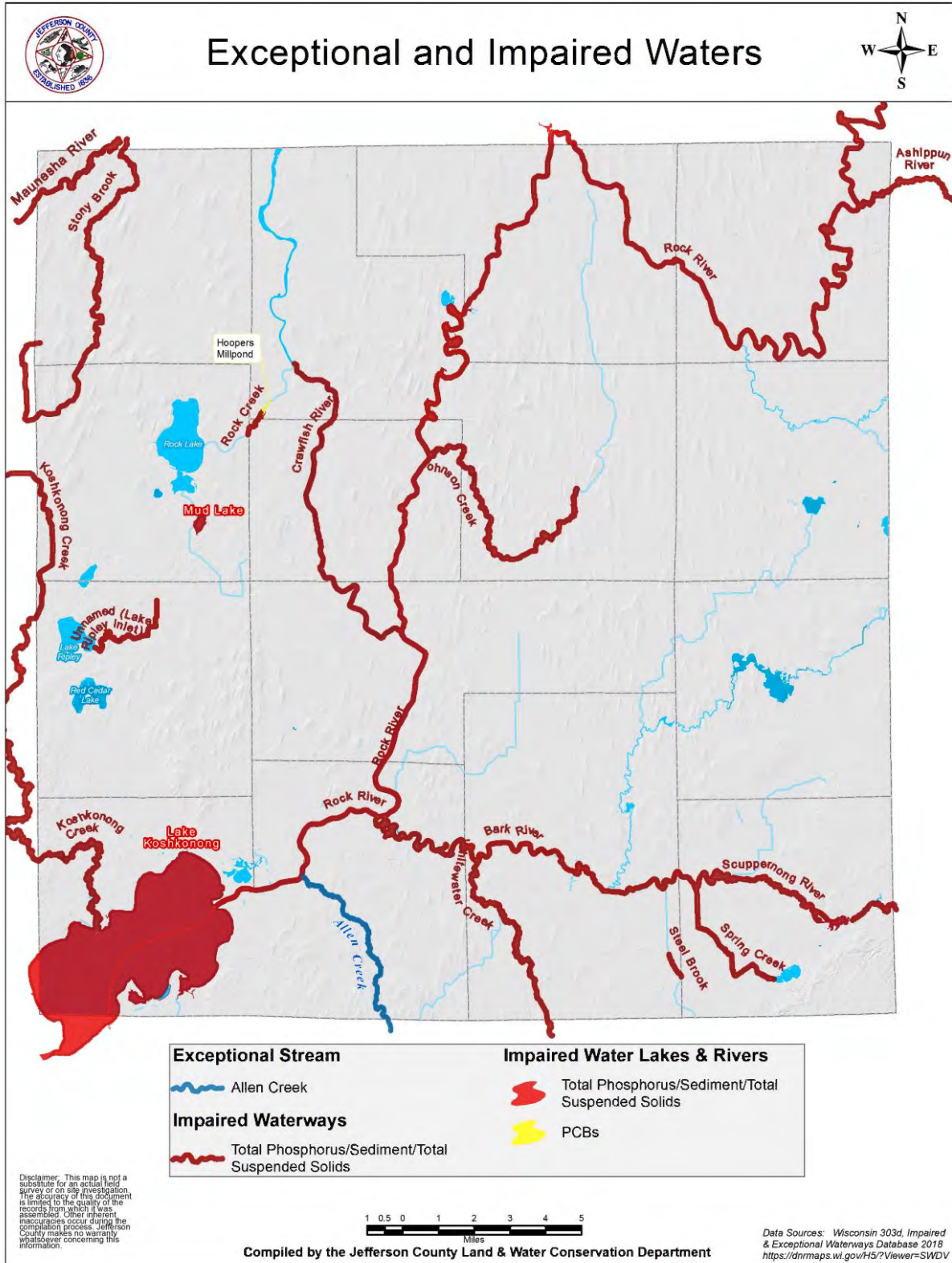
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Map 9



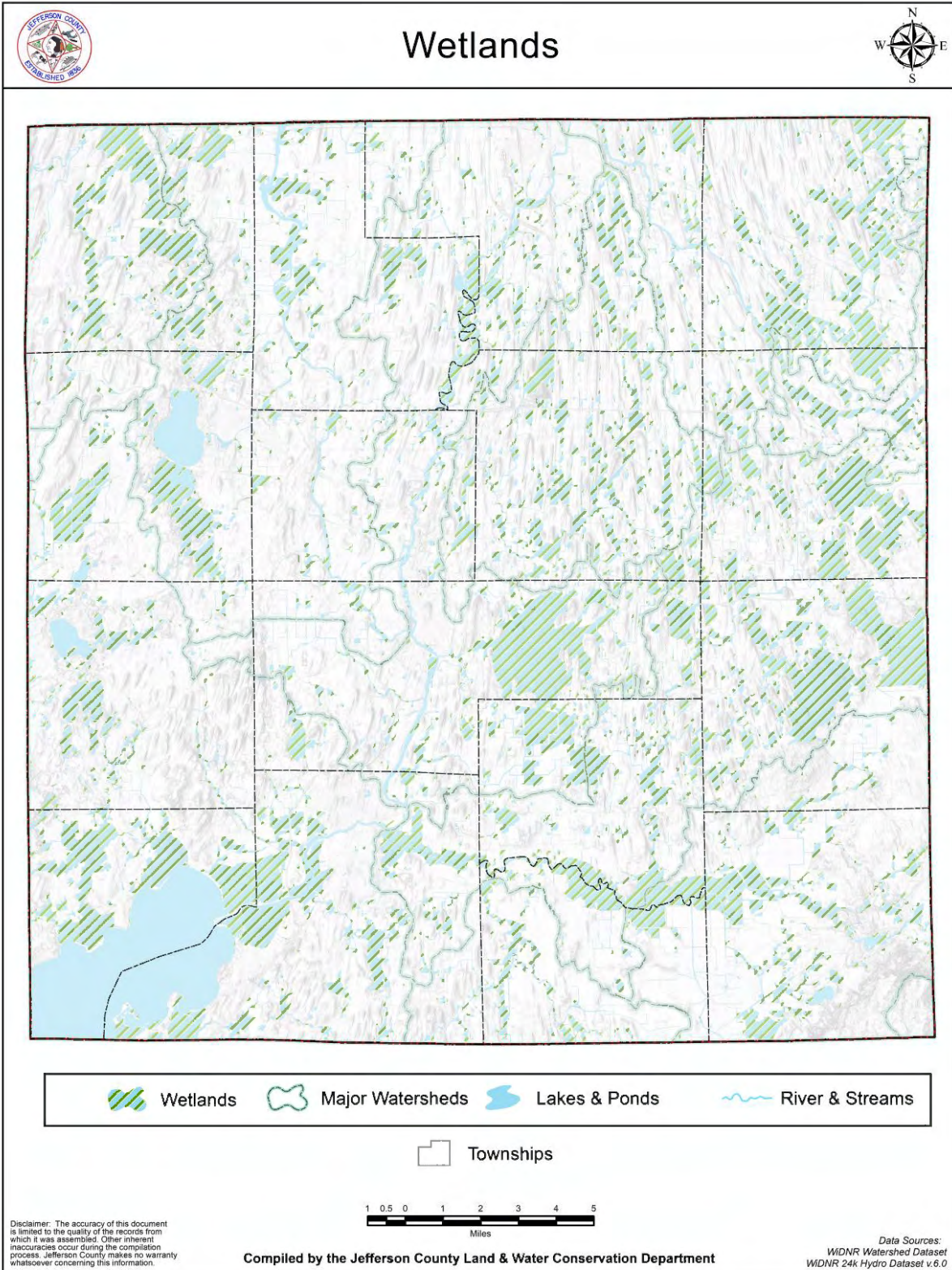
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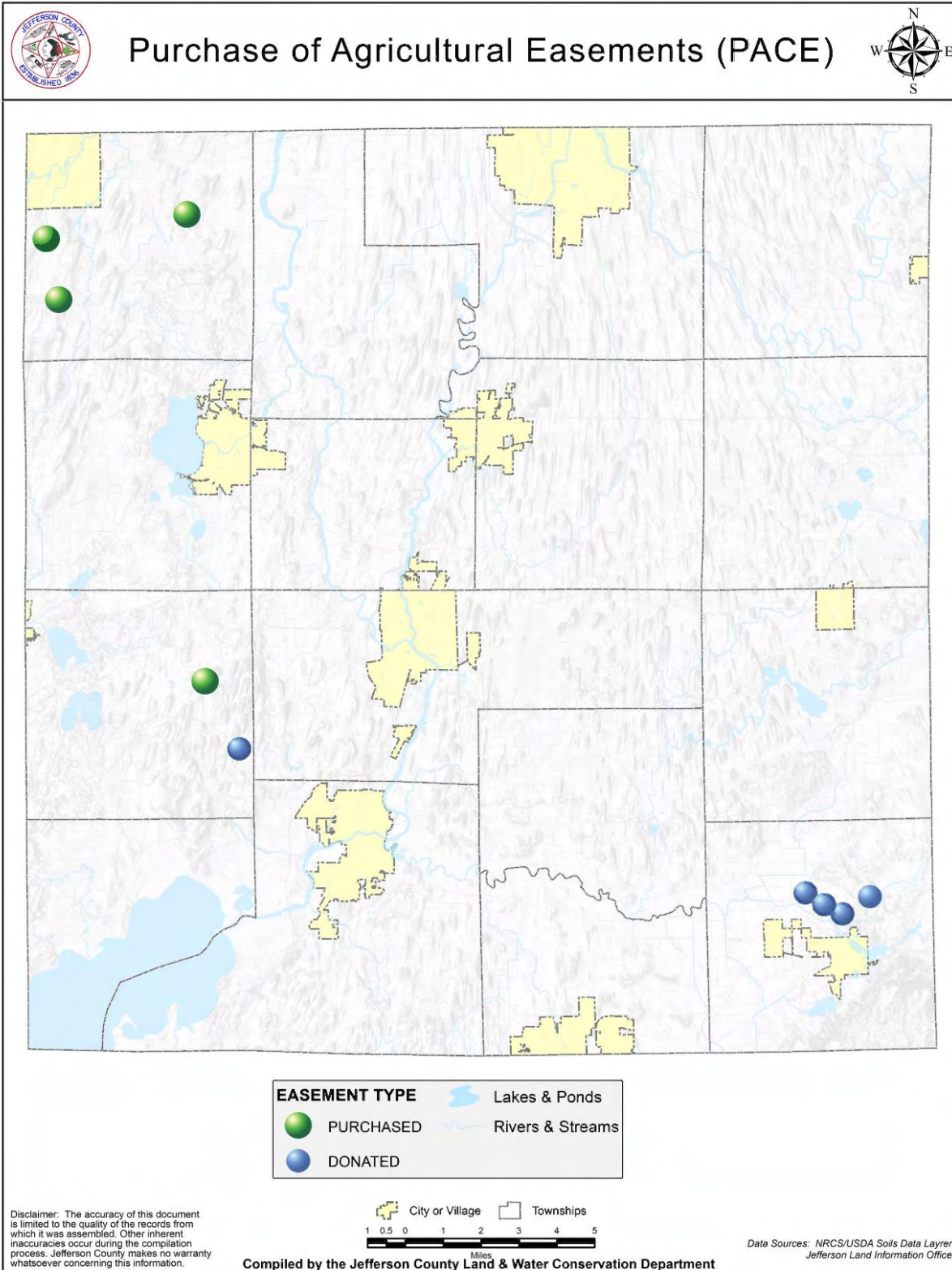
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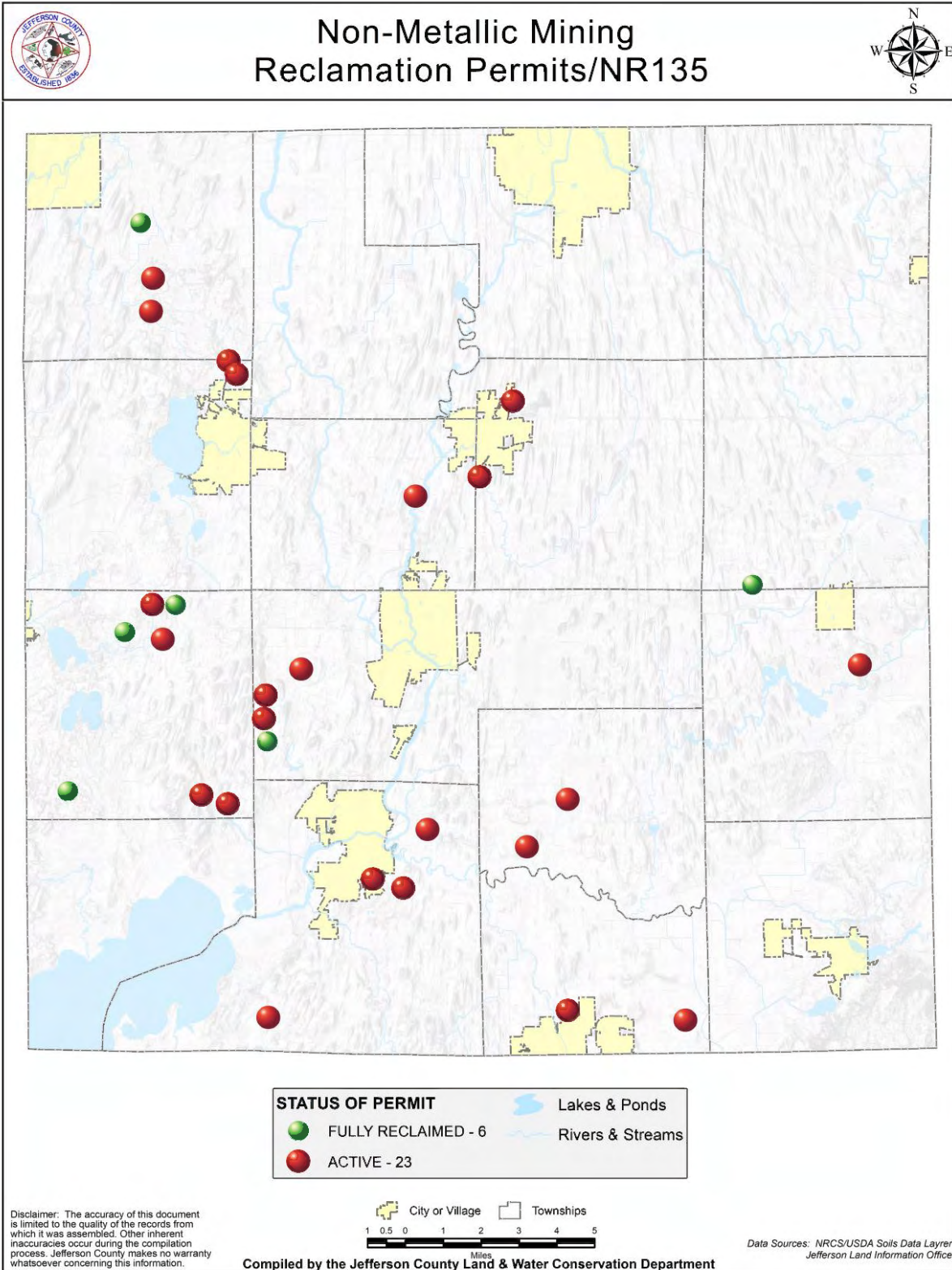
Map 12



Map 13



Map 14



Map 15

