Crawford County Land and Water Resource Management Plan 2027-2036

Crawford County Land Conservation Department

Plan Adopted by the Crawford County Board of Supervisors
XXXX, 2026

Executive Summary

Introduction

The Crawford County Land and Water Resource Management Plan (LWRMP) summarizes Crawford County's soil and water resources and identifies conservation programs and actions to protect and enhance the resources. The plan is also a guide for the Land Conservation Department in its efforts to assist county landowners and policy makers in protecting and improving land and water resources in the county. The plan's goals are intended to provide direction to Crawford County and the Land Conservation Department for the next ten years.

Plan Background

Crawford County had its initial LWRM plan approved by the Land and Water Conservation Board in 2001 and subsequent updates in 2006 and 2010. The 2016 plan revision was updated in 2021 with another full revision anticipated to be approved by the Land and Water Conservation Board and the Crawford County Board of Supervisors by the Spring of 2026.

Plan Development and Public Input

In 2008-2010 Crawford County undertook a public intensive comprehensive planning process to develop the "Crawford County Comprehensive Plan 2009-2029". Because Crawford County is very rural county there has not been a lot of changes that have taken place since the Comprehensive Plan was created. Therefore, public input that was gathered in the comprehensive planning process that addressed land and water resource concerns will again be taken into consideration. Additional public input was gathered during the public comment portion of the committee meetings. In addition, input was requested from LCD and County staff and partner agencies (NRCS, DNR, etc.). A public hearing on the plan is scheduled to be held in the summer of 2025.

Other Plans Considered

Several resource management plans have a relationship to this plan. Data from these plans were reviewed in the development of the Crawford County LWRM plan. The plans reviewed include:

- *Wisconsin Water Quality Report to Congress, 2024*
- *Crawford County Farmland Preservation Plan,* 2016 revision
- *Crawford County Soil Erosion Control Plan,* 1987
- *Hydrologic Assessment of the Kickapoo Watershed,* 1998

Resource Assessment

County Snapshot

Crawford County (population 15,944) is 375,040 acres in size, including 8,960 acres of water consisting of the Mississippi, Wisconsin and the Kickapoo rivers. The largest city is Prairie du Chien with a population of 5,531. Agriculture remains the predominate land use. However, rural non-farm residents are greatly increasing. Corn and soybean acreage continues to increase in the county.

County Soils

There are five primary soil areas in Crawford County. Soil areas include Uplands, Sandy terraces, Silty terraces, Silty bottoms, and Alluvial.

Cropland and Gully Erosion

Due to the steep terrain of Crawford County, agricultural fields here are more susceptible to rill and gully erosion. Agricultural statistics show that we have had a decrease in hay production and an increase in row crop farming over the last few decades so it has been very important for operators to adopt conservation practices such as no-till, contour strips, field buffer strips, or cover crops to help reduce erosion.

Animal Waste

Barnyard runoff and land spreading of manure (especially on frozen ground) are the two principal agricultural sources of animal waste pollution in Crawford County streams and wells. Crawford County livestock farmers have followed a statewide trend and expanded their operations, resulting in fewer barnyards and more confined herds. The result is fewer barnyard issues, but more manure spreading problems, especially in late winter and early spring that result in pollution of surface and/or groundwater. The City of Boscobel- Wisconsin River Watershed has seen the most expansion, with 3 recently issued Livestock Siting Permits.

Nutrient Management
Part of the state's NR 151 agricultural performance standards entails obtaining and maintaining a NRCS 590 Standard-compliant Nutrient Management Plan on all cropland and managed pasture ground. The two main driving forces of NMP utilization are the county's Animal Waste Storage Ordinance and the Farmland Preservation Program, both of which require NMP coverage on all crop ground. DATCP's 2024 Annual Nutrient Management Report shows that approximately 21% of Crawford County's cropland is covered under a NMP. The two big concerns addressed by NMPs are soil erosion and associated phosphorous loss to surface waters.

Watersheds
There are seven primary watersheds in Crawford County; Tainter Creek- Kickapoo River Watershed, Kickapoo River Watershed, Knapp Creek Watershed, City of Boscobel- Wisconsin River Watershed, Wisconsin River Watershed, Bloody Run- Mississippi River Watershed, and Rush Creek- Mississippi River Watershed.

Hydrology and Fish Habitat
The county is bounded on the west by the Mississippi, the south by the Wisconsin and is bisected north to south by the Kickapoo River. There are no major headwaters in the county. There are no inland lakes in the county. Crawford County has 55 streams classified by the DNR as trout streams. There are 186.14 miles of Class I, 93.59 miles of Class II, and 28.39 miles of Class III trout streams. High water velocities, steep gradients, and agricultural activities contribute to bank cutting and aggressive meandering of county streams. Stream sediment loading is typically due to the sediment in the valley floor and not the ridge tops.

Outstanding and Exceptional Resource Waters and Impaired Waters of Crawford County
Waters designated as Outstanding Resource Water or Exceptional Resource Water are surface waters which provide outstanding recreational opportunities, support valuable fisheries and wildlife habitat, have good water quality, and are not significantly impacted by human activities. In Crawford County, there are seven creeks and one river designated as exceptional resource waters, totaling 103.39 miles. In Crawford County, there are five creeks and two rivers that the WIDNR has placed on the impaired waters list due to phosphorus, sediment, or other pollutants that resulted in the waterways meeting water quality standards.

The Blackhawk/Kickapoo Dam #6
Crawford County actively operates and maintains one large, earthen embankment flood control dam built under the federal program PL566 in partnership with USDA/NRCS. The county follows a designated inspection schedule, hiring a professional consultant some years and having a DNR inspection every 10 years. The dam is located on Johnstown Road, about 3 miles east of Highway 27.

Wetlands
The acreage and quality of wetlands in the county have declined over the last several decades. There is intense development pressure in the Mississippi River Valley to ditch, tile, and drain for recreational pursuits. Crawford County LCD will continue to connect landowners with state and federal agencies that offer various programs available to help protect and enhance wetlands in the state.

Forest Land
More than half of Crawford County is wooded. Maintaining productive forest lands is an increasing challenge due to land values. The ability of forest land to be productive is in part affected by the size of forest blocks. As ownership size decreases, the ability to efficiently manage also decreases. Many woodlots are pastured due to Use Value Assessment that has given landowners a tax incentive to graze. Participation in the Managed Forest Law has increased dramatically which has had a positive effect on forested land. Crawford County has one of the highest MFL participation rates in the state.

Climate Change
Wisconsin is becoming generally warmer and wetter. Wisconsin climatologists say the state is likely to continue this trend toward more precipitation. The projected increase in annual rainfall and more intense rain storms heighten the potential for significant soil erosion, affecting water resources and agriculture.

Invasive Plants and Species

County citizens have become more aware of invasive plant and animal species. The public is becoming more aware of new threats and is willing to get involved in control measures. Crawford County has been involved in several projects in attempts to control invasives and spread the word on how important of an issue it is. Some of the biggest threats include garlic mustard, buckthorn, honeysuckle, wild parsnip, crown vetch, purple loosestrife, reed canary grass, Japanese hops, and Japanese knotweed.

Plan Goals

The following goals for the LWRM plan have been prepared using committee meetings, public comments from these open meetings and a review of past land and water resource documents. The goals are categorized under five resource concerns that summarize the issues affecting the County. Within the plan, objectives and action items are identified in an effort to meet each goal.

Soil Erosion

Goal 1: Maintain soil erosion on all cropland to "T".
Goal 2: Reduce erosion on land other than cropland.
Goal 3: Increase money available for cost-sharing to install practices to prevent erosion.

Water Resources

Goal 1: Preserve, protect, restore and enhance surface water, groundwater and riparian areas.
Goal 2: Implement NR151 Strategy outlined in Section 4 of this plan.
Goal 3: Increase funding for cost-sharing and demonstration projects.

Land Use Planning

Goal 1: Work with the towns on the implementation of their comprehensive plans.
Goal 2: Promote and support local land use planning to protect the natural resources of the county.
Goal 3: Improve and protect the quality of natural resources by the judicious and economic use of nutrients.
Goal 4: Utilize Floodplain and Shoreland/ Wetland Zoning to protect our natural resources

Land Management

Goal 1: Encourage sustainable forestry practices that improve our unique ecosystems.
Goal 2: Protect and enhance important wildlife habitat areas.
Goal 3: Limit wildlife damage to crops.

Waste Disposal

Goal 1: Provide hazardous waste recycling/disposal opportunities.

Implementation Tools and Strategies

There are numerous programs, tools and strategies available to assist in the implementation of the Crawford County Land and Water Resource Management Plan. During the planning process the Land Conservation Committee identified several programs, tools and strategies that can be utilized in cooperation with agency partners to address the land and water resource concerns.

Information and Education Strategy

Knowledge is power. Landowners and residents that make conservation decisions need to hear the story and the facts about the importance of sustaining and enhancing our precious soil and water resources. The following activities will be used to get the message to the public.

- *School Outreach*
- *Landowner Recognition/Appreciation*
- *Community Event Outreach*
- *Landowner Services*
- *Training Activities*
- *Media and Legislative Outreach*
- *Informational Brochures - Mailings*

Regulatory Requirements and NR 151 Performance Standards

There are several regulatory requirements and NR 151 performance standards and prohibitions that help ensure implementation of portions of the Crawford Land and Water Resources Management Plan. Crawford County prefers

landowners to voluntarily comply with regulations rather than face enforcement measures. The regulatory/performance standards in effect in Crawford County are listed below:

- *Land and Water Management Plan*
- *Non-Metallic Mining Ordinance (2012)*
- *Animal Waste Storage Ordinance (2025)*
- *Livestock Siting Ordinance (2017)*
- *Performance Standards: NR 151 Agricultural Performance Standards and Prohibitions (2002, 2012, 2018) Implementation Strategy*
- *Private On-site Wastewater Treatment Systems Ordinance (2018)*
- *Floodplain Zoning (2015) and Shoreland Wetland Zoning (2025) Ordinances*

Partnership and Coordination
Establishing and maintaining partnerships is very important to the conservation of land and water resources. The following conservation agencies are well suited to preserve, restore and enhance Crawford County's precious soil and water resources. The Crawford County Land Conservation Department will continue to work with the following agencies and groups to implement programs.

- USDA
- *DNR*
- *US Fish and Wildlife Service*
- *DATCP*
- *UW-Extension*
- *Valley Stewardship Network*
- *Crawford Stewardship Project*

Funding for Plan Implementation

The Crawford County Land and Water Resources Plan is a document that can be used by all of the partners that help to meet the plan goals. The agencies and personnel that will be involved in the implementation of the plan are: Crawford County Land Conservation Department, UW-Extension NPM Staff Ag/Resource Agent, and USDA- FSA & NRCS Offices. A partial list of potential funding sources is included. Potential funding sources – including, but not limited to:

- *Private Sources*
- *Local Government Sources*
- *State Government Sources*
- *Federal Sources*

Evaluation and Monitoring

Measuring and evaluating activities identified in the plan is critical in order for the plan to be successful and ensure that the land and water resources of the County are protected. The Land Conservation Department and Committee will use the following tools to evaluate and monitor plan success.

Water Quality Monitoring
Crawford County has encouraged water quality monitoring by the Valley Stewardship Network in the Kickapoo River Watershed and will continue to cooperate with similar efforts. Outside of the Kickapoo River Valley, Crawford Stewardship Project has also been monitoring water quality on numerous other sensitive waters. A fledgling project of UW Extension Water Action Volunteers (WAV) began in the county in 2005 with participation from sports clubs and interest from area school classes. WAV data is tracked in the Citizen Monitoring Database maintained by UW Extension. The largest benefit of citizen monitoring is the increased awareness of county residents in the importance of good land stewardship and its impact on water quality.

Geographic Information System (GIS)
As Crawford County modernizes its land records, all NR 151 compliance evaluations will be recorded and tracked in a geo-database linked to tax parcel I.D. numbers. Manure storage permits, livestock facility siting permits, nonmetallic mining permits,

Farmland Preservation Program participation, and CREP agreements and easements will also be linked to the tax parcels. Crawford County just recently established an FPP participant layer to help track compliance of that program.

Annual Accomplishment Reports

Financial data, installed practices, pollutant load data, information and education activities, and NR151 compliance will all be reported to DATCP and other agencies as required.

This page left intentionally blank

Crawford County Land and Water Resources Management Plan
Table of Contents

Section 1: Introduction 1-1
Plan Background 1-1
Plan Development and Public Input 1-1
Committee/agency Involvement 1-2
Survey Information Pertaining to Natural Resources 1-2
Public Information Meeting Input Pertaining to Natural Resources 1-4
Other Plans Considered 1-4
Plan Goals 1-5

Section 2: History, Background Information and Resource Assessment 2-1
History and Background Information 2-1
Agriculture Snapshot 2-2
Table 2-1 Farms by Size and Type (Crawford County) 2-2
Table 2-2 Changes in Crop Acres and Production (Crawford County) 2-2
Table 2-3 Livestock Changes (Crawford County) 2-3
Geography and Geology 2-3
Resource Assessment 2-3
County Soils 2-3
Cropland and Gully Erosion 2-4
Animal Waste 2-4
Nutrient Management 2-4
Watersheds 2-5
Table 2-4 Crawford County Impaired Waters (303d) List 2-6
Hydrology and Fish Habitat 2-6
Table 2-5 Trout Streams in Crawford County 2-7
Outstanding and Exceptional Resource Waters of Crawford County 2-7
Table 2-6 Exceptional Resource Waters of Crawford County 2-7
The Blackhawk/Kickapoo Dam #6 2-7
Wetlands 2-8
Forest Land 2-8
Climate Change 2-9
Invasive Species 2-9
Groundwater Well Monitoring 2-9
Table 2-7 Coordinated Well Testing Results in Crawford County 2-10

Section 3: Goals, Objectives and Actions 3-1
Public and Agency Input 3-1
Land and Water Management Plan Goals, Objectives and Actions 3-1
Category 1 – Soil Erosion 3-2
Table 3-1- Soil Erosion Rates 3-2
Goal 1: Maintain soil erosion on all cropland to "T" 3-3
Goal 2: Reduce erosion on land other than cropland 3-3
Goal 3: Increase money available for cost sharing to install practices to prevent erosion 3-4
Category 2 – Water Resources 3-4
Goal 1: Preserve, protect, restore, and enhance surface, groundwater and riparian areas 3-5
Goal 2: Implement NR151 Strategy outlined in Section 4 of this plan 3-6
Goal 3: Increase funding for cost-sharing and demonstration projects 3-6
Category 3 – Land Use Planning 3-7
Goal 1: Work with the Towns on implementation of their comprehensive plans 3-7

Crawford County Land and Water Resources Management Plan
Table of Contents- continued

Goal 2: Promote and support local land use planning to protect the natural resources of the county 3-7
Goal 3: Improve and protect the quality of natural resources by the judicious & economic use of nutrients 3-7
Goal 4: Utilize Floodplain and Shoreland/ Wetland Zoning to protect our natural resources……..……3-8
Category 4 – Land Management 3-8
Goal 1: Encourage sustainable forestry practices that improve our unique ecosystems 3-8
Goal 2: Protect and enhance important wildlife habitat areas 3-9
Goal 3: Limit wildlife damage to crops 3-9
Category 5 – Waste Disposal 3-10
Goal 1: Provide hazardous waste recycling/ disposal opportunities 3-10

Section 4: Implementation Tools and Strategies 4-1
Information and Education Strategy 4-1
School Outreach 4-1
Landowner Recognition/Appreciation 4-1
Community Event Outreach 4-1
Landowner Services 4-1
Training Activities 4-2
Media and Legislative Outreach 4-2
Social Media 4-2
Informational Brochures – Mailings 4-2
Regulatory Requirements, Performance Standards, and Priority Farms Strategy 4-2
Land and Water Management Plan 4-2
Non-Metallic Mining Ordinance 4-2
Manure Storage Ordinance 4-3
Livestock Facility Siting Ordinance 4-3
Shoreland Zoning Ordinance 4-3
Performance Standards: NR 151 Performance Standards Implementation Strategy 4-3
Identification of Priority Farms 4-3
Action Items for Priority Farms 4-4
Information and Educational Activities 4-4
Determining Current Compliance 4-4
Administer Funding and Technical Assistance 4-5
Strategy to Encourage Voluntary Compliance 4-6
Enforcement 4-6
Partnership and Coordination 4-6

Section 5: Funding for Implementation 5-1
Plan Funding 5-1

Section 6: Evaluation and Monitoring 6-1
Soil Erosion & Nutrient Management Plan Tracking 6-1
Water Quality Monitoring 6-1
Table 6-1 Crawford County WAV Monitoring Sites 6-1
Figure 1- WAV Total Phosphorus sampling results at Boydtown Creek Station (SWIMS #10013610) in 2025 6-2
Figure 2- Total Phosphorus concentration trend adjusted for discharge and seasonality 1983-2020 6-2
Figure 3- Nitrate + nitrites concentration trend adjusted for discharge and seasonality 1983-2020 6-2
Geographic Information System (GIS) 6-3
Annual Accomplishment Reports 6-3

Appendices

Appendix A: Committees A-1
Appendix B: Action Plan B-1
Appendix C: NR151 Compliance Checklist C-1
Appendix D: Maps D-1

This page left intentionally blank

Section 1: Introduction

Crawford County is keenly aware that its land and water resources are vital to the County's future. Protecting and enhancing the resources is a top priority and Crawford County supports and fosters locally led conservation efforts to protect the County's natural resources. The County, through the Land Conservation Department and Committee, will comply with Wisconsin Act 27 (the 1997-1999 Budget Bill) and Wisconsin Act 9 (the 2000-2001 Budget Bill), and amended Chapter 92 of the Wisconsin Statutes. It requires counties to develop and update Land and Water Resource Management (LWRM) plans.

Plan Background

Crawford County had its initial LWRM plan approved by the Land and Water Conservation Board in 2001 and subsequent updates in 2006, 2010, 2016, and now in 2026. Since completion of the original plan, resource concerns have continued to change. Some major trends and issues affecting Crawford County are:

- NR 151 is passed, creating agricultural and urban runoff performance standards and prohibitions
- Crawford County passed and is administering a nonmetallic mining reclamation ordinance.
- Use Value Assessment has shifted taxes on the landscape impacting forest use, sometimes negatively
- Crawford County is cooperating with other agencies to provide technical support and administration for the Conservation Reserve Enhanced Program (CREP) that protects stream corridors
- Rotational grazing and low-cost milk parlor increases throughout the county
- Larger and more mechanized dairy production increases throughout the county
- Non-farm rural weekend residents are increasing in number along with the value of their residences and with their expectations for rural living education and services
- Citizens and agencies are increasingly concerned about invasive species
- Crawford County adopted a Comprehensive Plan meeting the requirements of Wisconsin's "Smart Growth" law
- Crawford County adopted a revised manure storage ordinance.
- Crawford County adopted their own Livestock Facility Siting Ordinance.

Plan Development and Public Input

In 2008-2010 Crawford County undertook a public intensive comprehensive planning process to develop the "Crawford County Comprehensive Plan 2009-2029". In developing the County's Comprehensive Plan, the revision of the Crawford County Land and Water Resource Plan was recognized by the LCC and County Planning Committee as important and integral to the development of the County Comprehensive Plan. The Crawford County Comprehensive Plan 2009-2029 which was adopted on February 16, 2010, specifically references the revision of the County's Land and Water Resources Plan and the intention to gather public input from the County's comprehensive planning process. The following excerpt is from the "Crawford County Comprehensive Plan 2009-2029":

Goal B ► Protect surface and groundwater resources of Crawford County.

1. Support the revision and implementation of the Crawford County Land and Water Resources Plan. The Crawford County Land Conservation Department is beginning the process of updating the County Land and Water Resources Plan. During the comprehensive planning process utilize public input opportunities to gain resident input on the revision to the Crawford County Land and Water Resources Plan.

Residents, elected officials, and agencies clearly recognized that the economic and social fabric of the County is unequivocally tied to the land and water resources of Crawford County. As public input was gathered in the comprehensive planning process special attention was given to ensure input gathering methods addressed land and water resource concerns. Public input was gathered in the form of a comprehensive county survey, public informational meetings, a public hearing and additional planning meetings. It was intended that this information gathered be utilized not only to direct the goals and policies of the County comprehensive plan but to guide the revision of the County's Land and Water Resource Plan. Because Crawford County is very rural county there has not been a lot of changes that have taken place since the Comprehensive Plan was created. Therefore, public input that was gathered in the comprehensive planning process that addressed land and water resource concerns will again be taken into consideration.

Committee/agency Involvement

The Crawford County Land Conservation Committee (membership listed in Appendix A) was the county committee which oversaw the plan update. This committee created a Land & Water Resource Management Plan Citizen Advisory Council to assist with the preparation of the updated plan. This committee was comprised of various county department personnel and other conservation agency staff, local citizens, and Land Conservation Committee members (membership listed in Appendix A). Both the County Land Conservation Committee and the Land & Water Plan Citizen Advisory Council meetings were notified to the public and were open meetings. Upon consideration of departmental reviews, personal experience, and review of the existing LWMR plan, the advisory council identified the following issues to be the primary focus for this LWRM Plan over the next ten years (2027-2036):

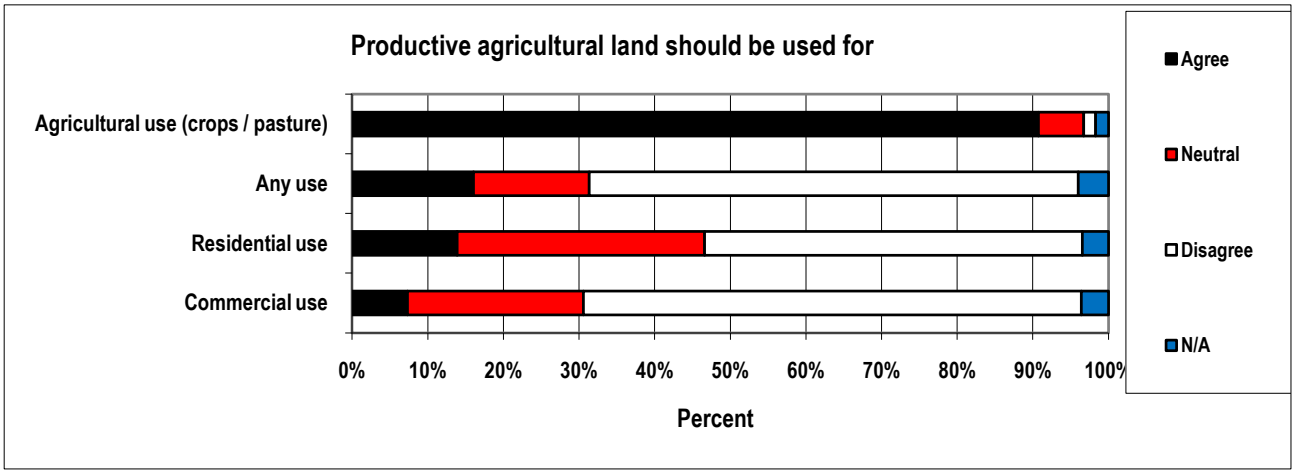
- ► Water quality and non-point source pollution.
- ► Impacts of inadequate land use planning
- ► Groundwater pollution and protection
- ► Nutrient Management education and research
- ► Preservation of land for agricultural use
- ► Preservation of forestlands to maintain their economic value
- ► Preservation of our native natural communities and wildlife habitat

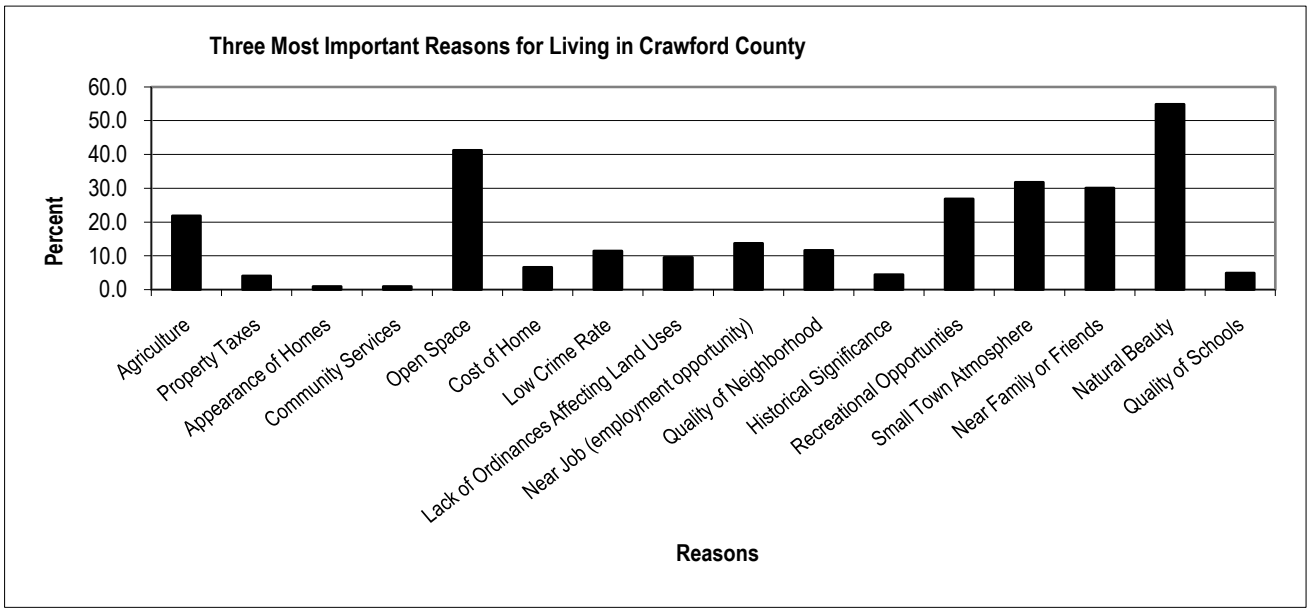
Crawford County Land Conservation Committee (membership listed in Appendix A) had the discussion of the plan as an agenda item on numerous meetings during the development of the plan. They discussed the goals from the previous Land and Water Plan and identified goals and objectives for the revised LWRM Plan.

Additional agencies and departments requested to provide input on the LWRMP include UW Extension, Crawford County Zoning, NRCS staff, DNR local and regional staff were consulted and have been requested to provide input on the plan as drafts have been developed.

Survey Information Pertaining to Natural Resources

In 2008, The Crawford County UW-Extension Economic Development Agent coordinated the distribution and tabulation of a county survey mailed to an estimated 5,657 Crawford County residences. Surveys were mailed to property owners in the unincorporated Towns of the County. In all, 5,657 surveys were mailed out and 1,325 were returned for a return rate of about 23%. The following tables illustrate the results as they pertain to the County's land and water resources. The survey results clearly show how important the land and water resources are to the residents. Crawford County will be conducting additional similar surveys as part of its Comprehensive Plan revisions by 2029 and will be considered in future LWRM Plan revisions.




Three Most Important Reasons for Living in Crawford County
Percent
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Agriculture
Property Taxes
Appearance of Homes
Community Services
Open Space
Cost of Home
Low Crime Rate
Lack of Ordinances Affecting Land Uses
Near Job (employment opportunity)
Quality of Neighborhood
Historical Significance
Recreational Opportunities
Small Town Atmosphere
Near Family or Friends
Natural Beauty
Quality of Schools
Reasons

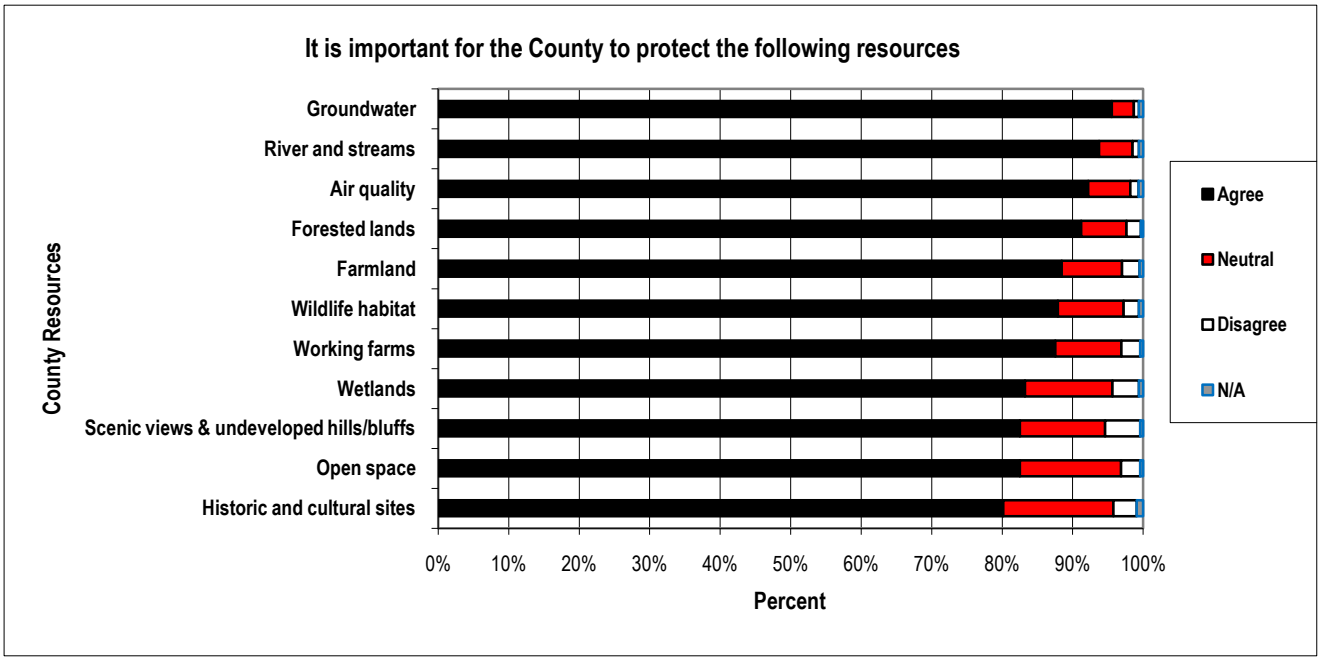
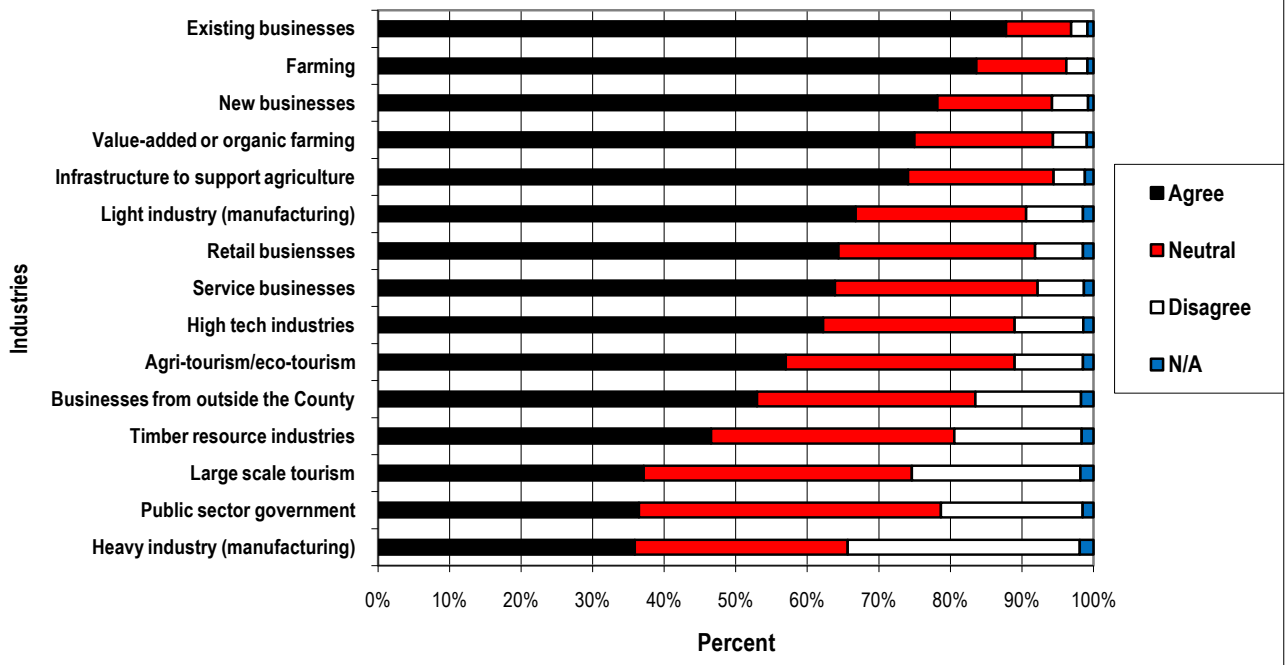

It is important for the County to protect the following resources
County Resources
Groundwater
River and streams
Air quality
Forested lands
Farmland
Wildlife habitat
Working farms
Wetlands
Scenic views & undeveloped hills/bluffs
Open space
Historic and cultural sites
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent
Agree
Neutral
Disagree
N/A

Table 1.22 Crawford County should support and develop the following industries



Public Information Meeting Input Pertaining to Natural Resources

In November of 2008 as part of the comprehensive planning process, a county wide public information meeting was held at the Seneca High School Gymnasium. Approximately 60 people attended the meeting. The purpose of the meeting was to solicit input from residents pertaining to issues affecting the County. Tables were set up with poster boards displayed in which attendees were encouraged to write down their comments regarding the various planning topics. The following comments were received pertaining to land and water resources:

What do you envision for land use, agriculture, natural or cultural resources?

- Community cultural events- music dance, theater, arts
- Preserve grazing land and forest. No CAFOs
- Make this a model for other natural areas and learn from mistakes
- Small sustainable farming- bigger is not better
- The state government is pushing regulations on farms and energy that excludes local control. This is not what smart growth plan is supposed to be. We need to get state government to support us.
- Some control of breaking up plots to form scattered housing.
- How will the comp plan accommodate diversity in land use such as occasional/intentional community? Will zoning allow it?
- If actions at the town level need to "be consistent" with the town plan how can the town government meet the needs of residents- one township's geography population and development potential may be very different from another towns, for instance.
- Help us prepare, share, protect the right of small producers and single families to feed themselves and their neighbors. Cities are unsustainable. These people are coming ready to welcome them.

Other Plans Considered

Several resource management plans have a relationship to this plan. Data from these plans were reviewed in the development of the Crawford County LWRM plan:

1. *Wisconsin Water Quality Report to Congress, 2024*
    - Every two years, the state must publish an overall report on the quality of all surface waters across the state to satisfy requirements of the Clean Water Act

2. *Crawford County Farmland Preservation Plan,* 1982 (revised 2005 to include performance standards, fully updated in 2016)
    - This plan is to protect farmland from uncontrolled development, competing land uses, and promote sound conservation.

3. *Crawford County Soil Erosion Control Plan,* 1987
    - This plan met the requirements of Chapter 92 statutes to identify soil loss by county watersheds. It also details a plan of action and implementation to decrease soil erosion in priority areas, which at that time found the top three priority watersheds were the Gran Grae/ Little Kickapoo Watershed, the Tainter/Johnson Watershed, and the Plum/ Otter Watershed.

4. *Hydrologic Assessment of the Kickapoo Watershed,* 1998
    - This plan was written by the Wisconsin Geological and Natural History Survey and the UW Department of Geological engineering for the Trout Unlimited Home Rivers Initiative project in the Kickapoo Watershed. It assesses the hydrologic state of the area and makes recommendations for improvement.

Plan Goals

Based on public input gathered through the County's comprehensive plan survey, public meetings, committee meetings and review of past land and water resource documents, the following goals for the revised LWRM plan have been prepared. The goals are categorized under five resource concerns that summarize the issues affecting the County. Within the plan, objectives and action items are identified in an effort to meet each goal.

Soil Erosion

Goal 1: Maintain soil erosion on all cropland to "T".
Goal 2: Reduce erosion on land other than cropland.
Goal 3: Increase money available for cost-sharing to install practices to prevent erosion.

Water Resources

Goal 1: Preserve, protect, restore and enhance surface water, groundwater and riparian areas.
Goal 2: Implement NR151 Agricultural Performance Standards and Prohibitions Strategy via implementation of Section 4 of this plan.
Goal 3: Increase funding for cost-sharing and demonstration projects.

Land Use Planning

Goal 1: Work with the towns on the implementation of their comprehensive plans.
Goal 2: Promote and support local land use planning to protect the natural resources of the county.
Goal 3: Improve and protect the quality of natural resources by the judicious and economic use of nutrients.
Goal 4: Utilize Floodplain and Shoreland/ Wetland Zoning to protect our natural resources

Land Management

Goal 1: Encourage sustainable forestry practices that improve our unique ecosystems.
Goal 2: Protect and enhance important wildlife habitat areas.
Goal 3: Limit wildlife damage to crops.

Waste Disposal

Goal 1: Provide hazardous waste recycling/disposal opportunities.

This page left intentionally blank

Section 2: History, Background Information and Resource Assessment

History and Background Information

The County is located in Southwest Wisconsin and is part of the Driftless Area, an area that escaped the most recent glacial advance some 10,000 years ago. The glaciers melt water created the Driftless Area that is known for its rugged topography creating scenic bluffs and valleys. The County is approximately 586 square miles in size. Its boundary on the west is the Mississippi River and its boundary to the south is the Wisconsin River. The County is bisected from North to South by the Scenic Kickapoo River.

A view of Crawford County's Rolling Landscape

The first known inhabitants of Crawford County were prehistoric Native American tribes, including the Ho-Chunk, Sioux, Fox, and Dakota. Traces of their presence have enhanced the cultural history in the form of artifacts, archeological remains, and animal-shaped burial mounds, some of which are preserved for public viewing at Effigy Mounds National Monument across the river north of Marquette, Iowa.

Explorers Marquette and Joliet were the first European explorers to arrive in Crawford County in 1673. Voyageurs, entrepreneurs, and traders of French, British, and American decent followed and developed military interests in the area. They explored the land and sought fortune, trading their goods at their annual meetings of traders and trappers still celebrated today. The French called the area 'Coulee de Male', hence the name of the area today as the Coulee region. Many stayed to live out their lives in this special area, and it soon became an established and well-known region. Crawford County was created on October 26th, 1818, from a territory of the Michigan legislature. Named after William H. Crawford, a Georgia senator and James Monroe's Treasurer at the time, Crawford County covered the entire western half of Wisconsin. At this time, the County covered all land north of the Wisconsin River, but it was later divided to such an extent as to become one of the smallest counties in the state. In 1836 the County was transferred to the newly formed Wisconsin Territory as Michigan prepared for statehood.

Today there are 11 town governments in the county ranging in size from the Town of Bridgeport's 23 square miles to the Town of Freeman that covers 78 square miles. The county also has 10 villages ranging in size from De Soto's 1.3 square miles to the

Village of Steuben with 6 square miles. The City of Prairie du Chien is approximately 6 square miles in size and is the only local government that is incorporated as a City. As of 2023, Crawford County's population was estimated at 15,944, down 700 people , or 4.2%, from the 2010 census figure of 16,644.

Agriculture Snapshot

The following tables illustrate historical trends in agriculture over the past 30 years. Table 2-1 shows that the total number of farms in Crawford County was increasing from 1992 until 2007 but has since been decreasing. Crawford County has fewer farms than they did in 1992. The table also illustrates that farms are being fragmented as the number of farms over 180 acres has substantially decreased over the 30-year period. Also interesting to note is that the primary occupation of the principal operator being a farmer is also decreasing. These trends mirror the changes that are occurring across the state.

Table 2-1 Farms by Size and Type (Crawford County)

	Farms by Size							Principal Operator by Primary Occupation	
Year	1-9 Acres	10-49 Acres	50-179 Acres	180-499 Acres	500-999 Acres	1,000+ Acres	Total	Farming	Other
1992	56	80	296	443	88	15	978	689	289
1997	33	90	322	424	74	15	958	570	388
2002	42	202	532	409	70	23	1,278	700	578
2007	54	303	565	347	59	19	1,347	545	802
2012	31	235	472	291	53	23	1,105	481	624
2017	39	217	445	236	70	27	1,034	-No Data-	-No Data-
2022	49	205	343	215	60	27	899	-No Data-	-No Data-

Census of Agriculture - County Data - USDA, National Agriculture Statistics Service

Table 2-2 illustrates cropland information for Crawford County. The table shows that corn production has remained relatively stable over the 32-year period. However, the acres of hay harvested has been cut in half over the period while soybean production has gone from 78,000 bushels in 1990 to 884,971 bushels in 2022.

Table 2-2 Crawford County Changes in Crop Acres and Production

	Corn for Grain		Corn for Silage		Hay All (dry)		Soybeans	
Year	Harvested (acres)	Production (bushel)	Acres Harvested	Production (tons)	Acres Harvested	Production (tons)	Harvested (acres)	Production (bushel)
1990	31,000	3,830,000	4,100	65,000	57,300	166,900	1,400	78,000
1995	22,900	2,539,000	6,600	88,100	45,600	123,000	2,200	103,600
2000	23,600	3,157,000	5,600	90,800	37,700	126,100	9,800	463,000
2005	26,700	4,650,000	4,500	93,000	34,100	96,800	12,800	683,000
2007	28,800	4,340,000	4,100	74,000	29,300	74,500	12,800	572,000
2012	31,576	3,813,598	4,615	65,681	29,629	82,529	15,002	546,586
2017	28,502	4,766,355	4,463	85,627	24,039	63,491	18,576	800,293
2022	27,904	4,708,427	2,709	52,471	20,086	45,901	17,481	884,971

USDA-National Agriculture Statistics Service

Table 2-3 illustrates that the number of milk cows, cattle, and hogs all have greatly decreased since 1990. Both milk cows and hogs have decreased by over 50 percent, while cattle decreased by around 46 percent. In addition, annual milk production also decreased by over 50%.

Table 2-3 Livestock Changes (Crawford County)

Year	Milk Cows		Cattle	Hogs All
	Annual Milk Production	Annual Average Milk Cows		
1990	244,480	19,100	53,500	20,900
1995	209,250	15,500	47,000	14,000
2000	180,180	11,700	40,000	9,500
2005	150,720	9,600	39,000	8,500
2007	146,940	9,300	37,500	7,000
2012	135,240	8,400	35,500	-No Data-
2017	-No Data-	-No Data-	31,506	6,986
2022	117,760	6,200	28,746	-No Data-

USDA-National Agriculture Statistics Service (NASS) Quick Stats

A NASS CropScape map can be found in Appendix D and shows a visual representation of Crawford County's 2024 agricultural commodities and their distribution throughout the county.

Geography and Geology

Crawford County's deeply dissected valleys characterize the driftless area with elevation changes from valley floor to ridge top averaging 300-400 feet. The steep forested hillsides give way to narrow agricultural lands on the valley floor and ridge tops. Two main north-south ridges in the county define the Kickapoo River Valley. State Highway 27 is located on the westernmost ridge. Many rock outcroppings can be seen throughout the county on steep hillsides. Fractured bedrock of dolomitic limestone and porous sandstone are allowing rapid water movement to aquifers once water reaches those layers. Karst topography, which includes caves and sinkholes, is common in the area which can raise additional significant groundwater protection issues. Area sinkhole/ karst feature and bedrock depth maps can be found in Appendix D.

Resource Assessment

A key to planning and understanding land and water resources is to have an assessment of the resources. The following information has been gathered to provide a clear picture of the land and water resources and their condition.

County Soils

In general, there are five soil areas, Uplands, Sandy terraces, Silty terraces, Silty bottoms, and Alluvial.

The Uplands are made up mainly of Fayette and Dubuque soils. Where ridges predominate, the soils are on rolling ridgetops in uplands that are deeply dissected. Slopes are predominantly 5 to 15 percent. Steep, stony areas have many escarpments of bedrock. Slopes are between 30 and 60 percent.

Soil preservation is important to crop production.

Principal soils in the Sandy terraces are those of the Dakota and Sparta series. They are nearly level and are in two areas of the county. One is by Prairie du Chien and is a nearly level plain underlain by acid sand and gravel. The Mississippi River deposited the coarse-textured underlying materials at the time of the Wisconsin glacier. The other is along the northern half of the Kickapoo River. They are subject to serious erosion and in places runoff has cut deep gullies far into the terraces.

Silty Terraces have silty soils on highly dissected terraces, or benches. The Bridgeport Terraces lies about 120 ft. above the Wisconsin River and occupies approximately 4,200 acres. Other terraces go up the Wisconsin and Kickapoo valleys. The Citron and Haney Valley consist of old channels formed by the meandering Kickapoo River. The Hogback Prairie State Natural Area is an oxbow feature now preserved by the Wisconsin DNR for its unique topography, fauna, and flora.

Silty soils on bottomlands are generally Arenzville, Orion, and Chaseburg. They are in the major drainage ways in the interior of the county. They are productive but their use is limited due to occasional flooding.

Alluvial land has wet sandy soils on the bottoms of the Mississippi and Wisconsin Rivers. Its texture varies but is mainly silt, coarse sand, and gravel. It has a high, fluctuating water table.

Cropland and Gully Erosion

Crawford County has had several inventories and surveys that have determined cropland soil loss rates. Midwest Reclamation Planners completed a Soil Erosion Control Plan in 1987 and calculated an average erosion rate of 8.5-tons/acre/year-soil loss, this figure is above the T-value or allowable soil loss limit of 5.0 tons/acre/year on average. With the advent of the USDA 1985 Farm Bill and the Farmland Preservation Program conservation compliance implementation as major conservation practice generators in Crawford County, soil loss rates had been *reduced* to an average of 2.2-tons/acre/year-soil loss as figured in the 2009 Crawford County transect survey. Crawford County has not conducted a transect survey since 2009, though will consider surveying again in the near future. Each year the Crawford County LCD and NRCS assist producers in laying out additional contour strips, which will also greatly aid in reducing erosion. Producers in Crawford County are utilizing more and more no-till planting as well. According to the 2022 National Agricultural Statistics Service census, 27% of producers are utilizing no-till practices and another 19% are utilizing reduced tillage practices, an increase of 2% and 3% respectively from the 2017 census data.

Gully erosion continues to be an elusive measurement to gather. Sheet and rill erosion from cropland continues to have the majority of attention from such measurement tools as the Revised Universal Soil Loss Equation (RUSLE II). Administrative rule (ATCP 50.04) and NRCS policy both require the use of RUSLE II. Gully erosion methods have not undergone change for two decades. Because of the deeply carved hills and valleys in Crawford County measurements are a guess at best.

Animal Waste

Barnyard runoff and land spreading of manure (especially on frozen ground) are the two principal sources of animal waste pollution in Crawford County streams and wells. Bacteria, sediment, ammonia, and nutrients are the major culprits that foul county water and cause or contribute to water quality impairments and risks to public health.

Crawford County farmers have followed a statewide trend and expanded their operations, resulting in fewer barnyards and more confined herds. The result is fewer barnyard issues, but more land spreading problems, especially in late winter and early spring. Currently, sixteen dairies in the county average between 100 and 200 cows milked daily with approximately a third confining the herd and two thirds using pasture in their management. The rotational grazing community is growing and is beyond 35% of the dairies and milking approximately 20% of the estimated 14,000 cows in the county (source – UW Extension, USDA-NRCS, LCD discussions, 2025). Properly managed grazing has been shown to greatly reduce overland flow of waste to waters of the state.

Nutrient Management

When farming started in Crawford County, animal manure was a valuable commodity. It was stacked, saved, and spread to increase crop yields. As commercial fertilizer became available, manure became a waste product, not fit to haul any distance. The pendulum has swung back to the valuable side for manure. As soil health is better understood, and environmental regulatory pressures are brought to bear, animal waste is again being managed more carefully.

Poorly managed nutrients can wash into county wells or into nearby surface waters. The Crawford County Land Conservation Department helps distribute private well testing kits, screening primarily for nitrates and coliform bacteria.

Southwest Technical College conducts annual training for Crawford County farmers to become certified to prepare their own nutrient management plans. In addition, cost sharing has been available through the Land Conservation Department and NRCS' EQIP program to hire consultants to write nutrient management plans. The percentage of crop ground covered by a nutrient management plan has increased from less than 1% in 2010 to 21% in 2024. Of the 16,064 acres covered by a NMP in 2024, the majority of the acres fall within the Rush Creek, Tainter Creek, and Kickapoo River Watersheds due to Farmland Preservation Zoning within the Towns of Freeman, Utica, and Haney.

Watersheds

There are seven primary watersheds in Crawford County: Tainter Creek- Kickapoo River Watershed, Kickapoo River Watershed, Knapp Creek Watershed, City of Boscobel- Wisconsin River Watershed, Wisconsin River Watershed, Bloody Run- Mississippi River Watershed, and Rush Creek- Mississippi River Watershed (for map, see Appendix D).

*The Tainter Creek- Kickapoo River W*atershed lies within the north-central part of Crawford County. All waters flow to the Kickapoo. Much of the acreage is wooded. The remainder is either agriculture or private property not farmed. A multi-million dollar apple industry is located on the ridge east and west of Gays Mills. Agriculture strongly persists here with recreational ownership not as advanced as in other areas of the county. An eclectic population is very active in land use policy. Eroding stream banks are common. Many of the riparian areas hold DNR fishing easements.

The Kickapoo River near Gays Mills

The Kickapoo River Watershed in south central Crawford County includes all streams that flow to the Kickapoo between Gays Mills and Wauzeka. Several shallow oxbow lakes can be found adjacent to the Kickapoo. Almost half of the acreage is woodland.

The Knapp Creek Watershed, on the eastern border of the county, overlaps into Richland County and drains to the Wisconsin River above Boscobel. There are no major municipalities in this watershed. The Crawford portion of the watershed is mostly wooded.

The City of Boscobel- Wisconsin River Watershed is south of the Knapp Creek and east of the Kickapoo River Watersheds and is found in the southeast corner of Crawford County, encompassing the area around the City of Boscobel and the unincorporated community of Mt. Zion. This watershed is a mix of agricultural and forest land and drains into the Wisconsin River at and below the City of Boscobel.

The Wisconsin River Watershed extends from the mouth of the Wisconsin River upstream to Wauzeka on both sides of the river and includes a portion of Grant County. Much of the acreage is forested. The remainder is either in agriculture or private property not farmed. There are significant wetlands in the floodplain near the mouth of the Wisconsin River.

The Bloody Run- Mississippi River Watershed is located in the southwestern corner of the county and extends from the City of Prairie du Chien north towards the Lynxville Dam and accepts all drainage west of Highway 27. This watershed contains a lot of steep, rugged hillsides. Along the river above Highway 35, there are numerous west-facing dry bluff prairies. Many of these prairies are being taken over by red cedar and various types of brush.

The Rush Creek- Mississippi River Watershed is in the northwestern corner of the county and extends west from Highway 27 toward the Mississippi River. It has steeply wooded hillsides with narrow ridge tops and valleys. Rock outcrops along the bluffs facing the Mississippi are common. The scenic beauty found in the watershed has attracted many new landowners that have built seasonal and permanent homes. Most streams in this watershed are trout streams with eroding stream banks and lack of adequate trout habitat. Purple loosestrife is a widespread exotic invader (source - Wisconsin Wetlands Assn.). Biological control methods have been used in this watershed to help control the purple loosestrife, though dense stands persist throughout. There are many small steep prairies on the bluffs that create a unique climate for rare flora and fauna, including the Rush Creek State

Natural Area owned and protected by the WI DNR. The Mississippi Valley Conservancy is also active here purchasing conservation easements.

Watershed Rankings and DNR Basin Plan Recommendations

Crawford County contains all or part of seven watersheds as delineated by DNR. These watersheds are part of two different river basins, managed as Geographic Management Units (GMUs) by DNR. These watersheds are designated Low, Medium, High, or Not Ranked in the Basin plans as a priority for projects to curb Non-Point Source (NPS) pollution.

Under the Clean Water Act, states must submit 303 (d) lists of impaired waters to the Environmental Protection Agency (EPA) for the purpose of developing Total Maximum Daily Loads (TMDLs). The following table summarizes the impaired waters in Crawford County. A map of the county's impaired waters can be found in Appendix D.

Table 2-4 Crawford County Impaired Waters (303d) List

Waterbody Name	Watershed	Length Impaired	Reason for Impairment
Halls Branch	Kickapoo River	3 miles	Sediment
Kickapoo River	Kickapoo River	6 miles	Phosphorus
Mississippi River	Rush Creek- Mississippi River & Bloody Run-Mississippi River	All in Crawford County	Mercury, PCB, Phosphorus
Richland Creek	City of Boscobel-Wisconsin River	All	Phosphorus
Tainter Creek	Tainter Creek- Kickapoo River	All in Crawford County	Elevated Temperature
Unnamed Tributary to Knapp Creek	City of Boscobel-Wisconsin River	All	Phosphorus
Wisconsin River	Wisconsin River & City of Boscobel- Wisconsin River	All in Crawford County	Mercury, PCB

Hydrology and Fish Habitat

The streams of Crawford County are defined and greatly influenced by the steep topography of the area. This terrain creates a higher risk for erosion and delivery of sediment and nutrients to surface waters. Seven watersheds, defined by the Wisconsin DNR, lie within the county: Tainter Creek- Kickapoo River Watershed, Kickapoo River Watershed, Knapp Creek Watershed, City of Boscobel- Wisconsin River Watershed, Wisconsin River Watershed, Bloody Run- Mississippi River Watershed, and Rush Creek- Mississippi River Watershed.

A rip rap project in the County

Crawford County contains approximately 415 miles of streams (recent source – DNR personnel) (excluding the Mississippi River), with 55 different streams totaling 308.12 miles (or 74%) classified as trout streams. See Table 2-5 for a list of trout streams located in Crawford County. Of these, 186.14 miles of streams (or 45% of all streams) are classified Class I trout streams. Class I trout streams are those streams which have sufficient natural reproduction to sustain populations of wild trout, at or near carry capacity. Consequently, streams in this category require no stocking of hatchery trout. There are no natural lakes in the county. There is a map of the different trout stream classifications in the county located in Appendix D.

Table 2-5 Trout Streams in Crawford County

Baker Creek	Halls Branch Creek	Plum Creek
Bear Creek	Hoover Hollow Creek	Richland Creek
Boydtown Creek	Kickapoo River	Rush Creek
Buck Creek	Knapp Creek	Sand Creek
Citron Creek	Leitner Creek	South Branch Copper Creek
Clear Creek	Little Kickapoo Creek	South Fork Sugar Creek
Cooley Creek	Nederlo Creek	Sugar Creek
Copper Creek	North Branch Copper Creek	Tainter Creek
Du Charme Creek	Otter Creek	Trout Creek
East Branch Richland Creek	Picatee Creek	Upper Copper Creek
English Run	Pigeon Run	West Fork Knapp Creek
Gran Grae Creek	Pine Creek	20 Unnamed Creeks

Because of the topography of Crawford County, sediment from eroding streambanks is a major contributor to the degradation of the county's surface waters. Streambank erosion occurs naturally at many sites. It is caused by steep stream gradients, which result in high stream velocities. Sites not pastured for extended periods typically grow trees and other woody vegetation that replace dense grass cover. This woody vegetation cover instead of a grass cover results in barer ground which erodes easier. Trees fall into streams and further accelerate the process.

Although streambank erosion occurs naturally, the problems are accelerated by erosive land use activities. According to Monroe County's Land and Water Resource Management Plan (2018), a Middle Kickapoo River Watershed Inventory showed that 66% of the degraded streambanks in the watershed had agricultural erosive impacts. This is a reasonable figure to apply to Crawford County.

Outstanding and Exceptional Resource Waters of Crawford County

The creation of Chapter NR 207 "Water Quality Standards for Wisconsin Surface Water," allows the Department of Natural Resources to classify high quality streams as outstanding resource waters (ORW) or exceptional resource waters (ERW). Waters designated as Outstanding Resource Water or Exceptional Resource Water are surface waters which provide outstanding recreational opportunities, support valuable fisheries and wildlife habitat, have good water quality, and are not significantly impacted by human activities. A map of Crawford County's Exceptional Resource Waters can be found in Appendix D.

Table 2-6 Exceptional Resource Waters of Crawford County

Stream Name	Watershed	Miles	ORW/ERW
Boydtown Creek	Knapp Creek	.7	ERW
Cooley Creek	Rush Creek	All	ERW
Copper Creek	Rush Creek	All	ERW
Plum Creek	Lower Kickapoo River	All	ERW
South Branch Copper Creek	Rush Creek	All	ERW
Tainter Creek (County B to County Line)	Reads / Tainter Creek	4.8	ERW
Wisconsin River	Several	All	ERW
Sugar Creek (S10) upstream	Rush Creek	7	ERW

Crawford County currently has no water body designated Outstanding Resource Water.

The Blackhawk/Kickapoo Dam #6

Crawford County actively operates and maintains one large, earthen embankment flood control dam built under the federal program PL566 in partnership with USDA/NRCS. The county follows a designated inspection schedule, hiring a professional

consultant some years and having a DNR inspection every 10 years. Reduction of serious flash flooding in Johnstown valley in the north central part of the county is the primary purpose of the dam. The dam does not permanently impound water. Nederlo Creek flows through the structure.

Wetlands

Crawford County has experienced a decline in the number and quality of wetlands (source – NRCS). The DNR wetland inventory (1979) shows 27,331 acres or 7.5% of the total county acreage as wetlands, the majority located along major stream corridors and in the lower Kickapoo River system as it approaches the confluence with the Wisconsin River.

Wetlands are vital for flood storage and ground water regeneration.

Substantial wetland acreage occurs along the Mississippi and Wisconsin River valleys and are managed by the US Fish and Wildlife Service in the Mississippi and the DNR in the Wisconsin River Valley. The Wisconsin DNR and the US Army Corp of Engineers require mitigation (a creation) when natural wetland sites are destroyed. State and federal programs, primarily the Wetlands Reserve Program (WRP) administered by the NRCS have been available to cost-share with private landowners who wish to return their ditched, tiled, or drained fields to wetlands. Very few landowners are continuing to participate in this program.

Forest Land

Most of Crawford County's forests grow on productive, silt loam soils. Hardwoods dominate the landscape. 50% of Crawford County's 184,400 acres are forested. That is an increase from the 1980 inventory, of 47%. This increase can be attributed to field abandonment, conversion to pasture, tree planting and changes in inventory criteria.

Over 93% of the forested lands in Crawford County are privately owned. Fragmentation of land and use value assessment have had an impact on forest land in the County. Impacts include:

Land fragmentation impacts forest and ag

Land Fragmentation

Subdividing land into smaller parcels results in the property having management issues for certain forestry practices. The fragmentation and selling of parcels to multiple landowners impacts the County's forestland. In many cases once forestland is sold its use changes to a residential parcel or a recreational parcel. Upon this happening the property is more actively used and forest management is often overlooked. The activity many times disrupts wildlife habitat and due to mismanagement (in most cases unintended) invasive species thrive, and the productivity of the forest is reduced.

Use Value Assessment

Overgrazing of livestock in woodlands remains an important issue for forest managers. Livestock in the woods compact the soils, trample and eat young trees, damage larger ones and generally reduce the productivity of most woodlands. The shift in Wisconsin's use value assessment has put pressure on landowners to pasture woods to change their highly assessed "recreational land" into cropland. This threatens to reverse some of the progress made in recent years to restrict livestock from more productive woodlands. However, the change has caused an increase of enrollees in the Wisconsin DNR's Managed Forest

Law Program that reduces their taxes while requiring a responsible woodland management plan. As of January 1, 2025, a total of 798 properties have 49,050 acres of forestland enrolled into the Managed Forest Law Program.

Climate Change

According to the Wisconsin Initiative on Climate Change Impacts (WICCI) 2021 Assessment Report, Wisconsin is becoming generally warmer and wetter and the decades ahead are likely to bring changes much more profound than those seen so far, according to climate models. In both Wisconsin and specifically Crawford County, the average annual temperature rose about 3° Fahrenheit since 1950. The average precipitation in Wisconsin has increased by 17 percent since 1950, with the southern half of the state, including Crawford County, showing a 20 percent increase in that time frame. According to the WICCI report, the amount of water that flowed into the Mississippi River in 2019 was double the historical average. Several climate change maps can be found in Appendix D.

The state's climate scientists suggest that Wisconsin's warming trend will not only continue, but it will also increase considerably by the middle of this century. Wisconsin climatologists say the state is likely to continue its trend toward more precipitation overall, with the most probable increases in winter, spring, and fall. The projected increase in annual rainfall and more intense rainstorms heighten the potential for significant soil erosion in the Driftless Area, affecting water resources and agriculture. Without appropriate adaptation measures, future soil erosion rates could double by 2050 compared to 1990 rates. Agricultural lands hold enormous capacity for climate change adaptation and mitigation, including capacity to efficiently help reduce flood events at or below the 25-year/storm threshold, manage flood waters, mitigate risks to public health, and restore or improve water quality. According to the Environmental Impact Statements conducted in Vernon and Monroe Counties for the removal of several of their PL-566 dams, the 25-year/storm threshold was confirmed and would apply to similar watersheds and dam conditions within Crawford County. Changes in temperature and precipitation could affect Wisconsin's growing seasons, crop yields, weed and pest infestations, and animal productivity.

Invasive Species

County citizens have become more aware of invasive plants and animal species. The public is becoming more aware of new threats and is willing to get involved in control measures. Crawford County has been involved in several projects in attempts to control invasives and spread the word on how important of an issue it is. Some of the biggest threats include garlic mustard, buckthorn, honeysuckle, wild parsnip, crown vetch, purple loosestrife, reed canary grass, Japanese hops, and Japanese knotweed. There are numerous funding sources available to help control invasive species, especially if it is an aquatic invasive species. Currently, the Crawford County Land Conservation Department utilizes WI DNR funding to hire an Aquatic Invasive Species Coordinator to conduct Clean Boats, Clean Waters outreach efforts. Spongy moth and Emerald Ash Borer are pests that pose a great threat to the County's forested lands. Spongy moths are not abundant in the County but continue to be a growing threat as they spread from the east. The WDNR operates a Spongy moth suppression program with a goal to stop the spread of the insect. The Emerald Ash Borer is a major threat to ash trees in the county, region and state. As EAB has been found in several sites in the county, Crawford is now included in the "EAB Quarantine Area". This means that no firewood is allowed to be transported out of the county. Once detected the state implements plans to deal with infestations. Unfortunately to date, methods to control the spread of the ash borer have had limited success.

Groundwater Well Monitoring

Crawford County has made an effort in recent years to increase the amount of private well testing occurring in the county. The Crawford County Land Conservation Department and Health Department have partnered with Vernon and Richland Counties on a multi-county effort, known as the Driftless Area Water Study (DAWS), to spread awareness of the importance of regular well testing and to increase the amount of well testing data throughout the area. Collected data shows numbers similar, if not slightly better, to statewide averages in regard to nitrate and bacteria contamination. Data from the four rounds of testing is shown in Table 2-7. Collected data will be entered into the statewide Well Water Quality Viewer website and thus bolster the existing Crawford County dataset. Crawford County will be able to assess and track nitrate levels over time, which can be used to help focus soil and water conservation practices within specific areas of the county with high nitrate wells. Crawford County will look to continue coordinating county-level private well testing efforts and will seek out grant opportunities to hopefully cover landowner expenses for the sampling analyses. Crawford County well testing result maps from the UWSP- Well Water Viewer and a DAWS project nitrate map can be found in Appendix D.

Table 2-7 Coordinated Well Testing Results in Crawford County

	October 2020		April 2021		November 2022		November 2024	
NITRATE mg/L	#	%	#	%	#	%	#	%
Not Detected	18	20	21	22	10	27	33	100
<=2.0	32	36	32	34	10	27		
2.1- 5.0	22	25	23	24	11	30		
5.1- 10.0	11	12	10	11	4	11		
10.1- 20.0	6	7	6	6	2	5	0	0
>20.0	0	0	2	2	0	0	0	0
Average Nitrate	2.9	-	3.1	-	2.6	-	-	-
Coliform Bacteria present	22	25	10	11	10	27	13	26
E. coli positives	4	18	0	0	1	10	1	8
Total Samples	89	-	94	-	37	-	49	-

**Please note that the November 2024 testing did not produce results that showed each specific samples nitrate level, just a cumulative summary of the number of wells above or below the 10 mg/L health standard.

Section 3: Goals, Objectives and Actions

Public and Agency Input

Throughout the planning process several agencies and groups have been given the opportunity to provide input regarding the goals, objectives, and actions, they are: Crawford County Soil & Water Concerns Committee, Crawford County Land & Water Plan Advisory Council, Crawford County departmental staff, USDA-NRCS Field Office staff, the WI-DNR Forestry staff, the UWEX Ag/Resource Agent, and other local groups and agencies.

County Land & Water Plan Advisory Council

- As the Crawford County Land and Water Plan was being updated, this committee was used to provide technical expertise to the process and were the primary drafters of this plan. These meetings took place in the spring and summer of 2025.

Land Conservation Committee:

- The Committee reviewed past goals, objectives and actions at several Spring of 2025 meetings and based on public input from the comprehensive planning process discussed revisions. The draft goals, objectives and actions were then forwarded to USDA-NRCS Field Office staff, USDA-FSA staff, the WI-DNR Forestry staff, the UWEX Ag/Resource Agent, and other local groups and agencies for comments. At its December 9, 2025, meeting, the Land Conservation Committee (LCC) reviewed and approved the plan in draft form.

Land Conservation Staff:

- Throughout the LWRM plan review process staff provided input and assisted with updating information.
- Had members on the Land & Water Plan Advisory Council.

USDA-NRCS Staff:

- Sent draft of revised plan and requested review of goals, objectives and actions.
- Had a member on the Land & Water Plan Advisory Council.
- Continued contact throughout review process.

WI-DNR Forestry staff:

- Sent draft of revised plan and requested review of goals, objectives and actions.
- Had a member on the Land & Water Plan Advisory Council.

UWEX Staff:

- Sent draft of revised plan and requested review of goals, objectives and actions.
- Had a member on the Land & Water Plan Advisory Council.

WI – DNR Regional Nonpoint Source Coordinator:

- Sent draft plan and requested review of goals, objectives and actions.
- Had a member on the Land & Water Plan Advisory Council.

Crawford Stewardship Project:

- Sent draft of revised plan and requested review of goals, objectives and actions.
- Had a member on the Land & Water Plan Advisory Council.

Land and Water Management Plan Goals, Objectives and Actions

Goals, objectives and actions have been developed for the Crawford County Land and Water Resource Management plan based on information gathered and public input. Goals are meant to be general statements that the Land Conservation Department/Committee desires to achieve through implementation of the LWRM plan. Following each goal are objectives and actions which have been identified as steps to achieve the plan goals. The goals developed fall under five categories that address protecting, preserving and enhancing the natural resources of Crawford County. Located in Appendix B is the Crawford County Land and Water Resource Management Plan "Action Plan" that provides greater detail regarding implementation funding, responsibility, and priorities. The Land Conservation Department will use this LWRM Plan to create an annual work plan, which will be submitted to DATCP each spring during the SWRM Grant application process. Also during this application process, the LCD will submit an accomplishment report for the previous year.

Category 1 - Soil Erosion

Crawford County experienced significant erosion through the early 1900's. Upland cropland erosion has been addressed in the county since the early 1950's. The county's topography makes managing soil erosion difficult. Crawford County has seen a significant increase in the amount of corn and soybeans grown since the 1990's, and a decrease in the amount of hay land during the same period. When comparing the entire county's average production from 1990-2000 to that from 2012-2022, Table 2-2 in this plan shows that the average corn grain production has risen from 3,175,000 bushels to 4,429,460 bushels. Looking at similar soybean data, average production has risen from 214,866 bushels to 743,950 bushels, an increase of 346%. The average hay production decreased from 138,667 tons to 63,974 tons, a decrease of 46%. One of the principal reasons for these changes is a decrease in the number of dairy farms.

The Crawford County Soil Erosion Control Plan (1987) estimated the county wide average cropland erosion rate at 2.2 tons/acre/year. The county average tolerable soil loss limit is 2.0 tons/acre/year. A large number of farmers have adopted contour strip cropping and/or reduced tillage or no-till planting. Increasing large-volume precipitation events in Crawford County, such as those in August 2019, June 2021, and March 2024, have caused widely noticed sheet, rill, and gully erosion. The Rush Creek-Mississippi River Watershed has taken the brunt of these recent storms. More waterways and effective use of good ground cover and contour strips are needed. Soil erosion rates for watersheds based on soil transect surveys conducted in 2009 can be found in Table 3.1. *Note that Crawford County now tracks HUC-10 watersheds so boundaries and names are slightly different than they were at this time.

Table 3-1 Soil Erosion Rates (2009)

Watershed	Cropland Acres	Total Soil Loss (Tons/Yr.)	Average Erosion Rate(T/AC/YR)
Rush Creek	27,946	101,505	3.8
Milville Creek	10,324	34,381	3.3
Lower Kickapoo River	22,428	61,482	2.9
Reeds & Tainter Creeks	18,334	37,186	2.8
Knapp Creek	18,868	49.885	1.7

Crawford County conducted an annual countywide transect survey from 1999-2009. Moving forward, Crawford County may use the transect survey to model erosion rates in specific watersheds. Nutrient Management Planning and the Snap+ software will also aid in tracking soil loss patterns in the Towns of Freeman, Haney, and Utica, where Farmland Preservation has resulted in a higher percentage of farms covered by a Nutrient Management Plan. Watersheds within those towns would include the Rush Creek- Mississippi River Watershed, the Tainter Creek- Kickapoo Watershed, and the Kickapoo Watershed. By 2030, Crawford County will have a better idea of which soil erosion prediction method is best suited for the county and will continue to utilize that tool going forward.

Cropland is a vital resource to the County

It is important that soil erosion issues on land other than croplands are also addressed. Some additional sources of soil erosion are stream banks, overgrazed pastures, logging roads, access roads, driveways, and roadsides. The eroded soil from such uses ends up in the streams and rivers of Crawford County as sediment. Sediment carries nutrients, which affect the water quality. Sediment can also cover trout spawning beds which negatively affects natural reproduction in streams.

These sources are difficult to inventory and need to be addressed on a case-by-case basis. Education is needed to prevent erosion versus continually repairing damage.

Several agencies will be involved in the implementation of the soil erosion reduction efforts, they are: Crawford County Land Conservation staff, WI DNR NPS staff, USDA-NRCS Field Office staff, USDA-FSA staff, WI DNR Forestry staff, UWEX Ag/Resource Agents, and local conservation clubs and organizations.

Goal 1 | Maintain soil erosion on all cropland to "T".

Objective A

Track average soil loss in Crawford County on all cropland.

Actions:

1. Use Nutrient Management Planning to track soil erosion estimates on 500 acres per year.
2. Maintain a database of soil erosion estimates.
3. Compare aerial photos, LiDAR data, and Nutrient Management Plan data to assess changes over time at 10 farms.

Objective B

Inform and educate landowners on soil and water conservation practices.

Actions:

1. Provide specialized outreach information to absentee landowners annually.
2. Annually update and distribute a model rental contract with soil erosion prevention items in it.
3. Create an information packet on conservation programs, practices, and agencies to provide to landowners, and update it annually.
4. Work one-on-one and provide outreach information to landowners as they call or visit.
5. Develop an outreach packet for realtors and title companies to give to new rural landowners.

Objective C

Reduce soil erosion to "T" tolerable soil loss limit on all cropland.

Actions:

1. Write 5 annual conservation plans and treat cropland to tolerable soil loss levels or less.
2. Provide technical assistance to landowners to install 500 acres of contour strips and contour buffer strips per year.
3. Promote no-till, zone-till, and reduced tillage systems, as well as cover crops with 15 landowners per year.
4. Encourage landowners that crop fields on 'D' slopes (12-20%) or steeper to use less intensive cropping practices.
5. Promote diverse crop rotations.
6. Focus education efforts and soil erosion programs and practices within watersheds with phosphorus or sediment impaired waters.

Objective D

Provide examples of good conservation ethics to landowners.

Actions:

1. Provide 2 annual local news releases highlighting conservation.

Goal 2 | Reduce erosion on land other than cropland.

Objective A

Administer the county's NR135 Non-metallic Mining Reclamation Ordinance.

Actions:

1. Permit 1 new non-metallic mining operation per year
2. Annually inspect all permitted non-metallic mines and ensure compliance with NR135 and certify properly reclaimed acres.
3. Collect annual data and fees from NMM operators and submit the county's annual report/ fees to WIDNR.

Objective B

Work with area contractors on utilizing best management practices.

Actions:

1. Participate in Best Management Practices workshops as needed during this 10-year plan
2. Provide technical assistance to 5 landowners per year on proper construction, repair, and maintenance of driveways, logging roads, and access roads.
3. Advise BMPs for earth work activities (logging, brush mowing, logging road construction) to protect water quality.

Objective C

Inform landowners on methods to prevent erosion on land other than cropland.

Actions:

1. Develop 1 model logging contract or encourage landowners to work with forestry consultants on developing an adequate logging contract for their property.
2. Promote the WI DNR's 10-Step Landowner Pamphlet for conservation-minded land ownership.
3. Promote intensive rotational grazing practices and the Great River Graziers' pasture walks and provide grazing technical assistance to 5 operators per year.
4. Promote the Wisconsin Woodland Owners Association as a resource for forest landowners.
5. Focus soil erosion programs and practices within watersheds with phosphorus or sediment impaired waters.

Objective D

Increase riparian areas protected.

Actions:

1.Work with FSA and NRCS to establish 2 new CREP agreements per year.
2.Provide landowners brochures on the importance of buffers through direct mailings or social media.

Goal 3	Increase money available for cost-sharing to install practices to prevent erosion.

Objective A

Assist landowners in signing up for cost-share programs

Actions:

1. Work with 10 landowners to sign up for USDA financial assistance programs.
2. Work with 2 landowners to sign up for the Wisconsin Forest Landowner Grant Program to secure funds for forest management plan development and site improvements.

Objective B

Provide more cost-share funding.

Actions:

1. Secure and contract annual DATCP SWRM funding for cos-share practices (8 contracts per year).
2. Apply for other state grant funding, such as Target Runoff Management or Notice of Discharge grant every three years.
3. Apply for other applicable funding for conservation work once during this 10-year plan.
4. Focus soil erosion programs and practices within watersheds with phosphorus or sediment impaired waters.

Category 2 - Water Resources

Water resources are extremely important to Crawford County's economic vitality and the quality of life residents enjoy. An abundant supply of clean water (groundwater and surface water) is a necessity in order for agriculture, forestry, tourism and recreational uses to continue to be key elements of the local economy. Public input throughout the planning process stressed the importance of the water resources to landowners and the goals for water resource protection and enhancement reflect the public's sentiments.

Goal 1 | Preserve, protect, restore, and enhance surface, groundwater and riparian areas.

Objective A

Inform and educate landowners (rural and urban), on the proper use and application of fertilizers and pesticides and on methods to prevent chemicals, sediment, and other contaminants from reaching rivers and streams or contaminating groundwater.

Actions:

1. Create a brochure explaining proper use and application of fertilizers and pesticides.
2. Continue the Pesticide Applicator Training program (15 certifications per year).
3. Focus Nutrient Management Plan outreach in areas of the county with phosphorus or sediment impairments or known nitrate well contamination.
4. Partner with UW-Extension on a radio segment highlighting proper lawn and garden fertilizer/ pesticide use.
5. Partner with local wastewater treatment plants on landowner partnerships on phosphorous reduction efforts.
6. Apply for 1 education grants.
7. Provide annual information via radio, newspaper, and social media posts on preventing urban runoff.
8. Work with partners to promote the "Dump No Waste. Drains to River" storm drain stenciling effort.
9. Coordinate annual Youth Conservation Day for approximately 250 area students.
10. Provide annual hands-on experience for students relating to stream rehabilitation and encourage them to speak with their parents about stream health.

Objective B

Reduce the potential of ground water pollution from improperly constructed and mismanaged manure storage structures.

Actions:

1. Work with and educate 1 owner/ operator of a mismanaged manure storage system per year.
2. Provide technical assistance to 3 owners of manure storage structures per year.
3. Permit new storage facilities and storage closures per our ordinance.
4. Promote development of Nutrient Management Plans

Objective C

Reduce groundwater pollution from direct conduits to groundwater.

Actions:

1. Distribute educational materials on sinkholes, well abandonment, septic systems installations and maintenance, and underground tanks once per year.
2. Provide technical assistance on 5 well abandonment and sinkhole protections per year and share geologic testing data regarding sinkhole locations
3. Encourage 2 landowners to sign up for EQIP for well abandonment and sinkhole protection per year.
4. Partner with the Crawford County Health Department to increase opportunities for private well testing/ distribute 10 annual well testing kits.
5. Continue with county-level or multi-county coordinated well testing efforts, such as the Driftless Area Water Study.
6. Pursue groundwater/ bedrock studies and mapping projects to help guide decisions.
7. Raise awareness on PFAS contamination risks
8. Use nitrate testing of public or private wells to focus promoting NMP adoption

Objective D

Reduce sediment delivery from erosion sources.

Actions:

1. Utilize available funding sources to cost share 2 Best Management Practices.
2. Encourage 5 landowners to sign up for cost-share funds and provide technical assistance for installation of BMPs.
3. Conduct 1 public streambank demonstration highlighting rip-rap, lunkers, and a stream crossing.
4. Conduct 1 public demonstration for cattle crossings and rotational grazing systems along a stream.
5. Support partners' surface water quality monitoring and annual Water Action Volunteer Trainings.

Objective E

Protect existing wetlands and increase wetlands through restoration activities.

Actions:

1. Encourage 2 landowners per year to participate in the NRCS Agricultural Conservation Easement Program (ACEP).
2. Work with NRCS, US F&WS, and DNR to promote wetland restoration and ACEP (2 contracts).
3. Inform and educate the public on wetland restoration with outreach events and highlight quality wetlands, such as the Kickapoo Bottoms State Natural Area and Ramsar Wetlands of International Importance located within the Lower Wisconsin Riverway
4. Inform and educate the public about the function and need of wetlands with annual press releases or social media posts.

Goal 2	Implement NR151 Strategy outlined in Section 4 of this plan.

Objective A

Conduct farm inspections to implement the NR 151 Agricultural performance standards and prohibitions.

Actions:

1. Conduct 25 Farmland Preservation Program farm inspections/ year and maintain all Farmland Preservation records of Certificates of Compliance.
2. Complete farm inspection reports to document which operations are or are not in compliance with NR 151 and consult with DNR staff as necessary.
3. Focus farm inspection efforts within watersheds with phosphorus or sediment impaired waters or areas with known nitrate well contamination.

Objective B

Work with WIDNR to coordinate farmer compliance with NR151 standards.

Actions:

1. Document the number of non-compliance determinations (estimated 1-2 farms/ year).

Goal 3	Increase funding for cost-sharing and demonstration projects.

Objective A

Increase the amount of cost-share and grant dollars available to landowners.

Actions:

1. Assist 2 landowners per year with applying for federal cost-share programs.
2. Assist 1 landowner per year with applying for state cost-share dollars.
3. Apply for 2 state grants during this 10-year plan, when they are available, such as Sustainable Agriculture Research & Education grants or Nitrogen Optimization Pilot grant program.
4. Work with local sports groups for to secure 1 grant during this 10-year plan.
5. Work with UW-Ext on 2 on-farm research/ demonstration projects.
6. Participate in an annual meeting with partner agencies for updates and planning.
7. Obtain grants/funds for 1 demonstration project during this 10-year plan.

Objective B

Communicate and coordinate with adjacent counties on projects.

Actions:

1. Partner with adjacent counties on 2 conservation projects during this 10-year plan.

Category 3 - Land Use Planning and Zoning

Land use planning as part of comprehensive plan development has been very important for Crawford County and the towns, villages, and city. Numerous land use issues have impacted the Towns and County ranging from land fragmentation to incompatible land uses. Crawford County and the majority of towns, villages, and city have adopted comprehensive plans. Now the municipalities are at the stage of reviewing and updating their plans. It will be important for County departments and committees, such as the Land Conservation Department and Committee, to continue to provide planning assistance to local municipalities.

Goal 1	Work with the towns on the implementation of their comprehensive plans.

Objective A

Support towns, villages, and cities with the implementation of their land use element goals identified in their comprehensive plans.

Actions:

1. Provide information and education to the local municipalities upon request regarding plan implementation methods through biennial meetings.
2. Connect local municipalities with our online GIS data and maps to help with planning needs and opportunities to expand mapping layers.
3. Encourage comprehensive planning coordination between the county and local municipalities.

Goal 2	Promote and support local land use planning to protect the natural resources of the county.

Objective A

Support towns, villages, cities, state, federal and local/regional agencies with the implementation of land use planning which protects the natural resources of the county.

Actions:

1. Provide information and education to the local municipalities upon request regarding land use planning implementation methods.
2. Inform and educate the public on the importance of land use planning in order to protect the county's natural resources by visiting 2 town board meetings per year.
3. Inform and educate the public about the economic value of the county's natural resources by visiting 2 town board meetings per year.
4. Assist 1 local unit of government with developing land use regulations which protect the natural resources of the county.

Goal 3	Improve and protect the quality of natural resources by the judicious and economic use of nutrients.

Objective A

Inform and educate Crawford County landowners on the wise use of nutrients and promote adoption of NMPs.

Actions:

1. Use radio advertisements, bulletins, social media, demonstrations, and biennial workshops to inform landowners.
2. Work with Southwest Technical College to facilitate training designed to certify landowners to write their own nutrient management plan (5 new plans per year) or provide landowners with access to DATCP's online certification program.
3. Secure grant and cost-share opportunities for 3 new nutrient management plans per year.
4. Work with landowners to complete 5 new nutrient management plans per year.
5. Collect annual NMP Checklists from all FPP zoning participants (90), Animal Waste Storage Permit holders (8), and all Livestock Facility Siting Permit holders (3).

6. Assess how many NMPs were adopted within watersheds with phosphorus or sediment impaired waters or areas with known nitrate well contamination.

Goal 4	Utilize Floodplain Zoning and Shoreland/ Wetland Zoning to protect our natural resources.

Objective A

Enforce Floodplain and Shoreland Zoning Ordinances.

Actions:

1. Use radio advertisements, bulletins, and social media to inform landowners of ordinance rules and regulations.
2. Review permit applications for compliance and issue appropriate permits.
3. Coordinate with DNR and FEMA to ensure the county is properly enforcing statutes and to update ordinances as necessary.

Category 4 - Land Management

Land Management is one of the key components to maintaining Crawford County's unique landscape. Woodland's not only supply habitat for wildlife, but they provide timber for the County's logging and lumber industry. Preservation, enhancement and regeneration of forests is crucial in order to maintain wildlife habitat and an adequate supply of timber for future uses.

Invasive species continue to be a threat to forests, open lands, and the general landscape of the County. Whether it be plant, insect, or animal invasive species, they have been identified as issues necessary to address.

Woodland in Crawford County

Goal 1	Encourage sustainable forestry practices that improve our unique ecosystems.

Objective A

Inform residents and loggers about the importance of sustainable forestry practices.

Actions:

1. Make information available through social media and press releases regarding best management practices to forest landowners and logging companies.
2. Connect 15 landowners with the local DNR Forester.
3. Inform landowners of the DNR's Wisconsin Forest Landowner Grant Program and NRCS' Environmental Quality Incentive Program options.
4. Highlight the threats posed by invasive species via social media posts and press releases.

Objective B

Provide opportunities for residents to practice forest regeneration.

Actions:

1. Conduct annual Tree and Shrub Sale and sell ~4,000 trees/ shrubs per year.
2. Provide outreach information to residents on the WDNR State Nursery Program and the opportunity to purchase seedlings.
3. Promote the WFLGP and EQIP programs as opportunities to obtain funding to assist with tree plantings.

Goal 2 | Protect and enhance important wildlife habitat areas.

Objective A

Inform and educate Crawford County landowners on the importance of wildlife habitat areas.

Actions:

1. Inform and educate the public about the economic value of the county's wildlife through the LCD fair display.
2. Use annual press releases and social media posts to inform the public on wildlife issues.
3. Serve as the agricultural liaison to the Crawford County Deer Advisory Council.
4. Promote annual birding field trips to sites in the county.
5. Coordinate with conservation partners on area field days highlighting properties that have had prairie or oak savanna restoration work.
6. Collaborate on recognition of quality wetland sites/ projects.
7. Maintain prairie on County lands and use as a demonstration area for an annual outreach event.

Objective B

Protect existing wildlife areas and increase the amount of important wildlife habitat.

Actions:

1. Provide technical assistance to 7 landowners per year seeking advice on land management, including activities such as prescribed burning and invasive species control.
2. Administer and distribute WIDNR's annual county allotment for the County Conservation Aids funds.
3. Work with federal and state agencies to secure funds for preserving important wildlife habitat areas by writing 5 letters of support during this 10-year plan.
4. Work with sports groups such as Trout Unlimited and Wisconsin Waterfowl Association to secure funds for wildlife habitat preservation areas on 2 projects during this 10-year plan.
5. Apply for 1 state grant, if available, to secure funds for habitat protection.

Objective C

Protect important wildlife habitat areas from invasive species and pests.

Actions:

1. Inform and educate landowners about the threats posed by invasive species and pests through an annual press release and social media posts.
2. Provide information to landowners on identifying invasive plant, animal, and insect species.
3. Promote (and maintain) the LCD sprayer as a tool to control invasive species (rent to 2 landowners/ year).
4. Obtain DNR LMPN Surface Water Grant funds to annually hire an Aquatic Invasive Species Coordinator intern to provide Clean Boats, Clean Waters outreach to protect area waters.

Goal 3 | Limit wildlife damage to crops.

Objective A

Administer the WIDNR's Wildlife Damage Abatement and Claims Program for the county.

Actions:

1. Assist 5 landowners per year with damage claims and ensure they are in compliance with the program.

Category 5 - Waste Disposal

Proper solid waste disposal and recycling have been an issue for many years in Crawford County. Proper disposal and recycling of waste products protects the landscape and water quality. It is important that waste disposal goals and objectives be implemented in order to protect the County's natural resources.

E-waste recycling

Goal 1	Provide hazardous waste recycling/disposal opportunities.

Objective A

Collect/reuse recyclables.

Actions:

1. Coordinate an annual tire collection event.
2. Coordinate an annual electronics recycling event.
3. Encourage recycling of ag plastics (silo & bale bags) through an annual press release and social media posts.
4. Encourage paint and used battery recycling through an annual press release and social media posts.

Objective B

Collect and remove hazardous waste.

Actions:

1. Encourage collection of mercury and fluorescent bulbs through an annual press release and social media posts.
2. Coordinate an annual Household Hazardous Waste/ Ag Clean Sweep/ Prescription Drug Collection event.

Section 4: Implementation Tools and Strategies

There are numerous programs, tools and strategies available to assist in the implementation of the Crawford County Land and Water Resource Management Plan. During the planning process the Land Conservation Committee evaluated and identified several programs, tools and strategies that can be utilized in cooperation with agency partners to address the land and water resource concerns and help meet the goals and objectives described in this ten-year plan. The following programs, tools and strategies have been grouped and described in like categories.

Information and Education Strategy

Knowledge is power. Cost-sharing, technical assistance and resource monitoring are ineffective unless they are shared in a meaningful way. Landowners and residents that make conservation decisions need to hear the story and the facts about the importance of sustaining and enhancing our precious soil and water resources. It is our belief that if people are provided with information and the facts, they will make good conservation decisions. The key is communication and getting the information to residents and landowners. The following information and education tools and strategies will be used to get information to the public.

School Outreach

Involving and educating the next generation of landowners on land and water conservation issues is critical to meeting future conservation goals. To achieve this, the LCD and committee will continue outreach efforts in the local K-12 educational facilities through activities such as:

- Provide staff for outdoor education activities for county/state school districts, i.e. Wauzeka Badger Camp, Upper Mississippi River Adventure Day, Youth Conservation Days, Prairie du Chien Schools' Outdoor Ed day, Crawford County Dairy Breakfast, Wisconsin Land and Water's Summer Conservation Camp, Boscobel School Forest.
- Annual youth speech and poster contest for all interested school districts in the county.
- Use Enviro-scape at spring high school tour and loan Enviro-scape to teachers.
- Construct stream table and use it at Youth Conservation Day.
- Utilize Prairie du Chien High School for seedling tree and shrub sale.

Youth Conservation Day

Landowner Recognition/Appreciation

Landowners are vital to conservation efforts in Crawford County. Recognizing landowners for their efforts and showing appreciation is an excellent way to spread a positive message about conservation. To achieve this, the County will continue to conduct a yearly Conservation Awards event.

Community Event Outreach

The Land Conservation Department staff and committee will also be active in the community taking the opportunity at community events, county fair, etc. to spread the word and informational brochures and displays detailing the benefits of sound conservation practices.

Landowner Services

Providing landowner services will continue to be a priority to implement land and water conservation practices. Services available to landowners to address the LWRM plan goals include:

- Include time to discuss issues with landowners and farmers when on farm visits or when landowners or farmers visit the office.
- Provide publications to new landowners such as: "Wisconsin's Runoff Rules: What Farmers Need to Know**"** and "Country Acres: A Guide to Buying and Managing Rural Lands".
- Revise and write conservation plans as an ongoing activity and as a contact follow-up.
- Provide private water testing kits and instructions on how to collect and where to send samples.
- Continue with annual tire collection event and Household Hazardous Waste/ Electronics/ and Prescription Drug Collection Clean Sweep.

Training Activities

Training landowners and residents on methods to protect land and water resources is valuable in that they acquire the conservation skills. If landowners acquire the skills and do not have to pay for someone else to implement conservation practices it is more likely that the resources will be protected. Training opportunities provided include but are not limited to involving citizens in monitoring county streams by teaching proper techniques for sampling for critical indicators of water quality, i.e. nitrates, phosphorus, dissolved oxygen, macro-invertebrates, etc. Continue working with Southwest Technical College on training Crawford County farmers to prepare their own nutrient management plans

Media and Legislative Outreach

Communicating conservation issues to the media and legislators is important as a way to generate public awareness and legislative support for programs and services. The Crawford County LCD will continue to publish periodic press releases and natural resources awareness highlights to local newspapers as well as the local radio station. The Land Conservation Committee will also continue to invite legislators to conservation public events and applicable meetings.

Social Media

Crawford County LCD will maintain a very active Facebook page. This page will be used to promote upcoming county events or programs, highlight area conservation projects, and share all sorts of natural resources-related posts. This is a quick and economical way to reach a lot of individuals. LCD staff will create or share dozens of posts each week.

Informational Brochures - Mailings

Crawford County is aware that getting the word out about land and water conservation issues is vital to preserving and enhancing the county's natural resources. The Land Conservation Department will distribute the brochure "What Farmers Need to Know" (WT 756-2003) at the County Fair, with tax bills, at annual Dairy Breakfast, and during farm visits. In addition, the LCD will provide publications to new landowners such as: "Wisconsin's Runoff Rules: What Farmers Need to Know**",** "Owning Rural Lands" a Guide for the Kickapoo Watershed, And "Farmland Conservation Choices".

Regulatory Requirements, Performance Standards, and Priority Farms Strategy

There are several regulatory requirements and performance standards that help ensure implementation of portions of the Crawford Land and Water Resources Management Plan. Crawford County prefers landowners to voluntarily comply with local or state regulations rather than face enforcement measures. When enforcing regulatory requirements, as a policy, the county provides landowners great leeway to seek voluntary compliance. In most cases, landowners recognize the value of improving the land and water quality and implement measures to be in compliance with regulations. The regulatory/performance standards in effect in Crawford County are described below:

Land and Water Management Plan

Crawford County will comply with Wisconsin's Department of Agriculture Trade and Consumer Protection's Administrative rule ATCP 50.12 Land and Water Resource Management Plan. Copies are available at the Land Conservation Department, 225 N Beaumont, Prairie du Chien, WI 53821 or at the county web site www.crawfordcountywi.gov.

Non-Metallic Mining Ordinance

Crawford County adopted a nonmetallic mining reclamation ordinance in response to Wis. Administrative Code NR 135 and it is administered by the Land Conservation Department. This ordinance requires operators of non-metallic mining sites to plan for a specific post-mining reclamation at their sites.

With approximately 30 nonmetallic mines in the county, the Land Conservation Department is occupied inspecting, measuring the acreage covered by mining activity, receiving and reviewing reclamation plans, investigation complaints and other overall technical aspects of the program. Copies are available at the Land Conservation Department, 225 N Beaumont, Prairie du Chien, WI 53821 or at the county web site www.crawfordcountywi.gov.

Manure Storage Ordinance

In 2014, Crawford County revised its Manure Storage Ordinance to cover all manure storage facilities designed to hold manure for more than 30 days, or to hold more than 7,000 cu.ft. of manure, whichever was reached first. This includes stacks and abandoned sites. The purpose of the Manure Storage Ordinance for Crawford County is to regulate the location, design, construction, installation, and use of all animal manure storage facilities. New or substantially altered manure storage facilities shall be designed, constructed and maintained to protect water quality. All permitted operations must have an approved Nutrient Management Plan which properly allocates all of the manure produced from the facility. Copies are available at the Land Conservation Department, 225 N Beaumont, Prairie du Chien, WI 53821 or at the county web site www.crawfordcountywi.gov.

Manure Pit Construction

Livestock Facility Siting Ordinance

In 2006, Crawford County adopted a Livestock Facility Siting Ordinance. The purpose of the ordinance is to seek a balance between the trend of expanding livestock operations and the increase in residences in the rural landscape. This ordinance applies to all new or expanding livestock operations with an animal population of more than 500 animal units (1,000 pounds of animal weight = 1 animal unit). The livestock facility siting ordinance establishes setbacks from roadways and property lines. All permitted operations must have an approved Nutrient Management Plan which properly allocates all of the manure produced from the facility. Copies are available at the Land Conservation Department, 225 N Beaumont, Prairie du Chien, WI 53821 or at the county web site www.crawfordcountywi.gov.

Shoreland Zoning Ordinance

Shoreland Zoning in Wisconsin gives counties the responsibility to further the maintenance of safe and healthful conditions; prevent and control water pollution; protect spawning grounds, fish, and aquatic life; control building sites, placement of structures and land uses; and to preserve shore cover and natural beauty. Shoreland Zoning applies to all development occurring within 300' of any navigable water. There is a 75' building setback and the requirement to maintain a 35' vegetative buffer to create wildlife habitat and protect the waterbody from runoff and contaminants. Copies are available at the Land Conservation Department, 225 N Beaumont, Prairie du Chien, WI 53821 or at the county web site www.crawfordcountywi.gov.

Performance Standards: NR 151 Performance Standards Implementation Strategy

On October 1, 2002, Wisconsin's rules to manage polluted runoff for farms and other sources went into effect. The DNR Administrative Rule NR151 set performance standards and prohibitions for agriculture, construction site erosion, and runoff from streets and roads. DATCP Administrative Rule ATCAP 50 identifies conservation practices that must be followed to meet the performance standards. A summary of performance standards and conservation practices is included in Appendix C. The NR151 standards are reviewed and updated periodically by the state. Additional performance standards were added in 2011 and 2018. Current NR151 standards can be found at http://docs.legis.wisconsin.gov/code/admin_code/nr/100/151. The following sections represent the Crawford County Land Conservation Department's strategy for the implementation of the NR 151 performance standards.

Identification of Priority Farms

Priority farms are:

- Farms participating in the Farmland Preservation Program (**Must be inspected once every four years**)
- Farms where a formal complaint has been filed against that farm

- Farms within watersheds most impaired by soil loss and water quality. The rank in descending order based upon recent Transect data is Tainter Creek- Kickapoo River, City of Boscobel- Wisconsin River, and Kickapoo River Watershed
- Farms in watershed draining to DNR listed as "Impaired Waters (Section 303D)"
- Farms in Water Quality Management Areas
- Farms in areas with documented nitrate contamination of public or private wells

Action items for Priority Farms

- Priority farms will be grouped by county watersheds and the watersheds will be ranked by soil loss according to the most recent data available from the transect survey and water quality data from DNR and citizen monitoring. (see Action Plan – Soil Erosion Section)
- Informational meetings will target the watersheds most impaired and be followed by volunteer on-farm evaluations using the Compliance Checklist (see Appendix C)
- The implementation of the priority farm strategy is based on staff and funding availability
- Inspection reports will be used to document if a farm operation was or was not in compliance with the NR 151 ag performance standards and prohibitions. This effort may also require consulting with DNR staff to assess compliance

Information and Educational Activities

The Crawford County LCD will employ varied ways to contact landowners and inform them of Wisconsin's agricultural performance standards and prohibitions such as a combination of newsletters, public informational meetings, news and social media, and one-on-one contacts.

Determining Current Compliance

Records Inventory

The records inventory will be a review of existing records of landowners throughout the county who may already be in compliance based upon past and present program participation. The FPP standards have been updated.

- Farmland Preservation Program – annual review
- Reviews of existing plan folders
- Contracts developed through County Cost Share programs

Onsite Evaluations

Crawford County Land Conservation Department will conduct on-site evaluations using the Compliance Checklist (see appendix C) based on the following criteria.

1. Review at the request of the landowner.
2. Farm inspections will be completed on Farmland Preservation Program participants' properties every four years. (Appendix C)
3. Landowners who are found out of compliance (using the Compliance Checklist) during normal records inventory process.
4. Formal complaints received by the Land Conservation Department
5. Farmsteads located within a Water Quality Management Area that drains into an Impaired Stream or one of Crawford Counties Outstanding or Exceptional Resource Waters. Farmsteads in a Water Quality Management Area will be determined through the use of existing geographic information systems. Farmsteads that apply for the Farmland Preservation Program.
6. Farmsteads located in the most impaired watersheds as determined by recent water quality monitoring/ assessments
7. Farmsteads that adopt/ maintain a Nutrient Management Plan

The Compliance Checklist will be recorded and kept in the Land Conservation Department/USDA landowner file. Compliance will also be tracked in a countywide GIS database maintained by Crawford County and the Land Conservation Department. Currently the GIS database includes Farmland Preservation Program compliance but will be expanded to include permitted livestock facilities and other farms that receive compliance determinations.

Prepare Report and Notify Landowners of Compliance Status

Following completion of a records review and/or an on-site evaluation the Crawford County LCD will prepare and issue a NR 151 Status Report to owners of the evaluated parcels.

The report will include the following:

- The current status of compliance of individual parcels with each of the performance standards and prohibitions
- Corrective measures needed to be brought into compliance and rough cost estimates to comply with each of the performance standards and prohibitions
- Status of eligibility for public cost sharing
- Grant funding sources and technical assistance available from Federal, state, and local sources, and third party service providers
- Explanations of conditions that apply if public cost share funds are used
- A signature line indicating landowner's agreement or disagreement with the report finding
- The process and procedures to contest evaluation results to county and/or state
- A copy of the performance standards and prohibitions and technical design standards

Administer Funding and Technical Assistance

The LCD uses various sources for funding conservation practices including federal, state, and private dollars. Annual allocations from DATCP are used alone or piggy backed with federal and private funds. The Land Conservation Committee encourages the following practices:

Erosion Control Practices:

Critical Area Shaping, Grassed Waterways, Diversion, Grade Stabilization Structures, Prescribed Grazing, Streambank & Shoreline Protection, Access Roads & Stream Crossings.

Waste Management Practices:

Diversions, Nutrient Management Plans, Roof Runoff Systems, Barnyard Runoff Control, Sediment Basin Filter Strips, Heavy Use Area Protection, Manure Storage Systems/ Closures.

Environmental and Water Quality Practices:

Contour Farming, Crop Rotation, Filter Strips, Sinkhole Treatment, Tree and Shrub Establishment, Forest Site Preparation, Cover Crops, Fencing, WASCoB, Conservation Cover.

Demonstration Practices:

Prescribed Grazing and Associated Infrastructure Practices, Invasive Species Control

County Cost Share participants will be required to sign a cooperative agreement with the Land Conservation Department that will allow a review of their farm for compliance. We will check the whole farm to document areas meeting and not meeting compliance on required standards.

If cost sharing is involved an agreement will be developed that includes a schedule for installing or implementing Best Management Practices (BMP's). Technical assistance will be provided in the following forms.

- Conservation planning assistance
- Review of conservation plans prepared other than by LCD staff
- Engineering design assistance
- Review of designs prepared by other than LCD staff
- Construction oversight
- Certification of construction practices
- Cost containment

After installation of a practice, the LCD staff will evaluate and consult with DNR staff to decide if the parcel is in compliance with applicable performance or prohibitions.

Strategy to Encourage Voluntary Compliance

- Provide landowners with information concerning:
  - The performance standards and prohibitions, their design and requirements
  - How the standards and prohibitions apply to their land and their status concerning compliance
  - The options they have to achieve and/or maintaining compliance
  - The implication of their decision and action regarding compliance
  - Available sources of cost sharing and technical assistance and how to access them
- Provide information about practices that would bring landowners into compliance with standards or prohibitions
- Provide help to apply for cost sharing and other technical assistance
- Provide technical assistance to prepare and review conservation plans and designs
- Administer cost sharing
- Provide follow-up and support to maintain compliance

Notice

All landowners will receive written copies of their NR151 compliance status or other ordinance status evaluation and the actions of the Land Conservation Department.

Appeal /Hearing

Any landowner wishing to appeal their evaluation of NR 151 compliance may request a hearing before the Crawford County Land Conservation Committee.

Enforcement

- If a landowner refuses technical and financial assistance from the Crawford County Land Conservation Department, in an NR 151 compliance requirement, they will be notified by mail that they may be subject to an enforcement action pursuant to NR 151.09. Crawford County will work with the local DNR Non-point Source Coordinator throughout this process to assist in NR 151 compliance through cost share and/or enforcement procedures.
- A Copy of the Compliance Checklist (see Appendix C), all correspondence with the client, all determinations made by the Land Conservation Department and actions of the Crawford County Land Conservation Committee regarding the client, and a recommendation by the department and committee on how to proceed with enforcement will be sent to the area DNR Nonpoint Source Coordinator.
- County ordinances will be enforced as listed in the Penalty section 25.04 of the Crawford County Code.

Partnership and Coordination

Establishing and maintaining partnerships is very important to the conservation of land and water resources. Turf battles, agency posturing, kingdom building, and political grandstanding destroy people and natural resources. It is the goal of the Crawford County Land Conservation Department to discuss program issues and ideas with staff from all groups and agencies to establish mutual agreement on resource protection. The following agencies and groups are well suited to preserve, protect and enhance Crawford County's precious soil and water resources. The Crawford County Land Conservation Department will continue to work with the following agencies and groups:

USDA Programs

1. *Environmental Quality Incentives Program* (EQIP). Provides cost-sharing for conservation practices.
2. *Conservation Stewardship Program (CSP).* Provides annual payments for various types of conservation practices.
3. *Regional Conservation Partnership Program (RCPP).* A partner-driven approach to funding conservation work.
4. *Conservation Reserve Program* (CRP). A set-aside land program.
5. *Conservation Reserve Enhancement Program* (CREP). A buffer creation program implemented by DATCP, NRCS, FSA, and Crawford County.
6. *Agricultural Conservation Easement Program (ACEP).* A wetland restoration program.

DNR Programs

1. *Targeted Runoff Management Program* (TRM). A program that offers competitive grants for local governments for the control of pollution that comes from nonpoint sources in targeted, critical geographic areas with surface water or groundwater quality concerns.
2. *Notice of Discharge (NOD).* This program works to address water quality impacts from nonpoint sources of pollution, via voluntary and regulatory approaches with financial and technical assistance..
3. *Multi-Discharge Variance (MDV).* An option for point-sources to work with non-point sources to reduce phosphorous discharge into a specific watershed.
4. *Surface Water Grants Program.* This program provides cost-sharing grants for surface water protection and restoration. Funding is available for education, ecological assessments, planning, implementation, and aquatic invasive species prevention and control.
5. *Monitoring Program.* The DNR monitors aquatic resources to assess ecosystem health, evaluate environmental problems, determine the success of management actions and to meet the state's Clean Water Act (CWA) monitoring responsibilities.
6. *Managed Forest Law* (MFL). A forest management program.
7. *Trout Stamp Program.* Trout habitat work.
8. *Conservation Aids.* A program to match county dollars for fish and wildlife habitat improvement.

US Fish and Wildlife Service Programs

1. *Partners for Fish and Wildlife Program.* Used to acquire/ restore unique prairie and wetland habitat.

DATCP Programs

1. *Soil and Water Resource Management* (SWRM). Provides funding to counties for conservation staff, the design and installation of conservation practices, and the creating of Nutrient Management Plans for cropland and managed pastures.
2. *Farmland Preservation Program:* Administered by the Land Conservation Department, this program provides tax relief to participants who protect farmland and follow a conservation plan. As of 2016, the Towns of Haney and Utica, as well as the Village of Soldiers Grove, are the only municipalities with Farmland Preservation Zoning. The majority of FPP participants are located within these areas.

Crawford County Ordinances and Programs

1. *Crawford County Manure Storage Ordinance:* A regulatory county measure to require the environmentally sound construction and operation of all manure storage structures.
2. *Crawford County Livestock Facility Siting Ordinance:* A regulatory county measure to properly locate new and expanding livestock operations with more than 500 animal units (1 animal unit= 1,000 pounds).
3. *Crawford County Nonmetallic Mining Reclamation Ordinance:* A regulatory county measure to ensure the proper reclamation of nonmetallic mines.
4. *Crawford County Shoreland Zoning Ordinance:* Administered by the Zoning office to regulate a variety of flood fringe, flood plain issues.

Other Active Partners in Conservation

1. UW- Extension
2. Prairie Rod & Gun Club, Gays Mills Big Buck Club
3. Valley Stewardship Network
4. Crawford Stewardship Project
5. Southwest Technical College
6. Mississippi River Regional Planning Commission
7. Lower Wisconsin State Riverway
8. Crawford County municipalities- 11 townships, 10 villages, one city
9. Great River Graziers
10. Trout Unlimited
11. Wild Turkey Federation
12. Pheasants Forever

13. Wisconsin Land and Water
14. Crawford County Farm Bureau
15. School Districts of North Crawford, DeSoto, Seneca, Prairie du Chien, and Wauzeka- Steuben
16. Producer-Led Watershed Groups in the county (currently Rush Creek Watershed Group and the Tainter Creek Watershed Group)

Section 5: Funding for Plan Implementation

Plan Funding

The Crawford County Land and Water Resources Plan is a document that can be used by all of the partners that work to protect soil and water resources in Crawford County. The agencies and personnel that will be involved in the implementation of the plan are the Crawford County Land Conservation Department, UW-Extension NPM Staff Ag/Resource Agent, USDA- FSA & NRCS Offices, and Southwest Badger RC&D. A combination of private, local, state, and federal sources will be sought to implement the priorities of the plan. As funding opportunities arise, the plan goals and objectives will be referenced to develop project applications. A partial list of potential funding sources is included. The lead agency to pursue funding will depend upon the individual objectives being pursued.

Potential funding sources – including, but not limited to:

Private Sources

Private Foundations
Volunteer Hours
Ducks Unlimited
Trout Unlimited
Individual Contributions
Conservation Organizations

Local Government Sources

Crawford County Department Budgets
(Land Conservation, Zoning, Emergency Government Offices)
*****Crawford County Cost-Share Program (Under Development-described below)

State Government Sources

Department of Natural Resources
DNR Wildlife Sources
New Nonpoint Source Funds
Stewardship Grants
Wisconsin Waterfowl Stamp
Turkey Stamp Funds
WPFLGP (Wisconsin Private Forest Landowners Grant Program)
Department of Agriculture, Trade, and Consumer Protection Land and Water Plan Implementation Funds (Bond/ Structural funding)
Department of Agriculture, Trade, and Consumer Protection Nutrient Management Plan Funds (SEG funding)

Federal Sources

<u>Farm Service Agency and Natural Resources Conservation Service</u>

- -Conservation Reserve Program (CRP) Competitive and Continuous
- -Environmental Quality Incentives Program (EQIP)
- -Agricultural Conservation Easement Program (ACEP)
- -Conservation Reserve Enhancement Program (CREP)
- -Conservation Stewardship Program (CSP)

<u>Environmental Protection Agency</u>

- -Environmental Education Grants
- -319 (Clean Water Act) Grants

County Cost-Share Program

The Crawford County Land Conservation Committee will work to develop a county-funded cost share program that will supplement other funding sources. One advantage of local a program is that it can be structured with greater flexibility than federal or state programs to encourage landowner participation.

Local residents, staff, and elected officials will use their influence to structure the development of state and federal grant programs whenever possible and will assist the Land Conservation Committee in developing the cost-share program. This may or may not be a feasible option, depending upon available funding in the county-wide budget.

Section 6: Evaluation and Monitoring

Measuring and evaluating activities identified in the plan is critical in order for the plan to be successful and ensure that the land and water resources of the County are restored or protected. Annually, the Land Conservation Department and Committee will review the action plan to determine what has been accomplished and what additional tasks need to be completed. The Land Conservation Department and Committee will also use the following tools to evaluate and monitor plan success.

Soil Erosion & Nutrient Management Tracking

The Crawford County Land Conservation Department will continue to pursue viable modeling and tracking software in order to better predict soil erosion in the county. Nutrient Management Plan data may be used to track phosphorous discharge and soil erosion rates across the county, or in certain specific watersheds. Crawford County hopes to continue increasing the amount of land covered by a Nutrient Management Plan each year, which will lead to more representative estimates of the true on-farm soil loss and phosphorous movement. The Crawford County Land Conservation Department will investigate the possible use of the DNR's EVAAL tool, or any other modeling software available. Line transect surveys may also still be used to determine estimated soil loss in certain areas or watersheds. This data can be compared year-to-year to show trends on the landscape. As the last transect survey in Crawford County occurred in 2009, the county will prioritize conducting another round of surveys very soon and look to follow up with additional surveys at a return interval that is deemed appropriate.

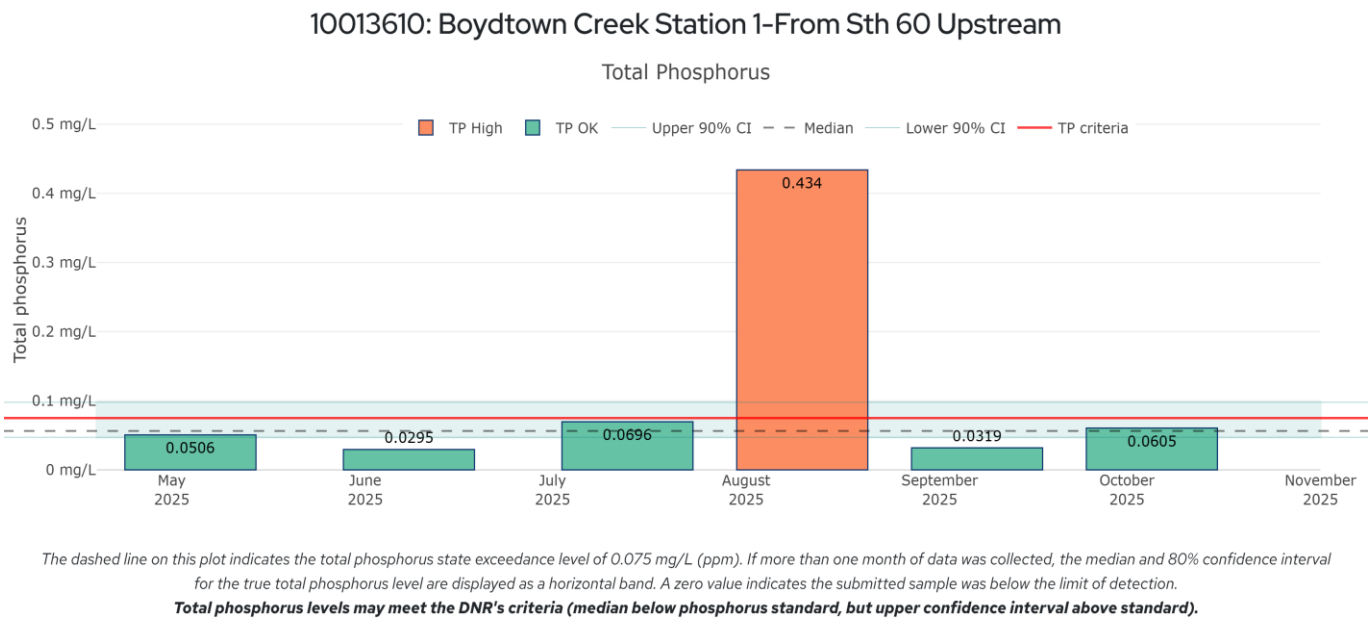
Water Quality Monitoring

Crawford County has encouraged water quality monitoring by the Valley Stewardship Network in the Kickapoo River Watershed and will continue to cooperate with similar efforts. Outside of the Kickapoo Watershed, Crawford Stewardship Project continues to monitor other sensitive waters in the county. A fledgling project of UW Extension Water Action Volunteers (WAV) began in the county in 2005 with participation from sports clubs and interest from area school classes. Training sessions have been held for volunteers. WAV data is tracked in the Citizen Monitoring Database maintained by UW Extension. Table 6-1 shows the 16 WAV monitoring stations and what they are sampled for and Figure 1 shows an example of data available for these sites. The largest benefit of citizen monitoring is the increased awareness of county residents in the importance of good land stewardship and its impact on water quality. The 2025 WAV coordinators for Crawford County include:

- Omaru Heras Ornelas (Crawford Stewardship Project)- oheras@crawfordstewardship.org, 608-632-7021
- Ben Johnston (Valley Stewardship Network)- ben@valleystewardshipnetwork.org, 608-637-3615

Table 6-1 Crawford County WAV Monitoring Sites

SWIMS Station	Station Name	Sampling Type (Sampling Period)
10033406	Tainter Creek 1.3 mi south on CTH B from intersection with CTH C	Baseline Data (2015-2024)
10013605	Bear Creek Station 1-STH 131 Crossing Upstream	Baseline Data (2021-2025) Thermistor Data (2024)
10012461	Halls Branch 100 Yds Upstream from Zintz Rd	Baseline Data (2015-2024)
10043915	West Fork Knapp Creek at Guthrie Dr	Baseline Data (2016-2024)
10044917	Richland Creek at Byers Road	Baseline Data (2016-2025) Thermistor Data (2023)
10044131	Richland Creek - Childs Hollow Rd Bridge	Nutrient Data (2023-2025)
10056913	Unnamed Trib (1183600) at Drake Rd	Baseline Data (2019-2025)
10044132	Kickapoo River- Taylor Ridge Rd Bridge	Thermistor Data (2022-2023)
10009025	Citron Creek #1-Bridge On CTH E	Nutrient Data (2024-2025)
10052670	Unnamed (5034616) At Kickapoo Valley Road	Baseline Data (2019-2025), Nutrient Data (2020, 2023)
10052671	Unnamed (5034666) At Kickapoo Valley Road	Baseline Data (2019-2024), Nutrient Data (2020)
10032123	Boydtown Creek 400 ft west of Hilldale Rd	Baseline Data (2015-2025), Nutrient Data (2015)
10013610	Boydtown Creek Station 1-From STH 60 Upstream	Nutrient Data (2024-2025)
10052569	Unnamed (5035112) At Spring	Baseline Data (2019-2025)
10032119	Wisconsin River Tributary 0.5 mi SE Of STH 60 and Knob Ln Intersection	Baseline Data (2015-2025), Nutrient Data (2015), Thermistor Data 2020, 2022-2024)
10029558	Little Kickapoo Creek at Hwy 60 St. 1 - 2008	Nutrient Data (2024-2025)



The dashed line on this plot indicates the total phosphorus state exceedance level of 0.075 mg/L (ppm). If more than one month of data was collected, the median and 80% confidence interval for the true total phosphorus level are displayed as a horizontal band. A zero value indicates the submitted sample was below the limit of detection.

Total phosphorus levels may meet the DNR's criteria (median below phosphorus standard, but upper confidence interval above standard).

Figure 1. WAV Total Phosphorus sampling results at Boydtown Creek Station (SWIMS #10013610) in 2025

The Land Conservation Department will consult with DNR Water Quality Biologists and collect county data from the Water Action Volunteer sites and use the water quality data to compare and contrast with the ranking of the transect survey results or NMP data from year to year to focus education and informational efforts. While water quality monitoring is important, the ability of citizen volunteers to record the effects of heavy rainfall is limited. More effort is needed to put dedicated continuous monitoring equipment in county streams to accurately reflect water chemistry. The Land Conservation Department will consult with DNR WQ biologist(s) annually to review available water quality data and also to discuss future WQ monitoring stations in the county within watersheds with impairments.

Another current water quality monitoring project of note in the county would be the WI DNR's Long Term Trend River Monitoring that includes the Kickapoo River that tracks and analyzes water quality trends over time in Wisconsin's large river systems. The Kickapoo River is sampled monthly for the following parameters: Total Phosphorus, Ortho Phosphate, Total Kjeldahl Nitrogen, Nitrate + Nitrite as N, Ammonia-N, Alkalinity, Turbidity, Total Suspended Solids, Chlorophyll-a, Chloride, Harness, Cadmium, Copper, Mercury, pH, E. Coli, Dissolved Oxygen, Oxygen- Percent Saturation, Temperature (sample), Specific Conductance, and Transparency Tube. The sampling site is located at Bridge Street in the Village of Steuben (SWIMS 123017). Sampling over the last several decades show that concentrations of total phosphorus, orthophosphate, and ammonia have clearly decreased in that time while concentrations of nitrate + nitrite and chloride have clearly increased in the Kickapoo River. The following graphs show some of these trends.

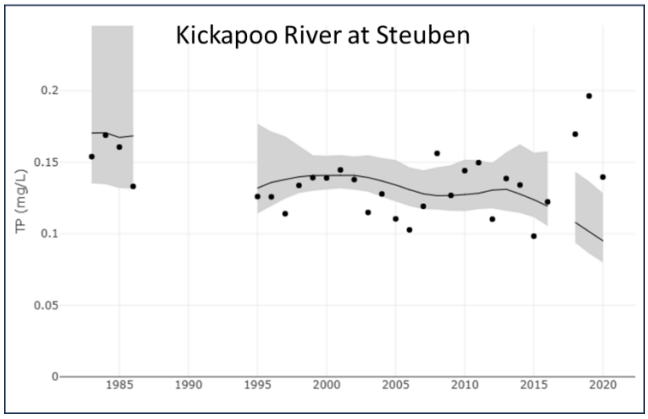


Figure 2. Total Phosphorus concentration trend adjusted for discharge and seasonality 1983-2020.

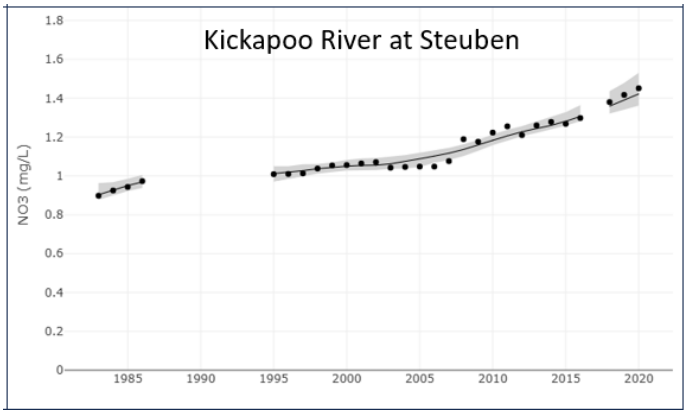


Figure 3. Nitrate + nitrites concentration trend adjusted for discharge and seasonality 1983-2020.

The Wisconsin DNR's Bureau of Fisheries Management has also conducted some fisheries studies that correspond closely with water quality. There is an annual nonwadeable large river survey conducted at 3 sites along the Wisconsin River that routinely result in an Excellent Index of Biotic Integrity (IBI) rating and periodic (2019, 2024) surveys at 2 sites along the Kickapoo River near Steuben and Wauzeka that have produces a Good IBI rating. There has also been annual sampling of 5 sites on Rush Creek and a fish response to habitat improvement evaluation on Tainter and Conway Creeks.

DNR Fisheries staff also completed a Trout Population Trends and Fisheries Management in Southern Crawford County report in March of 2023 that summarized trout populations and made recommendations on how to improve the fishery. According to the report, trout are now more abundant and widespread in southern Crawford County streams than they've been in at least a century and that current challenges include increased flooding and air temperatures due to climate change, changes in land use, and displacement of brook trout by brown trout.

Geographic Information System (GIS)

As Crawford County modernizes its land records, all compliance records will be recorded and tracked in a geo-database linked to tax parcel I.D. numbers. Farmland Preservation Program parcels, manure storage permits, nonmetallic mining permits, and CREP agreements and easements will also be linked to the tax parcels. Crawford County just recently established an FPP participant layer to help track compliance of that program and thus the Nutrient Management Plan-covered acres. The county has obtained LIDAR data for the entire county, which can be very useful when looking at watershed scale issues, calculating slopes, estimating erosion rates, and is a key requirement for using the DNR's EVAAL tool.

Annual Accomplishment Reports

Financial data, installed practices, pollutant load data, information and education activities, and NR151 compliance will all be reported to DATCP and other agencies as required. Progress on work plan goals will be annually reviewed by the Land Conservation Department.

This page left intentionally blank

Appendices

This page left intentionally blank

Appendix A

Crawford County Land Conservation, Zoning, and Planning Committee

Gary Koch, Chair
Mary Kuhn
Owen DuCharme
Chad Sime
Kate Krachey

Crawford County LWRM Plan Advisory Council

Name	Representing
Gary Koch	Land Conservation Committee, Chair
Mary Kuhn	Land Conservation Committee
Owen DuCharme	Land Conservation Committee
Chad Sime	Land Conservation Committee
Kate Krachey	Land Conservation Committee
David Troester	County Conservationist
Travis Bunting	Land Conservation Department - Conservation Specialist
Amy Oppriecht	Land Conservation Department - Clerk
Becky Nagel	Zoning
Sam Bibby	UW- Extension
Joshua Bushee	USDA- NRCS
Rebecca Vasquez	WI DNR- Forestry
Cindy Koperski	WI DNR- Nonpoint Runoff
Forest Jahnke	Crawford Stewardship Project

Advisory Council Meetings

June 16, 2025 – Prairie du Chien (& virtual)
July 1, 2025 – Prairie du Chien (& virtual)
September 9, 2025- Prairie du Chien (& virtual)
November 11, 2025 - Prairie du Chien- Public Hearing on Draft LWRM Plan
December 9, 2025 - Prairie du Chien- LCC Approval of Draft LWRM Plan

This page left intentionally blank

Appendix B

The following table is the "Crawford County Land and Water Resources Action Plan" that is derived from the goals and objectives described in Section 3 of this plan. The action plan addresses five categories: Soil Erosion, Water Resources, Land Use Planning, Land Management, and Waste Disposal.

Each category details the following:

Resource Concern	These are broad categories addressing the major resources and concerns expressed by residents, elected officials and agencies during the planning process.
Goals	These represent areas of work to address the specific resource concern.
Objectives	These are work items to be conducted by county staff, partner agencies and /or volunteers.
LCD Costs	Estimated yearly staff costs, or sometimes singular activity cost, for the Land Conservation Department to accomplish the objective.
Cost-Share Available	Estimated annual local, state, or federal cost-shares available to accomplish certain goals/ objectives.
Actions with annual benchmarks	These are projected measurable outcomes of the efforts in the categories.

An important element of the action plan is the implementation of the NR 151 performance standards. These standards are addressed throughout this plan but special note is to be taken here about how this is to happen in Crawford County. Outreach and education will be narrowed to specific situations as most farmers now know the requirements of ATCP 50 and NR 151.
The technical nature of our Land Conservation Department requires the county to draw information from specialists such as UW Extension, DNR, & DATCP for help in this area. Specific I & E tools for this plan are: DNR, NRCS brochures such as, Crawford County Land Conservation Department Web site, Wisconsin's Forestry Facts & Forestry BMP manual, FSA Newsletter, Newspaper Releases, Wisconsin Runoff Rules: What Farmers Need to Know, Phosphorus Movement from Land to Water, CREP fact sheets, UWEX web sites, Farmland Conservation Choices, When and Where to Apply Manure, Owning Rural Lands, Country Acres, What is a Farm Nutrient Management Plan?, and Local Contractor Workshops.

2026-2035 Crawford County Land and Water Management Plan Action Plan

(Priority Objectives are bolded, italicized and highlighted)

Resource Concern #1 – Soil Erosion				
Goals	***Objectives***	***LCD Costs***	***Cost-share available***	***Actions with Annual Benchmarks***
Maintain soil erosion on all cropland to 'T'	Track average soil loss on all cropland	$12,000		Use NMP Snap+ software or transect survey data to track soil erosion estimates on 500 acres/ year
				Maintain a database of soil erosion estimates
				Compare aerial photos, LiDAR data, and Nutrient Management Plan data to assess soil erosion changes over time at 10 farms
	Inform and educate landowners on soil and water conservation practices	$8,000		Provide specialized outreach information to absentee landowners annually
				Develop and provide a model rental contract with soil erosion prevention items in it
				Create an information packet on conservation programs, practices, and associated agencies and update it every year.
				Work one-on-one and provide outreach information to 20 landowners as they call or visit
				Develop outreach packet for realtors and title companies to give to new rural landowners.
	Reduce soil erosion to "T" tolerable soil loss on cropland (prioritizing soil conservation plans and practices within watersheds with phosphorus or sediment impaired waters)	$9,500		Write 5 annual conservation plans and treat cropland to tolerable soil loss levels or less
				Provide technical assistance to landowners to install 500 acres of contour strips and contour buffer strips per year
				Promote no-till, zone-till, and reduced tillage systems, as well as cover crops with 15 landowners per year
				Encourage landowners that crop fields on 'D' slopes (12-20%) or steeper to use less intensive cropping practices
				Promote diverse crop rotations
				Focus education efforts and soil erosion programs and practices within watersheds with phosphorus or sediment impaired waters
	Provide examples of good conservation ethics to landowners	$500		Provide 2 annual local news releases highlighting conservation
Reduce erosion on land other than cropland	**Administer the county's NR135 Non-Metallic Mining Reclamation Ordinance**	$7,500		Permit 1 new non-metallic mining operation/ year
				Annually inspect all permitted non-metallic mines and ensure compliance with NR135, and certify properly reclaimed acres
				Collect annual data and fees from NMM operators and submit annual report/fees to DNR

Resource Concern #1 – Soil Erosion - continued				
Goals	***Objectives***	***LCD Costs***	***Cost-share available***	***Actions with Annual Benchmarks***
Reduce erosion on land other than cropland (cont.)	Work with area contractors on utilizing best management practices	$2,000		Participate in Best Management Practices workshops as needed during this 10-year plan
				Provide technical assistance to 5 landowners per year on proper construction, repair, and maintenance of driveways, logging roads, and access roads
				Advise BMPs for earth work activities (logging, brush mowing, logging road construction) to protect water quality
	Inform landowners on methods to prevent erosion on land other than cropland	$4,000		Develop 1 model logging contract or encourage timber landowners to work with forestry consultants on developing an adequate logging contract
				Promote the WI DNR's 10-Step Landowner Pamphlet for conservation-minded land ownership
				Promote intensive rotational grazing practices and the Great River Graziers' pasture walks and provide grazing technical assistance to 5 operators per year
				Promote the Wisconsin Woodland Owners Association as a resource to forest landowners
				Focus soil erosion program and practices within watersheds with phosphorus or sediment impaired waters
	Increase riparian area protection	$4,000		Work with FSA and NRCS to establish 2 new CREP agreements annually
				Provide landowners information on the importance of buffers through direct mailings or social media
Increase available cost-share dollars for erosion prevention practices	***Assist landowners in signing up for cost-share***	$50,000	$250,000	Work with 10 landowners annually to sign up for USDA financial assistance programs
				Work with 2 landowners to sign up for the Wisconsin Forest Landowner Grant program to secure funds for forest management plan development and site improvements
	Provide more cost-sharing	$20,000	$52,000	Secure and contract annual DATCP SWRM funding for cost-share practices (8 contracts per year)
			$20,000	Apply for other state grant funding, such as Targeted Runoff Management or Notice of Discharge Grants, when available twice during this 10-year plan
				Focus soil erosion programs and practices within watersheds with phosphorus or sediment impaired waters
				Apply for other applicable funding for conservation work once during this 10-year plan
		$117,500	$322,000	

Resource Concern #2 - Water Resources				
Goals	**Objectives**	**LCD Costs**	**Cost-share available**	**Actions with Annual Benchmarks**
Preserve, protect, restore, and enhance surface, groundwater, and riparian areas	***Inform and educate landowners on the proper use and application of fertilizers and pesticides, and on method to prevent chemicals, sediment, and other contaminants from reaching rivers and streams or groundwater***	$5,000		Create a brochure explaining proper use and application of fertilizers and pesticides
				Continue the Pesticide Applicator Training program (15 certifications per year)
				Focus Nutrient Management Plan outreach in areas of the county with phosphorus or sediment impairments or known nitrate well contamination
				Partner with UW- Extension on a radio segment highlighting proper lawn and garden fertilizer/ pesticide use
				Partner with local wastewater treatment plants on landowner partnerships on phosphorous reduction efforts
				Apply for 1 education grant
				Provide annual information via radio, newspaper, and social media posts on preventing urban runoff
				Work with partners to promote the "Dump No Wast. Drains to River" storm drain stenciling effort
				Coordinate annual Youth Conservation Day for approximately 250 area students
				Provide annual hands-on experience for students relating to stream rehabilitation and encourage them to speak with their parents about stream health
	Reduce the potential for groundwater pollution from improperly constructed and mismanaged manure storage structures	$7,500		Work with and educate 1 owner/ operator of a mismanaged manure storage system per year
				Provide technical assistance to 3 owners of manure storage per year
				Permit new storage facilities and storage closures per our ordinance
				Promote the development of Nutrient Management Plans
Preserve, protect, and enhance surface, groundwater, and riparian areas	***Reduce groundwater pollution from direct conduits***	$6,500		Distribute educational materials on sinkholes, well abandonments, septic system installation and maintenance, and underground tanks once per year
				Provide technical assistance on 5 well abandonment and sinkhole protections per year and share geologic testing data regarding sinkhole locations
				Encourage 2 landowners to sign up for EQIP for well abandonment and sinkhole protections per year

Resource Concern #2 - Water Resources - continued				
Goals	***Objectives***	***LCD Costs***	***Cost-share available***	***Actions with Annual Benchmarks***
Preserve, protect, and enhance surface, groundwater, and riparian areas- continued	***Reduce groundwater pollution from direct conduits (continued)***			Partner with the Crawford County Health Dept. to increase opportunities for private well testing/ distribute 10 annual well testing kits
				Continue with county-level or multi-county coordinated well testing efforts, such as the Driftless Area Water Study
				Pursue groundwater/ bedrock studies and mapping projects to help guide decisions
				Raise awareness on PFAS contamination risks
				Use nitrate testing of public or private wells to focus promoting NMP adoption
	Reduce sediment delivery from erosion sources (prioritizing soil conservation plans and practices within watersheds with phosphorus or sediment impaired waters)	$4,000		Use available funding sources to cost-share 2 BMPs
				Encourage 5 landowners to sign up for cost-share funds and provide technical assistance for installation of BMPs
				Conduct 1 public streambank demonstration highlighting rip-rap, lunkers, and a stream crossing
				Conduct 1 public demonstration for cattle crossing and rotational grazing systems along a stream
				Support partners' surface water quality monitoring and assist with an annual Water Action Volunteer Training.
	Protect existing wetlands and increase wetlands through restoration activities	$1,500		Encourage 2 landowners/ year to participate in NRCS' Agricultural Conservation Easement Program (ACEP)
				Work with NRCS, USFWS, and DNR to promote wetland restoration and ACEP (2 contracts)
				Inform and educate the public on wetland restoration with annual outreach events and highlight quality wetlands, such as the Ramsar Wetlands of International Importance located within the Lower Wisconsin Riverway
				Inform and educate the public on the function and need of wetlands with annual press releases or social media posts
Implement NR151 strategy outlined in Section 4	***Farm inspections to implement state performance standards and prohibitions***	$8,500		Conduct 25 Farmland Preservation Program farm inspections/ year, and maintain site inspection reports and all Farmland Preservation records of Certificates of Compliance
				Complete farm inspection reports to document which farm operations are or are not in compliance with NR 151 and consult with DNR staff as necessary
				Focus farm inspection efforts within watersheds with phosphorus or sediment impaired waters or areas with known nitrate well contamination

Resource Concern #2 - Water Resources - continued				
Goals	***Objectives***	***LCD Costs***	***Cost-share available***	***Actions with Annual Benchmarks***
Implement NR151 strategy outlined in Section 4- continued	Work with WIDNR to coordinate farmer compliance with NR151 standards	$1,000		Document the number of non-compliance determinations per year (estimated 1-2 farms/ year)
Increase funding for cost-sharing and demonstration projects	Increase the amount of cost-share and grants available to landowners	$3,500		Assist 2 landowners/ year applying for federal cost-share programs
				Assist 1 landowner/ year applying for state cost-share dollars such as TRM and/or NOD
				Apply for 2 state grants during this 10-year plan, when available, such as Sustainable Agriculture Research & Education grants or Nitrogen Optimization Pilot grants
				Work with local sports groups to secure 1 grant during this 10-year plan
				Work with UW-Extension on 2 on-farm research/ demonstrations
				Participate in an annual meeting with partner agencies for updates and planning
				Obtain grants/ funds for 1 demonstration project during this 10-year plan
	Communicate and coordinate with other counties on projects	$1,000		Partner with adjacent counties on 2 conservation projects during this 10-year plan
		$38,500	$0	

Resource Concern #3 - Land Use Planning				
Goals	***Objectives***	***LCD Costs***	***Cost-share available***	***Actions with Annual Benchmarks***
Work with the towns on the implementation of their comprehensive plans	***Support towns, villages, and cities with the implementation of their land use element goals identified in their comp plans***	$2,000		Provide information and education to the local municipalities upon request regarding plan implementation methods through biennial meetings
				Connect local municipalities with our online GIS data and maps to help with planning needs and opportunities to expand mapping layers.
				Encourage comprehensive planning coordination between the county and local municipalities.

Resource Concern #3 - Land Use Planning - continued				
Goals	**Objectives**	**LCD Costs**	**Cost-share available**	**Actions with Annual Benchmarks**
Promote and support local land use planning to protect the natural resources of the county	***Support towns, villages, cities, state, federal and local/regional agencies with the implementation of land use planning which protect the natural resources of the county***	$2,000		Provide information and education to the local municipalities upon request regarding land use planning implementation methods
				Inform and educate the public on the importance of land use planning in order to protect the county's natural resources by visiting 2 town board meetings per year
				Inform and educate the public about the economic value of the county's natural resources by visiting 2 town board meetings per year
				Assist 1 local unit of government with developing land use regulations which protect the natural resources of the county
Improve and protect the quality of natural resources by the judicious and economic use of nutrients	***Inform and educate landowners on the wise use of nutrients and adoption of NMPs***	$12,000		Use radio ads, bulletins, social media, demonstrations, and biennial workshops to inform landowners
				Work with Southwest Technical College to facilitate training designed to certify landowners to write their own Nutrient Management Plan (5 new plans/ year) or provide landowners with access to DATCP's online certification program
			$8,000	Secure grant and cost share opportunities for 3 new Nutrient Management Plans per year
				Work with landowners to complete 5 new NMPs per year, prioritizing NMP adoption within watersheds with phosphorus or sediment impaired waters
				Collect annual NMP checklists from all FPP participants (90), Animal Waste Storage Permit holders (8) and all Livestock Facility Siting Permit holders (3)
				Assess how many NMPs were adopted within watersheds with phosphorus or sediment impaired waters or areas with known nitrate well contamination
Utilize Floodplain Zoning and Shoreland/ Wetland Zoning to protect our natural resources	***Enforce Floodplain and Shoreland/ Wetland Zoning Ordinances***	$25,000		Use radio advertisements, bulletins, and social media to inform landowners of ordinance rules and regulations
				Review permit applications for compliance and issue appropriate permits
				Coordinate with DNR and FEMA to ensure the county is properly enforcing statutes and to update ordinances as necessary
		$41,000	$8,000	

Resource Concern #4 - Land Management				
Goals	**Objectives**	**LCD Costs**	**Cost-share available**	**Actions with Annual Benchmarks**
Encourage sustainable forestry practices that respect	Inform residents and loggers about the importance of	$1,250		Make information available through social media and press releases regarding best management practices to forest landowners and logging companies
				Connect 15 landowners with the local DNR Forester

our unique ecosystems	sustainable forestry practices			Inform landowners of the DNR's Wisconsin Forest Landowner Grant Program (WFLGP) and NRCS' Environmental Quality Incentive Program (EQIP) options
				Highlight the threats posed by invasive species via social media posts and press releases
	Provide opportunities for residents to practice forest regeneration	$3,000		Conduct annual Tree and Shrub Sale- sell 2,000 trees/ shrubs
				Provide outreach information to residents on the WI DNR State Nursery Program and the opportunity to purchase seedlings
				Promote the WFLGP and EQIP programs as opportunities to obtain funding to assist with tree plantings
Protect and enhance important wildlife and associated habitat areas	Inform and educate Crawford County landowners on the importance of wildlife habitat areas	$4,500		Inform and educate the public about the economic value of the county's wildlife through the LCD fair display
				Use annual press releases and social media posts to inform the public on wildlife issues
				Serve as the agricultural liaison to the Crawford County Deer Advisory Council
				Promote annual birding field trips to sites in the county
				Coordinate with conservation partners on area field days highlighting properties that have had prairie or oak savanna restoration work
				Collaborate on recognition of quality wetland sites/
				Maintain prairie on County lands and use as a demonstration area for an annual outreach event
	Protect existing wildlife areas and increase the amount of important wildlife habitat	$4,500	$3,000	Provide technical assistance to 7 landowners/ year seeking advice on land management, especially prescribed burning
				Administer and distribute WIDNR's annual county allotment for County Conservation Aids funds
				Work with federal and state agencies to secure funds for preserving important wildlife habitat areas by writing 5 letters of support during this 10-year plan
				Work with sports groups such as Trout Unlimited and Wisconsin Waterfowl Association to secure funds for wildlife habitat preservation areas on 2 projects during this 10-year plan
				Apply for 1 state grant, if available, to secure funds for habitat protection
	Protect important wildlife habitat areas from invasive species and pests	$4,000		Inform and educate landowners about the threats posed by invasive species and pests through an annual press release and 1 directed mailing
				Provide information to landowners on identifying invasive plant, animal, and insect species
				Promote (and maintain) the LCD sprayer as a tool to control invasive species (rent to 2 landowners/ year)
				Obtain DNR LMPN Surface Water Grant funds to hire an annual Aquatic Invasive Species Coordinator intern to provide Clean Boats, Clean Waters outreach to protect area waters

Resource Concern #4 - Land Management - continued				
Goals	**Objectives**	**LCD Costs**	**Cost-share available**	**Actions with Annual Benchmarks**
Limit wildlife damage to crops	***Administer the WIDNR's Wildlife Damage Abatement and Claims Program for the county***	$2,000		Assist 5 landowners per year with damage claims and ensure they are in compliance with the program
		$19,250	$3,000	

Resource Concern #5 - Waste Disposal				
Goals	**Objectives**	**LCD Costs**	**Cost-share available**	**Actions with Annual Benchmarks**
Provide hazardous waste recycling/ disposal opportunities	***Collect/ re-use recyclables***	$5,500		Coordinate an annual tire collection event
				Coordinate an annual electronics recycling event
				Encourage recycling of ag plastics (silo and bale bags) through an annual press release and social media posts
				Encourage paint and used battery recycling through an annual press release
	Collect and remove hazardous waste	$3,000		Encourage collection of mercury and fluorescent bulbs through an annual press release and social media posts
				Coordinate an annual Household Hazardous Waste/ Ag Clean Sweep/ Prescription Drug Collection event
		$8,500	$0	

Annual LCD Staffing Costs total $224,750.

This Page Was Intentionally Left Blank

Appendix C

NR151 Compliance Checklist

Landowner(s): _____ Inspection Date: _____

Address_____ Town, Range Section_____

Cropland &Pasture Standards	In Compliance	Will Achieve Compliance (Season, Year)	Does not Apply
A current nutrient management plan (NM) has been developed and implemented according to NRCS 590 standard which may be submitted to the county conservation office as a NM Plan Checklist form.	☐		☐

- Fields must have initial soil tests conducted by 2024 and follow crop management practices that are planned to comply with the 590 standard across the crop rotation. The NM plan must include current soil tests conducted by DATCP certified lab. Fields in a NM plan must: 1. Be updated when cropping systems change, 2. Include maps identifying NRCS 590 nutrient application restriction areas, 3. Have phosphorus applications planned over the entire rotation, and 4. Show no visible signs of gully erosion.
- Pastures are exempt from NM plan requirements if the pasture is a feedlot, or when the pasture's average stocking rate is 1 AU/acre or less during grazing season and no nutrients are mechanically applied [ATCP 50.04(3)(b)]. When the pasture's average stocking rate is more than 1 AU/acre over the grazing season, a planner may assume soil test values of 150 ppm P and 6% organic matter content [ATCP 50.04(3)(d) and (de)].

Cropped fields and *pastures* meet tolerable soil loss "T".	☐		☐

Method used to calculate "T":

SnapPlus ☐ RUSLE 2 ☐ WEPS ☐

- Fields must follow crop management practices that are planned to comply with the 590 standard across the crop rotation. Soil erosion rates should be estimated using the latest prediction models: Soil Nutrient Application Planner, Revised Universal Soil Loss Equation 2 and Wind Erosion Prediction System [ATCP 50.04(2)Note].

Cropland and pasture areas average a phosphorus index of 6 or less over the accounting period and do not exceed a phosphorus index of 12 in any individual year within the accounting period.	☐		☐

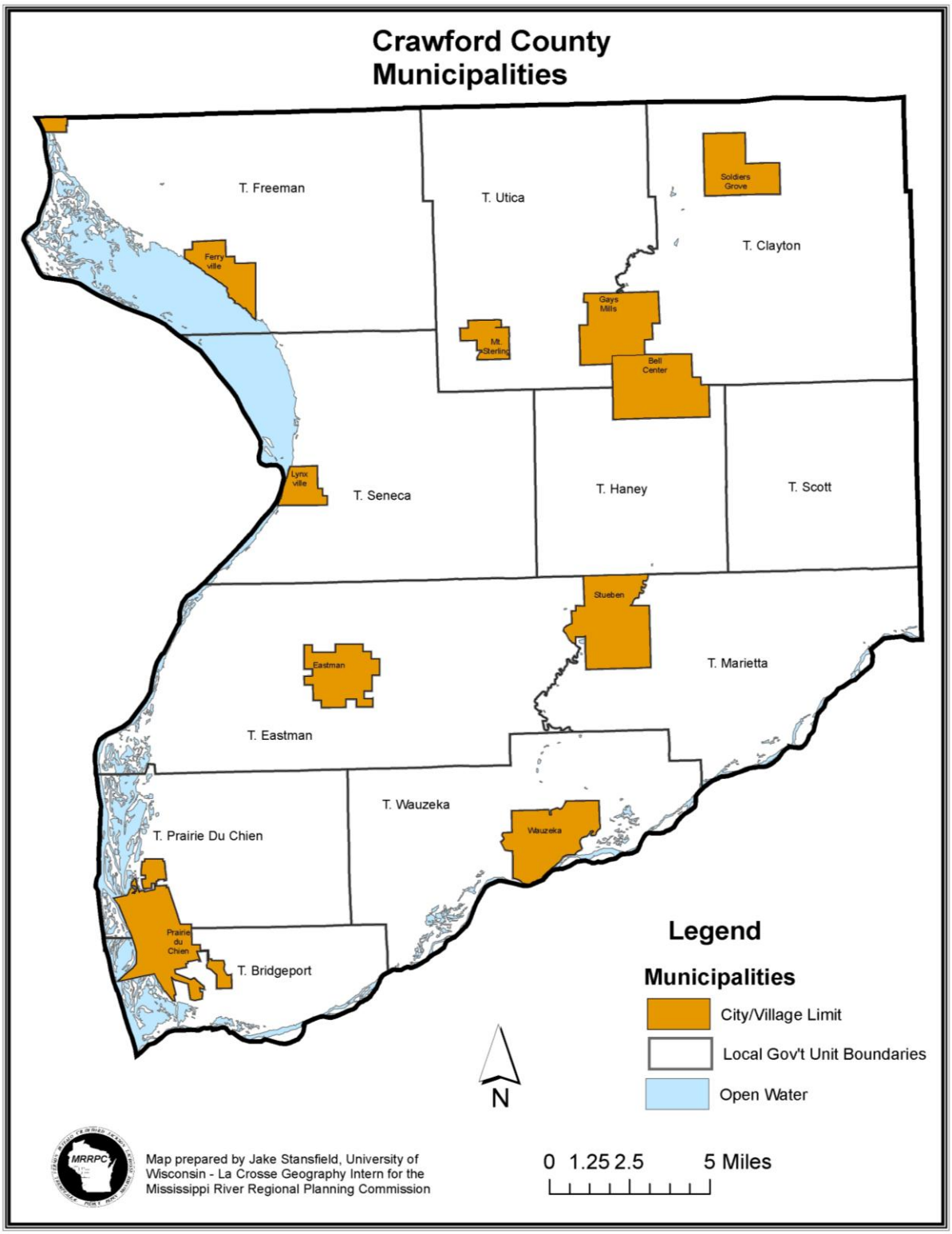
- All cropland and pastures must comply with the Phosphorus Index (PI) standard [NR 151.04] [ATCP 50.04(1)]. A NM plan meeting the standard in ATCP 50.04(3) may be used to demonstrate compliance with DNR's PI standard.

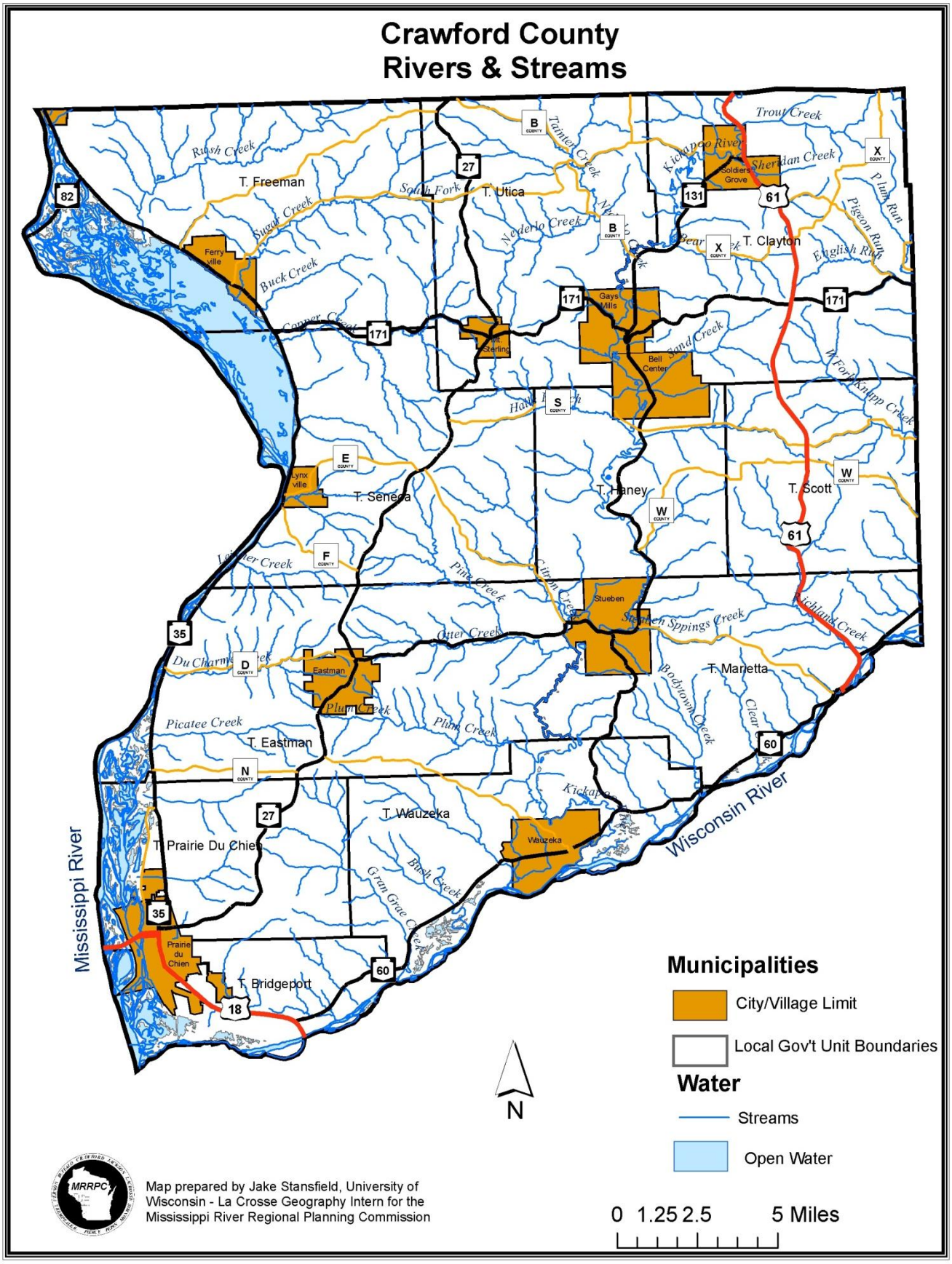
No tillage conducted within a minimum of 5 feet of surface water.	☐		☐

- Cropland must be managed to include a minimum setback of 5 feet from the top of the channel of surface waters. No tillage can occur and 70% vegetative cover must be maintained in that tillage setback zone to ensure bank integrity. Cost-sharing is not required to implement this practice [ATCP 50.04(4)(a); NR 151.03]. When establishing the setback width, start with 5 feet. If it is determined that 5 feet may not be adequate to maintain bank stability, county land conservation staff should [ATCP 50.04(4)(b)].
  - Use best professional judgment to increase setback width based on factors including bank materials, height, slope, cause of bank erosion, and soil type.
  - Increase the tillage setback width by smallest increment necessary to maintain bank stability.
  - Follow a consistent approach when making setback width determinations by consulting with NRCS or DATCP engineers or technicians.
  - Consider enrolling riparian areas in the Conservation Reserve Enhancement Program (CREP) can achieve compliance with the tillage setback standard. [ATCP 50.04(4)(b) Note]

Livestock Standards	In Compliance	Will Achieve Compliance (Season, Year)	Does Not Apply
How many of the following facilities or structures are located in a Water Quality Management Area (WQMA)? Feedlots: Barnyards: Manure storage: • The clean water diversion from feedlots and unconfined manure pile standards reference a water quality management area (WQMA). A WQMA is 1,000 feet from a lake, pond, or flowage or 300 feet from a stream, or in areas susceptible to groundwater contamination [NR 151.015].			☐
There are no unconfined manure piles in a WQMA.	☐		☐
Runoff is diverted away from all feedlots, manure storage areas, and barnyards within WQMAs.	☐		☐
There is self-sustaining sod or vegetative cover adequate to preserve streambank or lakeshore integrity in areas where livestock have access. • This does not apply to properly designed, installed and maintained livestock or farm equipment crossings.	☐		☐
How many manure storage facilities are located on the entire farm?			☐
Facilities have no visible signs of leakage or failure.	☐		☐
Facilities are maintained to prevent overflow.	☐		☐
Each storage facility that has not had manure added or removed from the facility for a period of 24 months has either been closed in a manner that will prevent future contamination of ground or surface water or has been approved by DNR for continued use.	☐		☐
Facilities constructed or substantially altered after 2002 meet the NRCS 313 standard.	☐		☐
There are no significant discharges of process wastewater to waters of the state from feed storage or other sources.	☐		☐
There are no channels or other visible signs of significant discharge from a feedlot or stored manure into waters of the state. • Livestock operators must prevent a "significant" discharge from manure and feed storage, feedlots, and process wastewater. A "significant" discharge is based on factors such as volume, frequency, receiving waters, and slope. DATCP grant funds may be used to provide cost-sharing for a feed storage runoff control system as long as the system meets applicable standards including NRCS technical guide waste treatment standard 629 [ATCP 50.705]. • Livestock operators may consider low cost options for removing "significant" direct feedlot runoff such as: 1. Grazing cattle on nearby fields. 2. Collecting lot manure on a consistent basis and field applying in accordance with a nutrient management plan. 3. Removing channels with roof gutters, clean water diversions, or rock spreader diversions with harvested vegetative runoff filters.	☐		☐

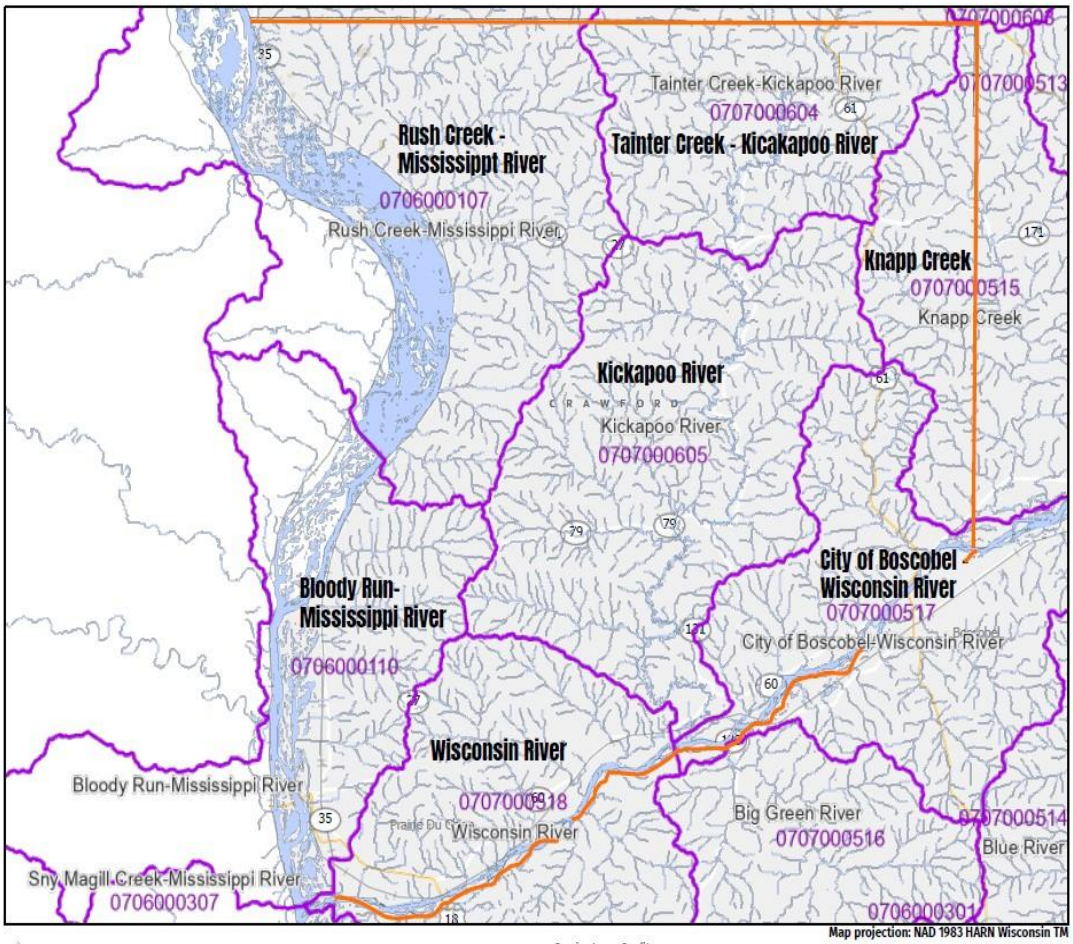
Appendix D


Crawford County
Municipalities
T. Freeman
T. Utica
T. Clayton
T. Seneca
T. Haney
T. Scott
T. Eastman
T. Marietta
T. Wauzeka
T. Prairie Du Chien
T. Bridgeport
Ferry ville
Lynx ville
Mt. Sterling
Soldiers Grove
Gays Mills
Bell Center
Stueben
Eastman
Wauzeka
Prairie du Chien
Legend
Municipalities
City/Village Limit
Local Gov't Unit Boundaries
Open Water
N
0 1.25 2.5 5 Miles
MRRPC
Map prepared by Jake Stansfield, University of Wisconsin - La Crosse Geography Intern for the Mississippi River Regional Planning Commission


Crawford County
Rivers & Streams
T. Freeman
T. Utica
T. Clayton
T. Seneca
T. Haney
T. Scott
T. Marietta
T. Eastman
T. Wauzeka
T. Prairie Du Chien
T. Bridgeport
Ferryville
Lynxville
Gays Mills
Bell Center
Soldiers Grove
Stueben
Eastman
Wauzeka
Prairie du Chien
Mississippi River
Wisconsin River
Municipalities
City/Village Limit
Local Gov't Unit Boundaries
Water
Streams
Open Water
N
0 1.25 2.5 5 Miles
Map prepared by Jake Stansfield, University of Wisconsin - La Crosse Geography Intern for the Mississippi River Regional Planning Commission

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Crawford County Watersheds
HUC 10



Legend: (some map layers may not be displayed)
- 10-digit HUCs (Watersheds)
- Rivers and Streams
- Intermittent Streams
- Open Water

Notes:

Map projection: NAD 1983 HARN Wisconsin TM

N

Map: 0 20,000 40,000 Feet
0 6,000 12,000 Meters

Service Layer Credits:
DNR Basic Feature Vector Tile Layer WTM: , Hydrologic Units (HUCs): U. S. Department of Agriculture, Natural Resources Conservation Service, Surface Water (Cached): WiDNR, USGS, and other data

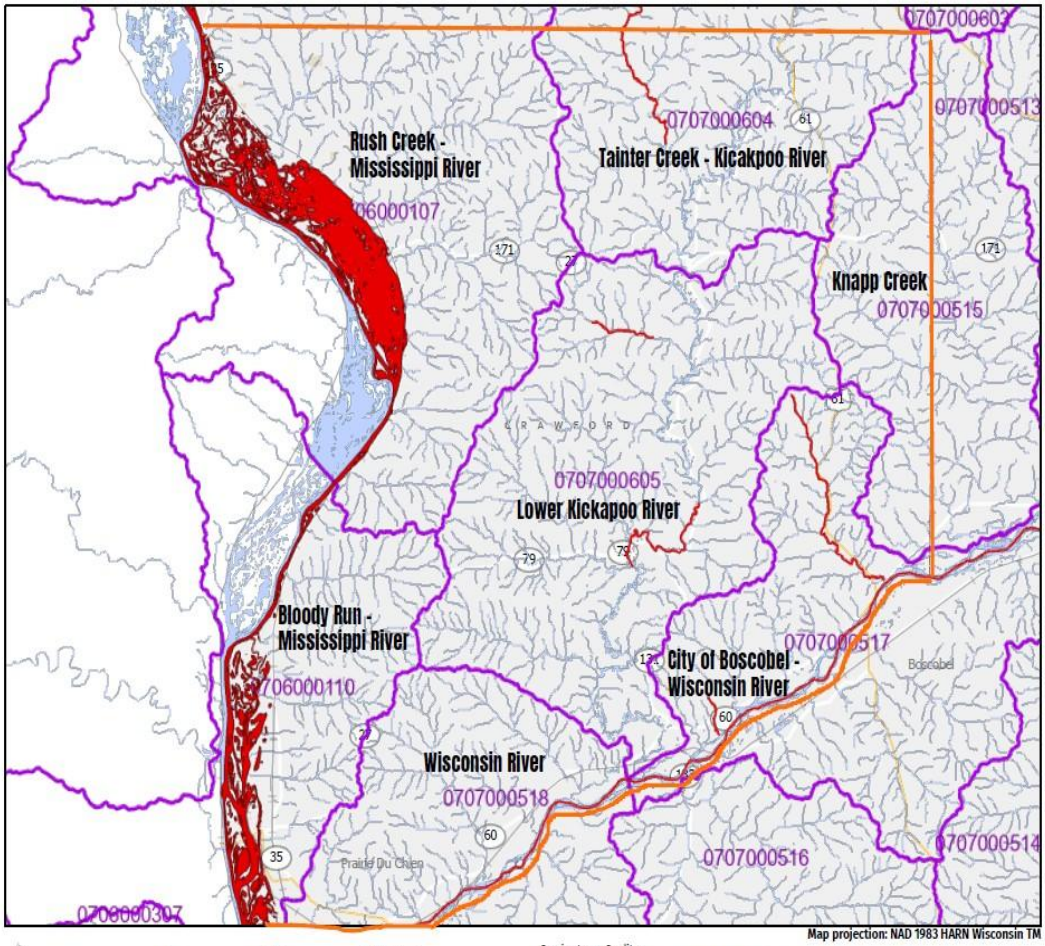
This map is a product generated by a DNR web mapping application.

This map is for informational purposes only and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. The user is solely responsible for verifying the accuracy of information before using for any purpose. By using this product for any purpose user agrees to be bound by all disclaimers found here: https://dnr.wisconsin.gov/legal

Date Printed: 10/30/2025 2:09 PM

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Crawford County
2025 - Impaired Waters and Watersheds



Legend: (some map layers may not be displayed)

- IWL - Lake Reservoir Impoundment Wetland
- IWL - River Stream Beach Shore
- 10-digit HUCs (Watersheds)
- Rivers and Streams
- Intermittent Streams
- Open Water

Notes:

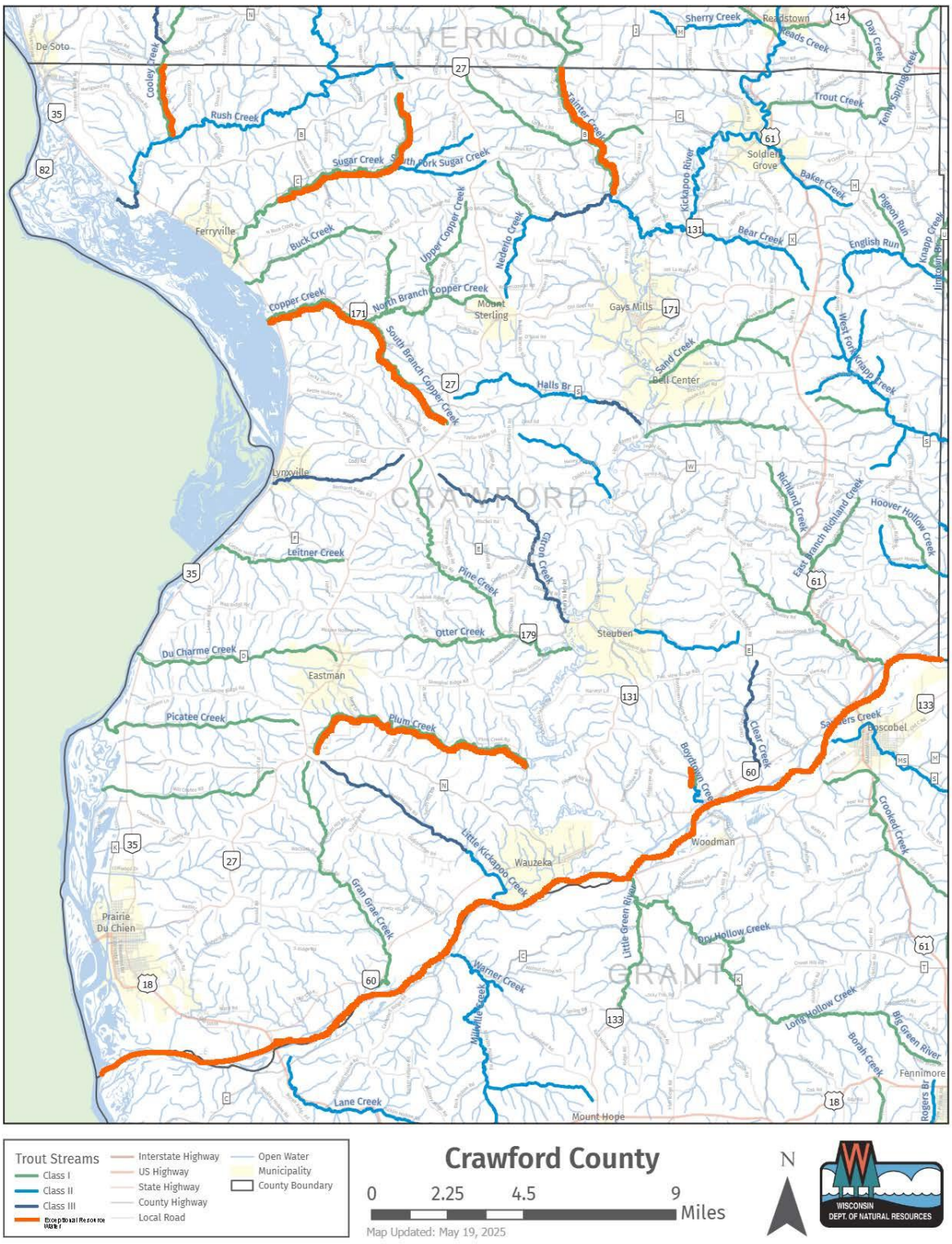
This map is a product generated by a DNR web mapping application.

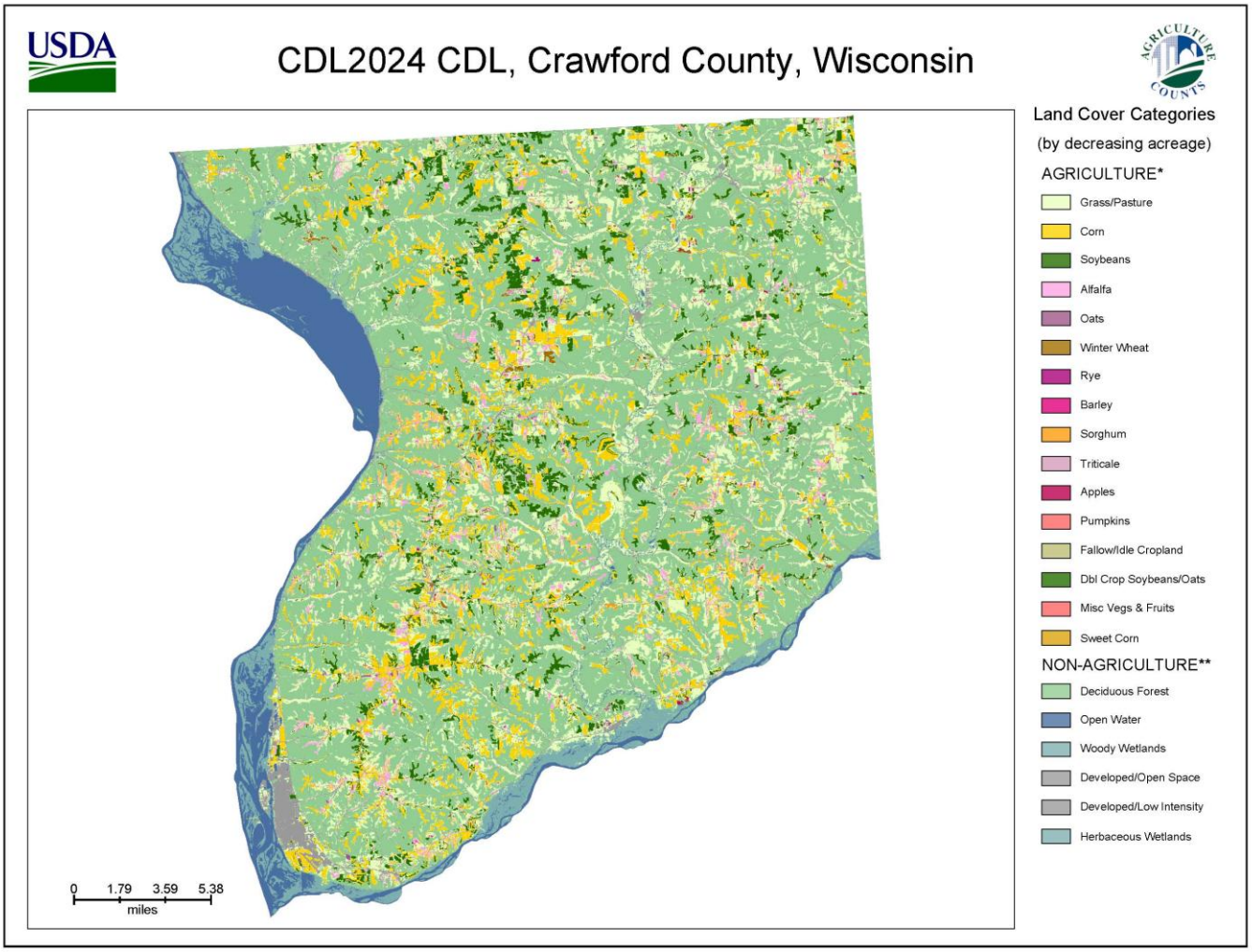
This map is for informational purposes only and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. The user is solely responsible for verifying the accuracy of information before using for any purpose. By using this product for any purpose user agrees to be bound by all disclaimers found here: https://dnr.wisconsin.gov/legal.

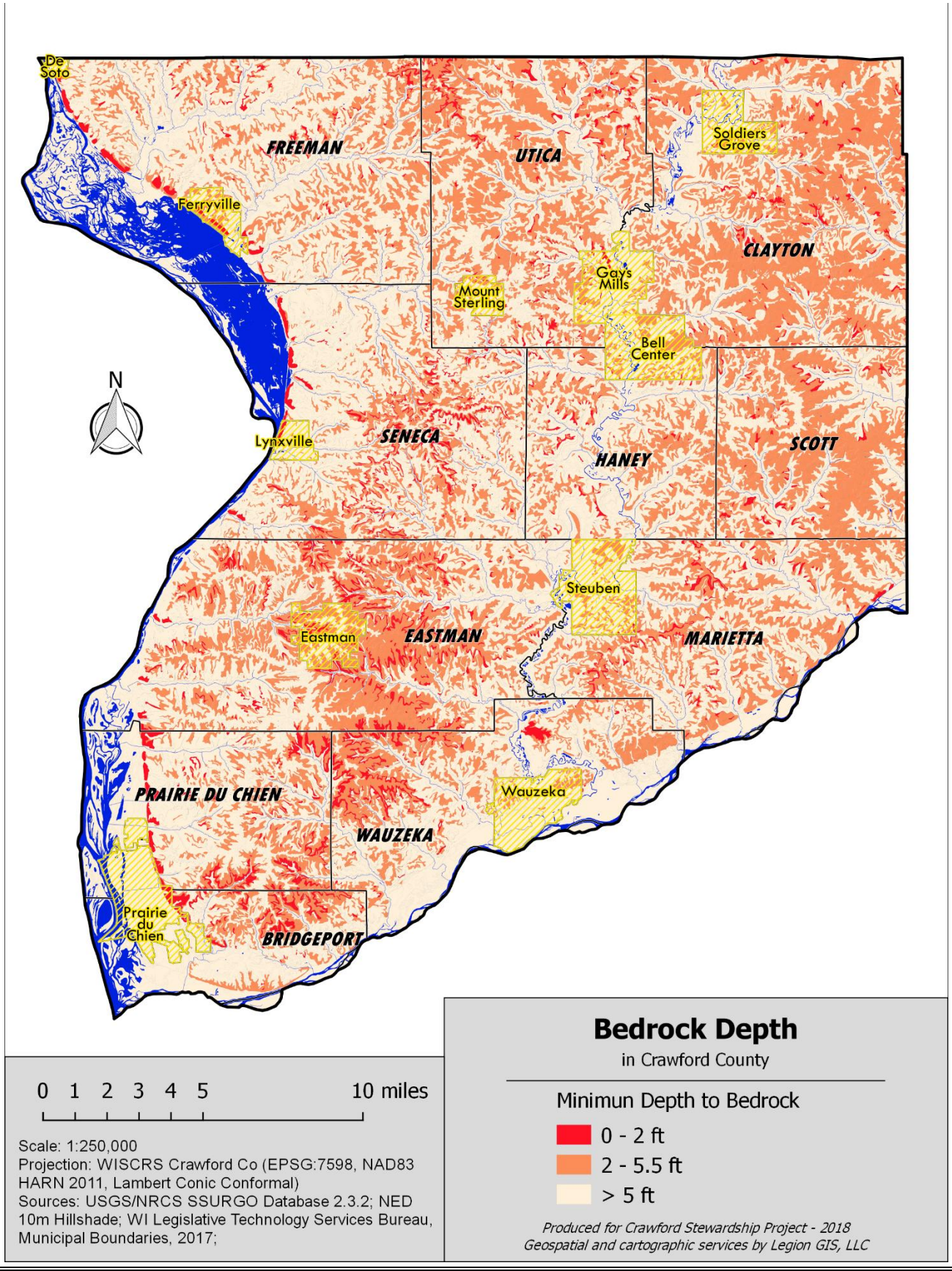
Date Printed: 10/28/2025 8:54 AM

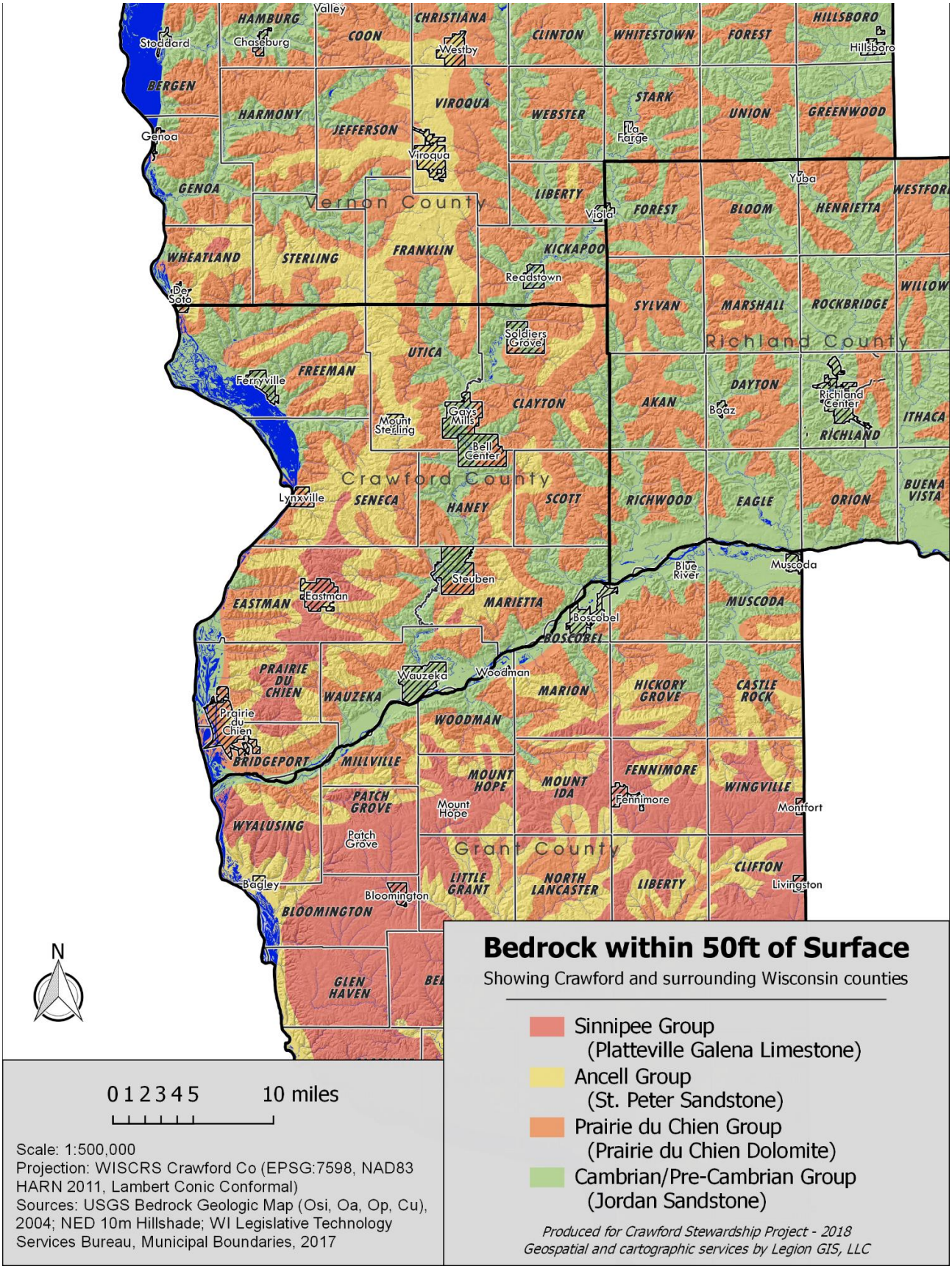
Crawford County Exceptional Resource Waters

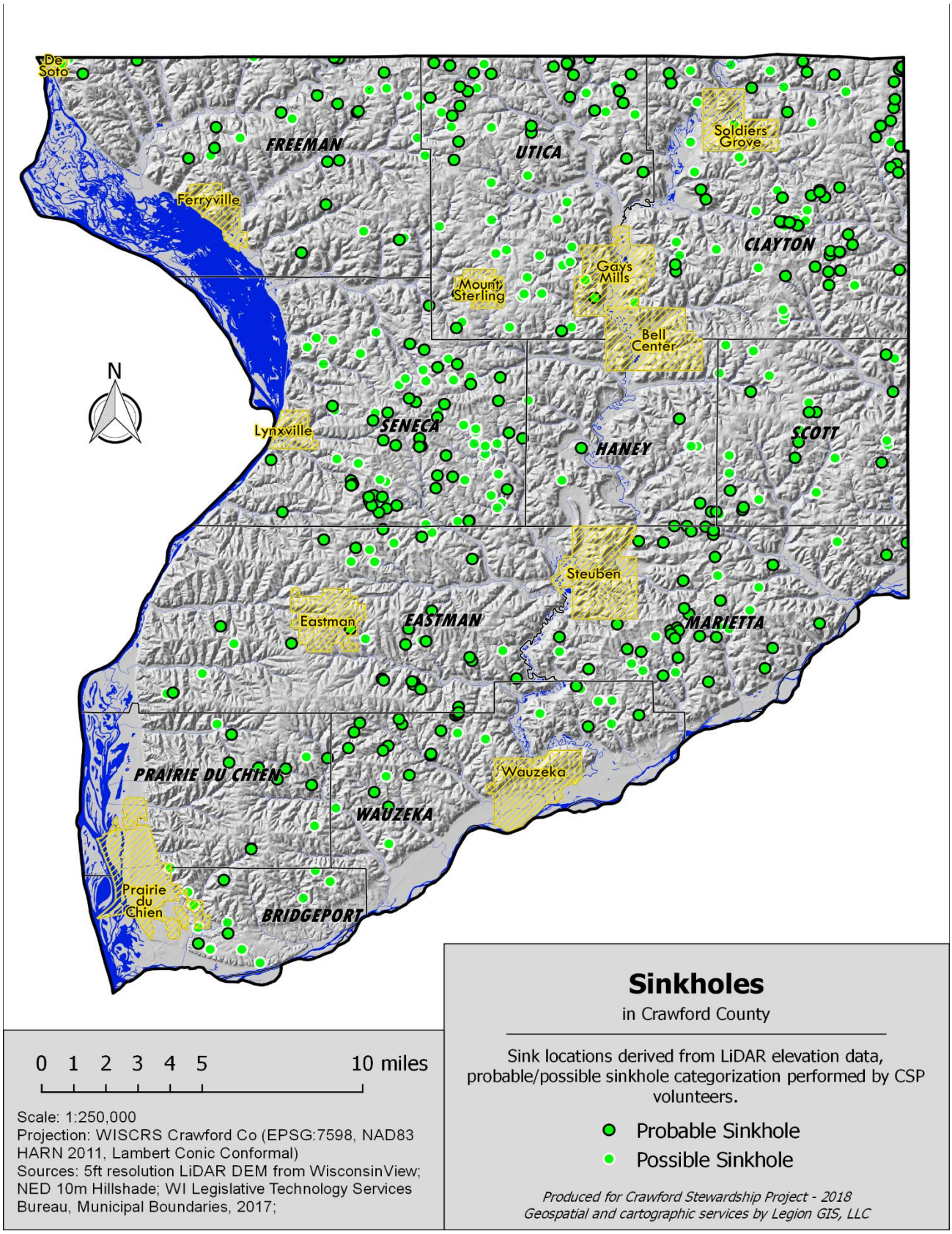
& Trout Stream Classifications

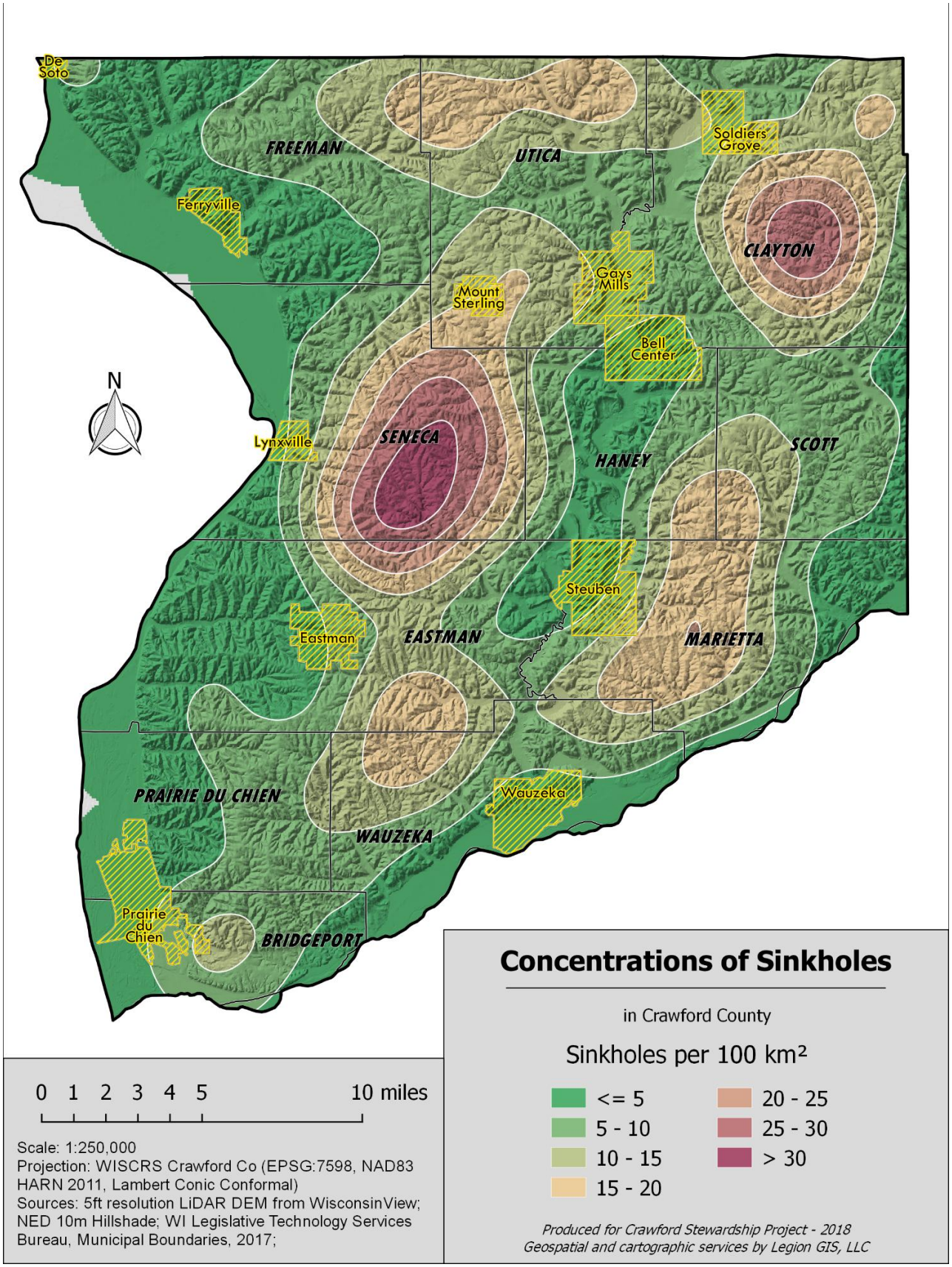


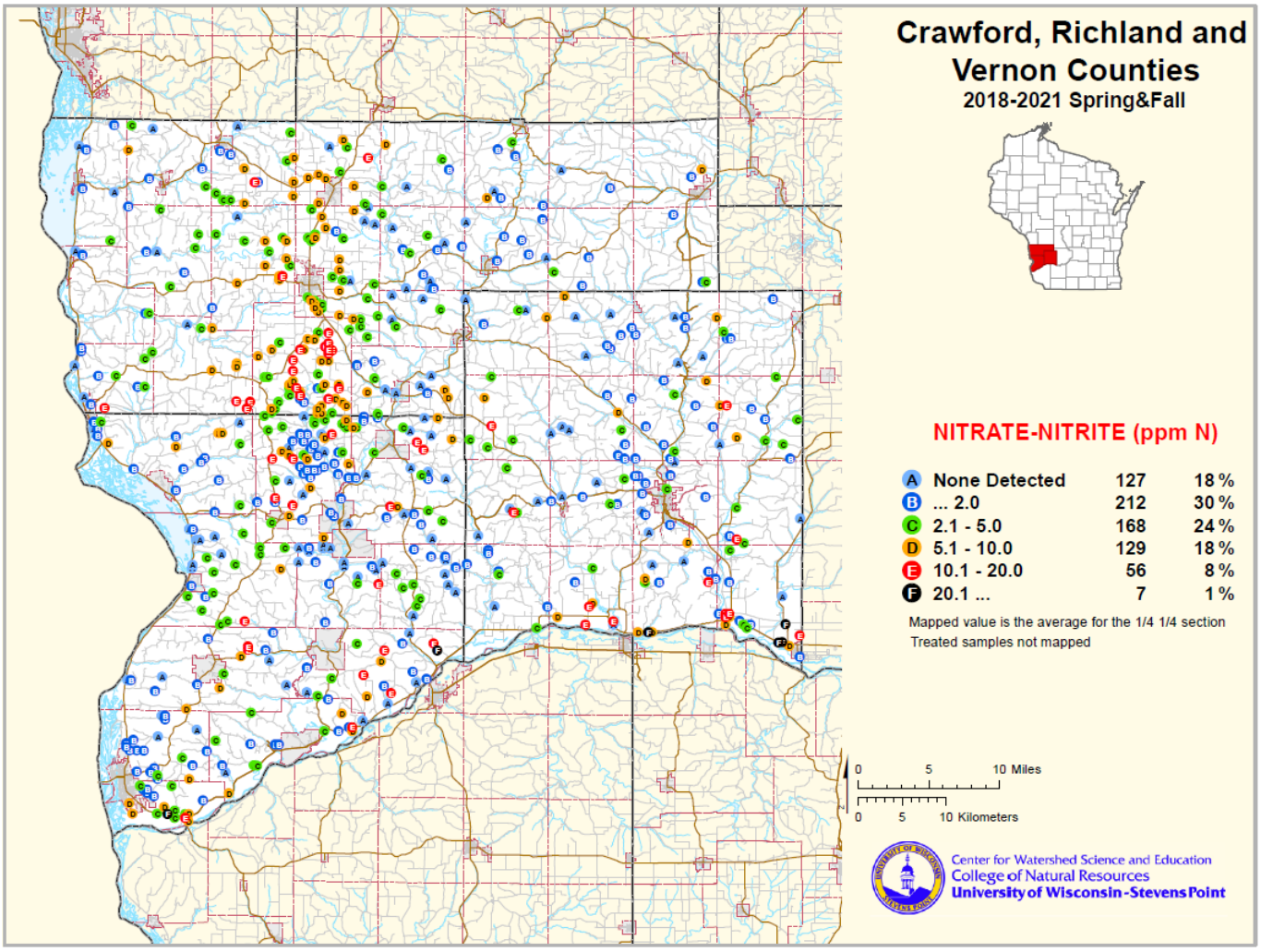

USDA
CDL2024 CDL, Crawford County, Wisconsin
0 1.79 3.59 5.38
miles
Land Cover Categories
(by decreasing acreage)
AGRICULTURE*
Grass/Pasture
Corn
Soybeans
Alfalfa
Oats
Winter Wheat
Rye
Barley
Sorghum
Triticale
Apples
Pumpkins
Fallow/Idle Cropland
Dbl Crop Soybeans/Oats
Misc Vegs & Fruits
Sweet Corn
NON-AGRICULTURE**
Deciduous Forest
Open Water
Woody Wetlands
Developed/Open Space
Developed/Low Intensity
Herbaceous Wetlands
Produced by CropScape - http://nassgeodata.gmu.edu/CropScape
Top 16 agriculture categories / Top 6 non-agriculture categories listed


De Soto
FREEMAN
UTICA
Soldiers Grove
Ferryville
CLAYTON
Gays Mills
Mount Sterling
Bell Center
N
Lynxville
SENECA
HANEY
SCOTT
Steuben
Eastman
EASTMAN
MARIETTA
PRAIRIE DU CHIEN
Wauzeka
WAUZEKA
Prairie du Chien
BRIDGEPORT
0 1 2 3 4 5 10 miles
Scale: 1:250,000
Projection: WISCRS Crawford Co (EPSG:7598, NAD83 HARN 2011, Lambert Conic Conformal)
Sources: USGS/NRCS SSURGO Database 2.3.2; NED 10m Hillshade; WI Legislative Technology Services Bureau, Municipal Boundaries, 2017;
Bedrock Depth
in Crawford County
Minimun Depth to Bedrock
0 - 2 ft
2 - 5.5 ft
> 5 ft
Produced for Crawford Stewardship Project - 2018
Geospatial and cartographic services by Legion GIS, LLC

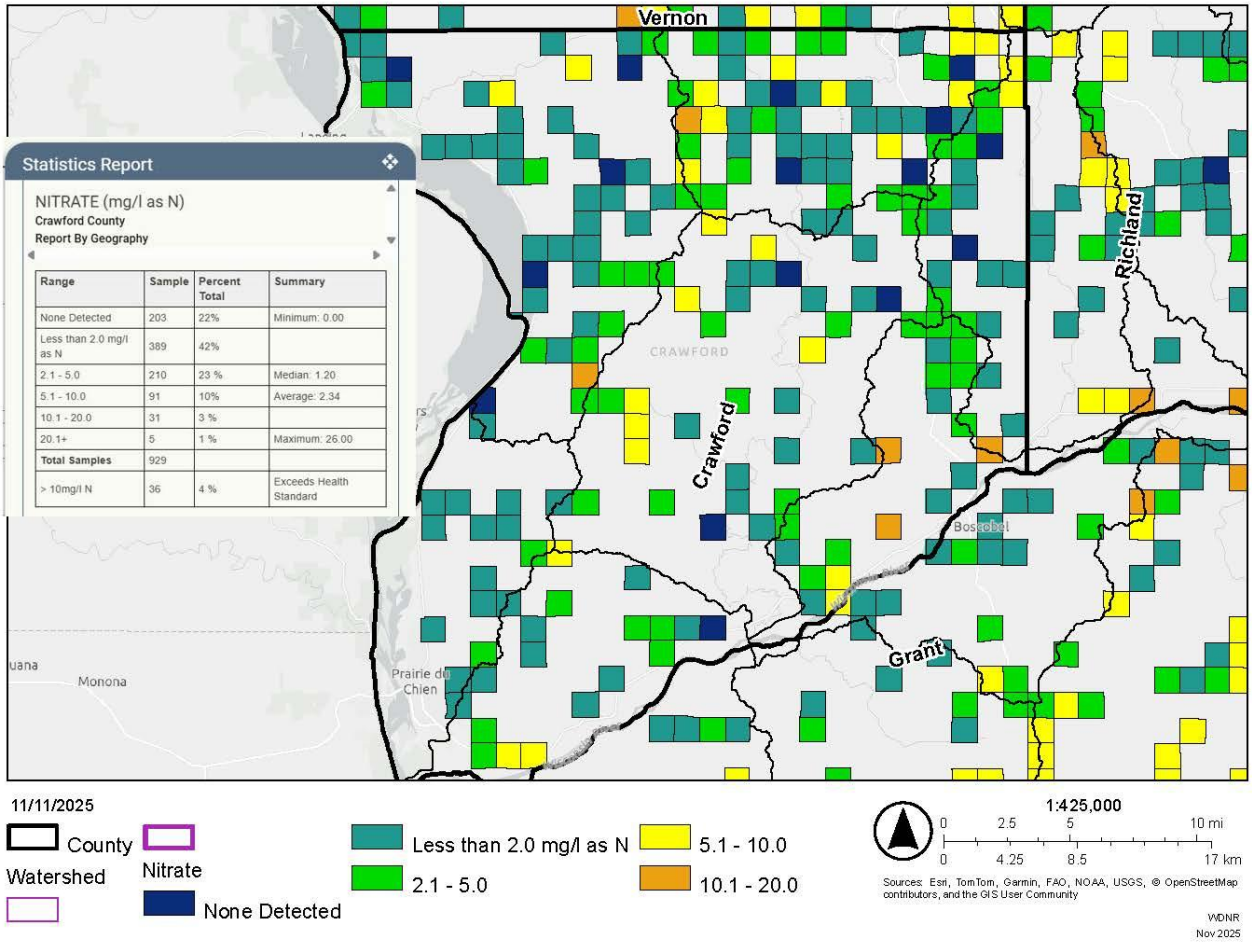

Bedrock within 50ft of Surface
Showing Crawford and surrounding Wisconsin counties
Sinnipee Group
(Platteville Galena Limestone)
Ancell Group
(St. Peter Sandstone)
Prairie du Chien Group
(Prairie du Chien Dolomite)
Cambrian/Pre-Cambrian Group
(Jordan Sandstone)
Produced for Crawford Stewardship Project - 2018
Geospatial and cartographic services by Legion GIS, LLC
N
0 1 2 3 4 5 10 miles
Scale: 1:500,000
Projection: WISCRS Crawford Co (EPSG:7598, NAD83 HARN 2011, Lambert Conic Conformal)
Sources: USGS Bedrock Geologic Map (Osi, Oa, Op, Cu), 2004; NED 10m Hillshade; WI Legislative Technology Services Bureau, Municipal Boundaries, 2017
Vernon County
Crawford County
Richland County
Grant County
Valley
HAMBURG
CHRISTIANA
CLINTON
WHITESTOWN
FOREST
HILLSBORO
Stoddard
Chaseburg
COON
Westby
Hillsboro
BERGEN
HARMONY
VIROQUA
WEBSTER
STARK
UNION
GREENWOOD
Genoa
JEFFERSON
Viroqua
La Farge
GENOA
LIBERTY
Yuba
WESTFORD
Viola
FOREST
BLOOM
HENRIETTA
WHEATLAND
STERLING
FRANKLIN
KICKAPOO
Readstown
De Soto
SYLVAN
MARSHALL
ROCKBRIDGE
WILLOW
Soldiers Grove
UTICA
FREEMAN
Ferryville
DAYTON
Richland Center
CLAYTON
AKAN
Boaz
ITHACA
Gays Mills
Mount Sterling
RICHLAND
Bell Center
Lynxville
SENECA
HANEY
SCOTT
RICHWOOD
EAGLE
ORION
BUENA VISTA
Blue River
Muscoda
Steuben
Eastman
EASTMAN
MARIETTA
MUSCODA
Boscobel
BOSCOBEL
PRAIRIE DU CHIEN
Wauzeka
Woodman
WAUZEKA
MARION
HICKORY GROVE
CASTLE ROCK
Prairie du Chien
WOODMAN
BRIDGEPORT
MILLVILLE
MOUNT HOPE
MOUNT IDA
FENNIMORE
WINGVILLE
Fennimore
Monfort
PATCH GROVE
Mount Hope
WYALUSING
Patch Grove
LITTLE GRANT
NORTH LANCASTER
LIBERTY
CLIFTON
Livingston
Bagley
Bloomington
BLOOMINGTON
GLEN HAVEN


De Soto
FREEMAN
UTICA
Soldiers Grove
Ferryville
CLAYTON
Gays Mills
Mount Sterling
Bell Center
N
Lynxville
SENECA
HANEY
SCOTT
Steuben
Eastman
EASTMAN
MARIETTA
PRAIRIE DU CHIEN
Wauzeka
WAUZEKA
Prairie du Chien
BRIDGEPORT
0 1 2 3 4 5 10 miles
Scale: 1:250,000
Projection: WISCRS Crawford Co (EPSG:7598, NAD83 HARN 2011, Lambert Conic Conformal)
Sources: 5ft resolution LiDAR DEM from WisconsinView; NED 10m Hillshade; WI Legislative Technology Services Bureau, Municipal Boundaries, 2017;
Sinkholes
in Crawford County
Sink locations derived from LiDAR elevation data, probable/possible sinkhole categorization performed by CSP volunteers.
Probable Sinkhole
Possible Sinkhole
Produced for Crawford Stewardship Project - 2018
Geospatial and cartographic services by Legion GIS, LLC

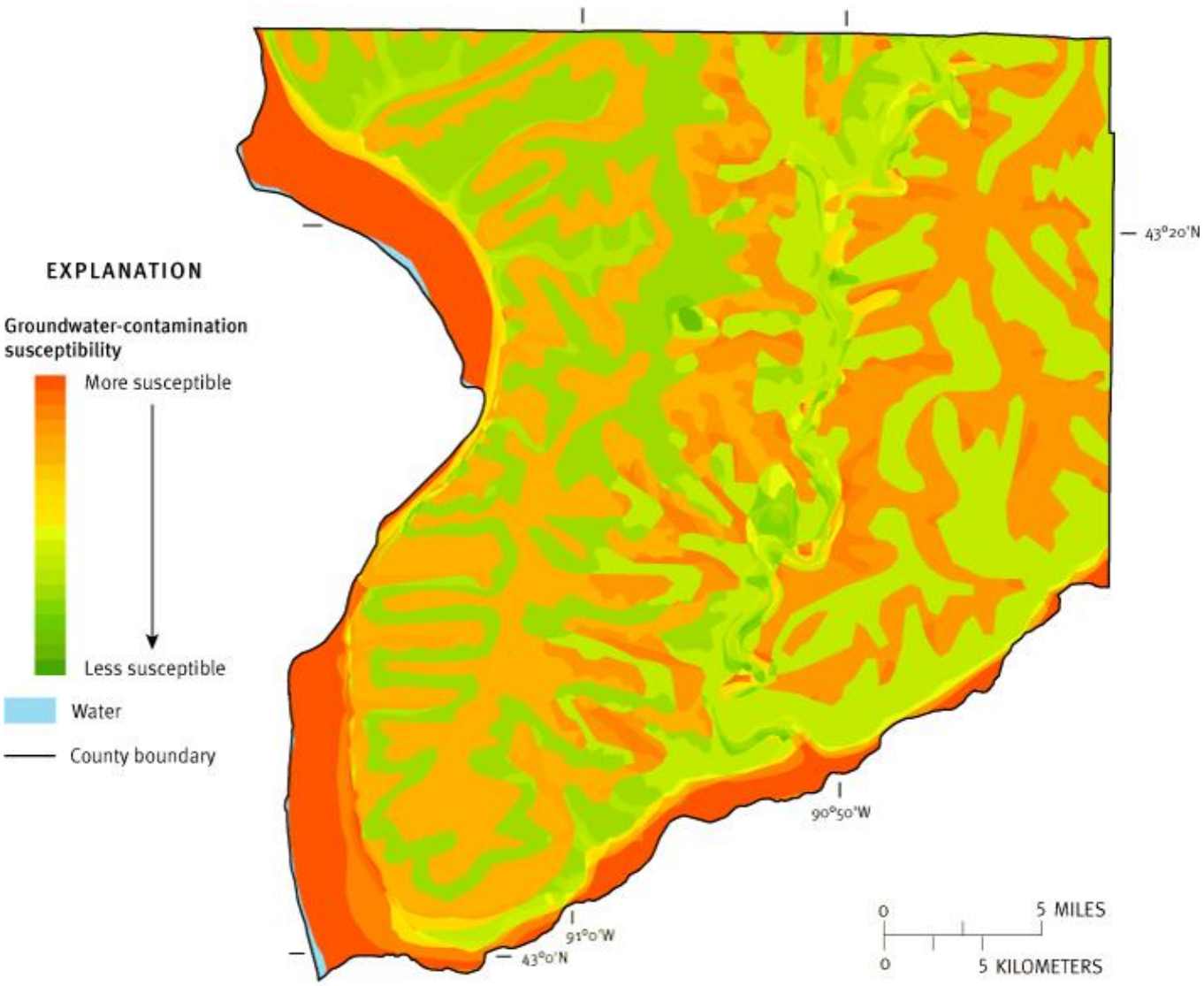

De Soto
FREEMAN
UTICA
Soldiers Grove
Ferryville
CLAYTON
Gays Mills
Mount Sterling
Bell Center
N
Lynxville
SENECA
HANEY
SCOTT
Steuben
Eastman
EASTMAN
MARIETTA
PRAIRIE DU CHIEN
Wauzeka
WAUZEKA
Prairie du Chien
BRIDGEPORT
0 1 2 3 4 5 10 miles
Scale: 1:250,000
Projection: WISCRS Crawford Co (EPSG:7598, NAD83 HARN 2011, Lambert Conic Conformal)
Sources: 5ft resolution LiDAR DEM from WisconsinView; NED 10m Hillshade; WI Legislative Technology Services Bureau, Municipal Boundaries, 2017;
Concentrations of Sinkholes
in Crawford County
Sinkholes per 100 km²
<= 5
5 - 10
10 - 15
15 - 20
20 - 25
25 - 30
> 30
Produced for Crawford Stewardship Project - 2018
Geospatial and cartographic services by Legion GIS, LLC


Crawford, Richland and Vernon Counties
2018-2021 Spring&Fall
NITRATE-NITRITE (ppm N)
A None Detected 127 18 %
B ... 2.0 212 30 %
C 2.1 - 5.0 168 24 %
D 5.1 - 10.0 129 18 %
E 10.1 - 20.0 56 8 %
F 20.1 ... 7 1 %
Mapped value is the average for the 1/4 1/4 section
Treated samples not mapped
0 5 10 Miles
0 5 10 Kilometers
Center for Watershed Science and Education
College of Natural Resources
University of Wisconsin-Stevens Point

Crawford County - Private Wells Nitrate Contamination - 2025



Crawford County – Groundwater-Contamination Susceptibility Analysis

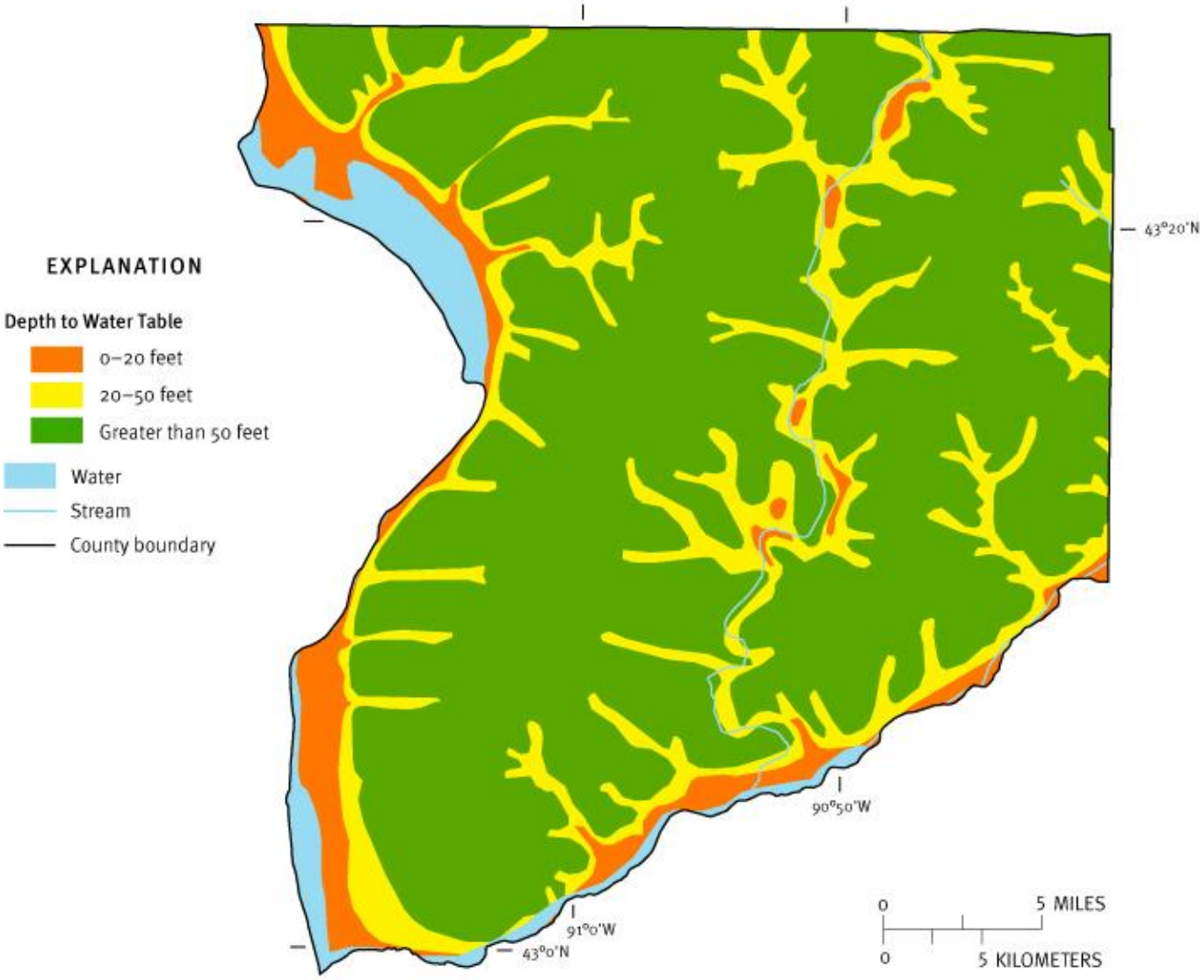


This groundwater-contamination susceptibility map is a composite of five resource characteristic maps, each of which was derived from generalized statewide information at small scales, and cannot be used for any site-specific purposes.

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

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

Crawford County – Depth to Water Table

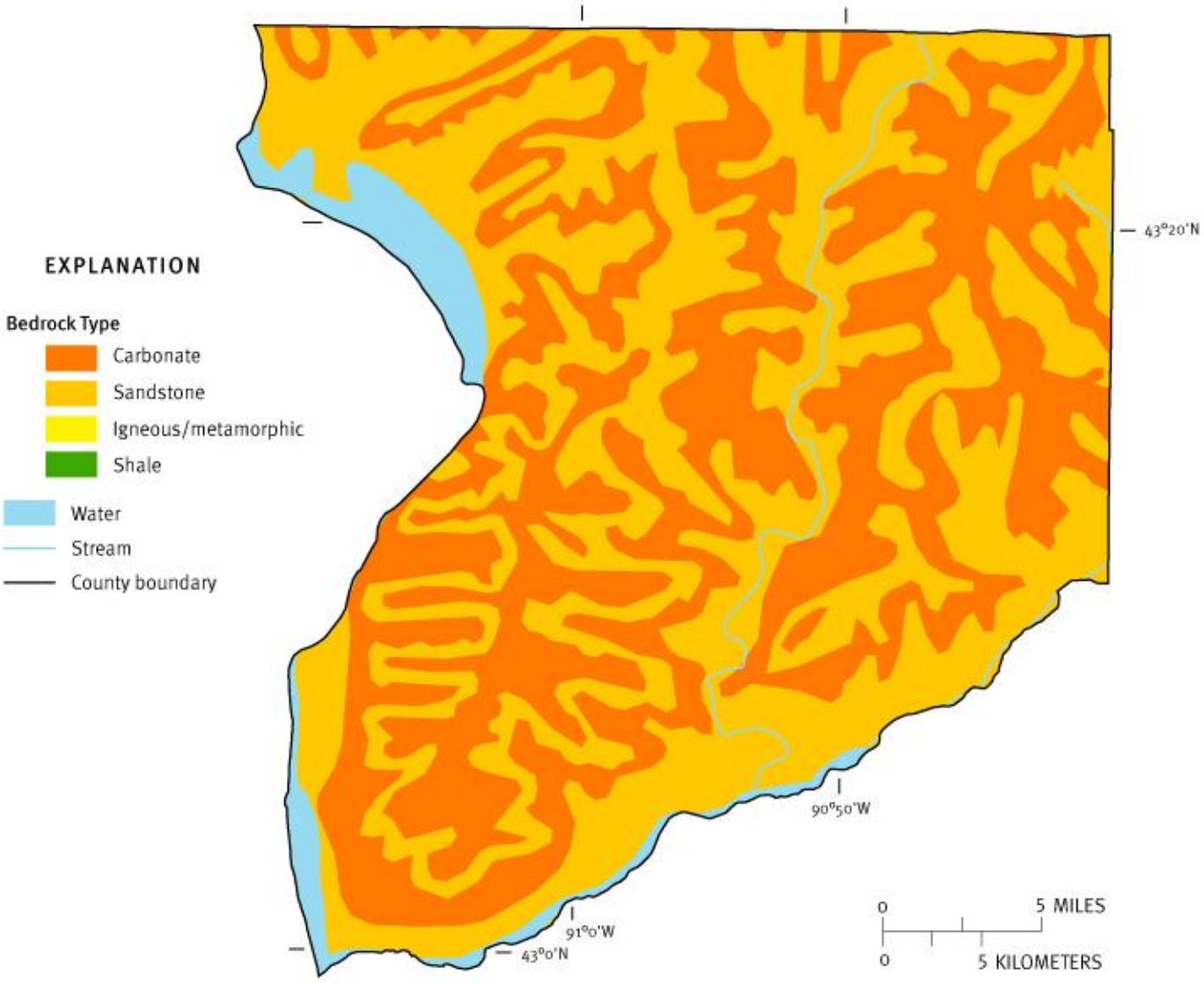


This resource characteristic map was derived from generalized statewide information at small scales, and cannot be used for any site-specific purposes.

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

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

Crawford County – Bedrock Type



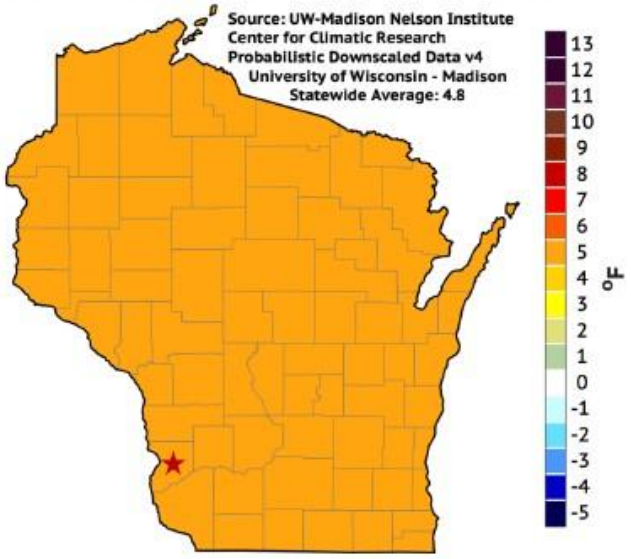
This resource characteristic map was derived from generalized statewide information at small scales, and cannot be used for any site-specific purposes.

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

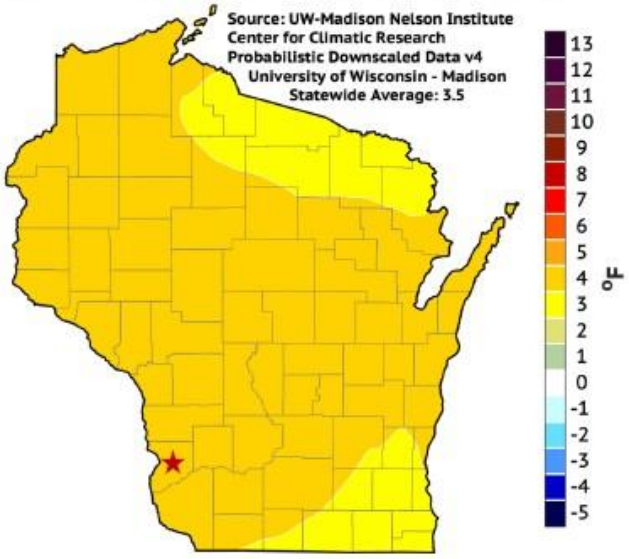
Figure created for the "Protecting Wisconsin's Groundwater Through Comprehensive Planning" web site, 2007, *http://wi.water.usgs.gov/gwcomp/*

Projected Change in Average Temperature by Season

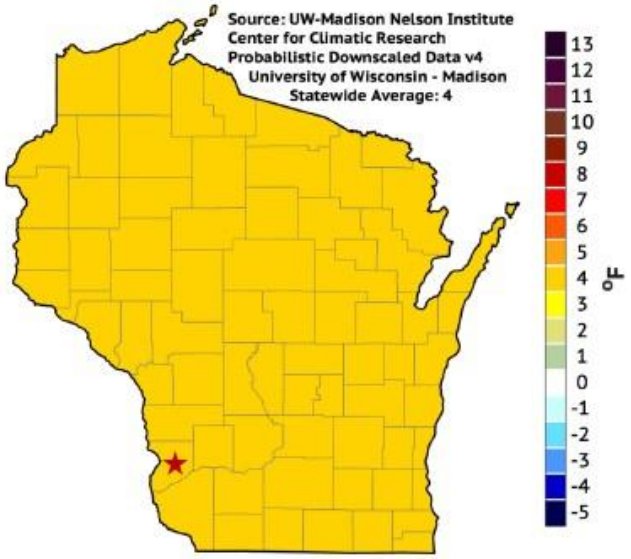
Change in Winter Daily Mean Temperature
Medium Emissions, 2041-2060 vs. 1991-2020



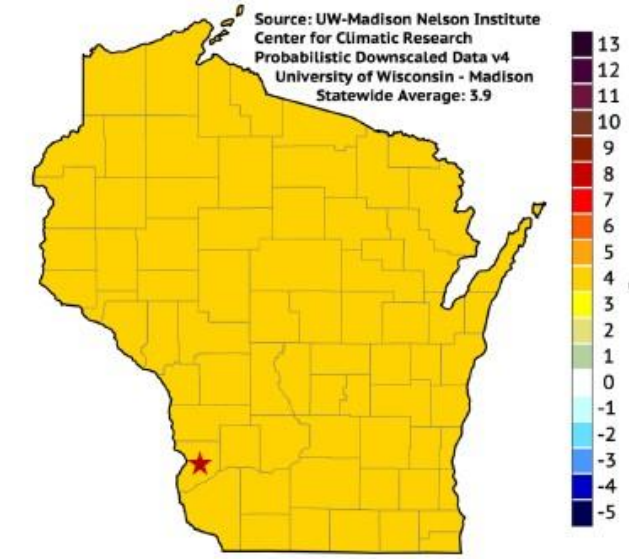
Change in Spring Daily Mean Temperature
Medium Emissions, 2041-2060 vs. 1991-2020



Change in Summer Daily Mean Temperature
Medium Emissions, 2041-2060 vs. 1991-2020

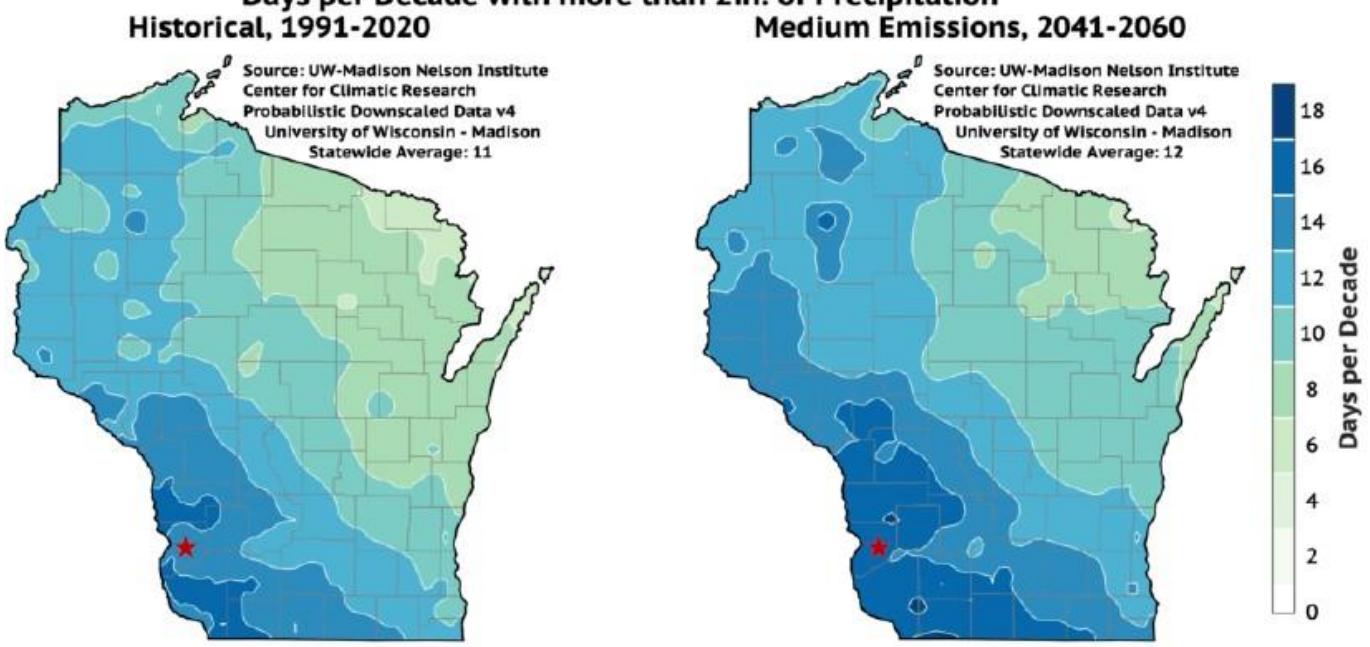


Change in Fall Daily Mean Temperature
Medium Emissions, 2041-2060 vs. 1991-2020



Projected Change in Extreme Precipitation

Days per Decade with more than 2in. of Precipitation



Days per Century with more than 5in. of Precipitation