Crawford County Land and Water Resource Management Plan 2016-2025

Crawford County Land Conservation Department

Plan Adopted by the Crawford County Board of Supervisors
XXXX, 2016

Prepared By: Mississippi River Regional Planning Commission

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 plans 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 a subsequent update in 2006 and 2010. The 2016 plan revision is anticipated to be approved by the Land and Water Conservation Board and the Crawford County Board of Supervisors by the Fall of 2016.

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 May of 2016.

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:

- *State of the Basin Plans, Wisconsin DNR*
- *Crawford County Farmland Preservation Plan,* 1982 (revised 2005 to include new performance standards, currently being fully revised in 2016)
- *Crawford County Soil Erosion Control Plan,* 1987
- *Hydrologic Assessment of the Kickapoo Watershed,* 1998

Resource Assessment

County Snapshot

Crawford County (population 16,644) 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 5,911. 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 soil areas in Crawford County. Soil areas include Uplands, Sandy terraces, Silty terraces, Silty bottoms, and Alluvial.

Cropland and Gully Erosion

Transect survey, field assessments, and spot measurements show cropland soil loss rates at slightly over "T". An increase in row crop farming has led to more conservation tillage for operators who participate in government programs.

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. 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.

Nutrient Management
Part of the state's soil and water conservation standards entails obtaining and maintaining a NRCS 590 Standard- compliant Nutrient Management Plan on all cropland and managed pasture ground. Thanks primarily to the need for Farmland Preservation Program requirement, the amount of Crawford County farmland covered by a Nutrient Management Plan has risen from less than 1% to over 10% in the last 5 years. The two big concerns addressed by NMPs are soil erosion and associated phosphorous discharge.

Watersheds
There are five watersheds in Crawford County; Reads and Tainter Creeks Watershed, Lower Kickapoo River Watershed, Knapp Creek Watershed, and Millville Creek 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 51 streams classified by the DNR as trout streams. There are 176.38 miles of Class I, 89.52 miles of Class II, and 28.21 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 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.

The Blackhawk/Kickapoo Dam #6
The 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 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. There is intense development pressure in the Mississippi River Valley to ditch, tile, and drain for recreational pursuits. There are several 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 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.

Land Management

Goal 1: Encourage sustainable forestry practices that respect 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 Performance Standards

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 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*
- *Manure Storage Ordinance*
- *Livestock Siting Ordinance*
- *Performance Standards: NR 151 Performance Standards Implementation Strategy*

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, 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 to implement programs.

- USDA
- *DNR*
- *US Fish and Wildlife Service*
- *DATCP*
- *UW-Extension*
- *Active Partners in Conservation*
- *Southwest Badger RC&D*
- *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 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: Crawford County Land Conservation Department, UW-Extension NPM Staff Ag/Resource Agent, USDA- FSA & NRCS Offices, and Southwest Badger RC&D. 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 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, and CREP agreements and easements will also be linked to the tax parcels.

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.

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 2-1
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) 2-2
Geography and Geology 2-3
Resource Assessment 2-3
County Soils 2-3
Cropland and Gully Erosion 2-3
Animal Waste 2-4
Nutrient Management 2-4
Watersheds 2-4
Table 2-4 Crawford County Watershed Rankings 2-4
Lower Wisconsin River Basin 2-5
Bad Axe-La Crosse River Basin 2-6
Hydrology and Fish Habitat 2-6
Table 2-5 Trout Streams in Crawford County 2-6
Outstanding and Exceptional Resource Waters of Crawford County 2-6
Table 2-6 Farms by Size and Type (Crawford County) 2-7
The Blackhawk/Kickapoo Dam #6 2-7
Wetlands 2-7
Forest Land 2-7
Climate Change 2-8
Invasive Plants and Species 2-8

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 3-1
Table 3-1- Soil Erosion Rates 3-2
Goal 1: Maintain soil erosion on all cropland to “T” 3-2
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 and enhance surface, groundwater and riparian areas 3-4
Goal 2: Implement NR151 Strategy outlined in Section 4 of this plan 3-5
Goal 3: Increase funding for cost-sharing and demonstration projects 3-6
Category 3 – Land Use Planning 3-6
Goal 1: Work with Towns to implement their comprehensive plans 3-6

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 resource of the county 3-6
Goal 3: Improve and protect the quality of natural resources by the judicious & economic use of nutrients 3-7
Category 4 – Land Management 3-7
Goal 1: Encourage sustainable forestry practices that respect our unique ecosystems 3-7
Goal 2: Protect and enhance important wildlife habitat areas 3-8
Goal 3: Limit Wildlife damage to crops 3-8
Category 5 – Waste Disposal 3-8
Goal 1: Provide hazardous waste recycling/ disposal opportunities 3-9

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
Informational Brochures – Mailings 4-2
Regulatory Requirements and Performance Standards 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
Performance Standards: NR 151 Performance Standards Implementation Strategy 4-3
Identification of Priority Farms 4-3
Action Items for Priority Farms 4-3
Information and Educational Activities 4-4
Determining Current Compliance 4-4
Administer Funding and Technical Assistance 4-4
Strategy to Encourage Voluntary Compliance 4-5
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
Nutrient Management Plan Tracking 6-1
Water Quality Monitoring 6-1
Geographic Information System (GIS) 6-1
Annual Accomplishment Reports 6-1

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

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 and 2010. Since completion of the original plan resource concerns continue to change. Some major trends and issues affecting Crawford County are:

- NR 151 is passed, creating 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 parlors 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 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 Plan 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 Advisory Council meetings were notified to the public and were open meetings. The advisory council identified the following issues from departmental reviews, personal experience and review of the existing LWMR plan.

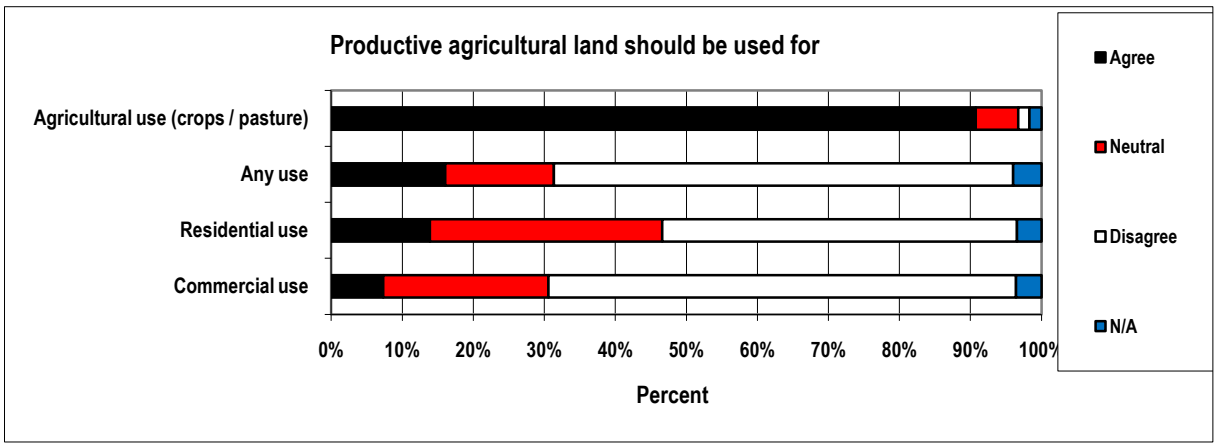
- ► Water quality and non-point source pollution.
- ► Impacts of inadequate land use planning
- ► Groundwater pollution and protection
- ► Nutrient Management education and research
- ► Preservation of land for agricultural use
- ► Preservation of forestlands to maintain their economic value
- ► Preservation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

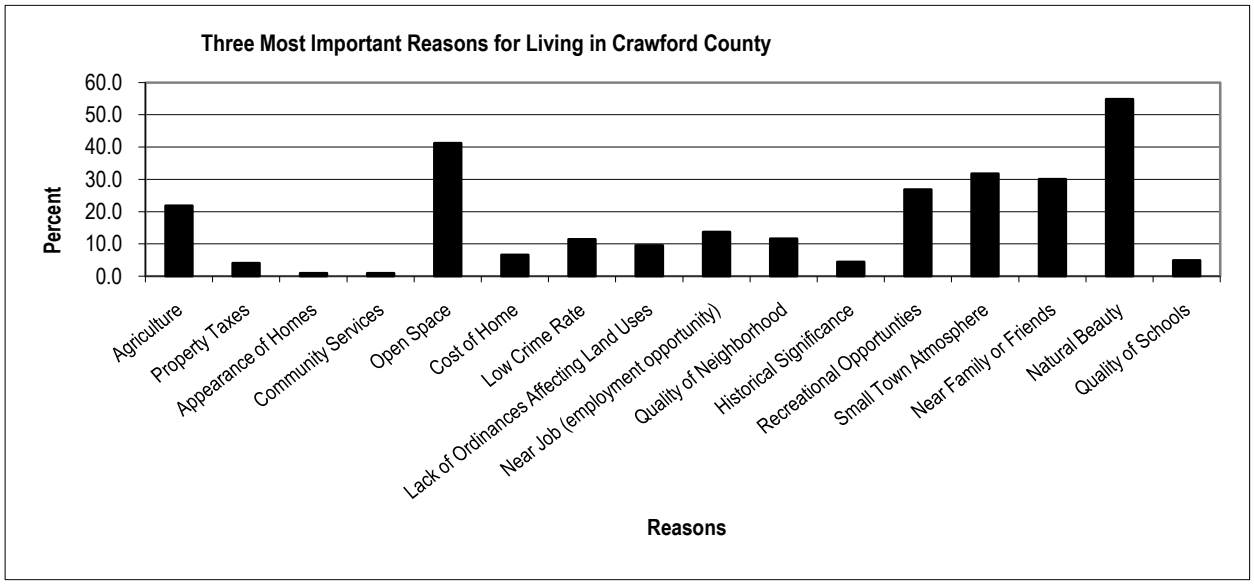
Crawford County Land Conservation Committee (membership listed in Appendix A), had the discussion of the plan as an agenda item on numerous meetings during the development of the plan. They discussed the goals from the previous Land and Water Plan and identified goals and objectives for the revised LWRM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

Additional agencies and departments requested to provide input on the LWRMP include UW Extension, Planning and Zoning, NRCS staff, Farm Service Agency 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.




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

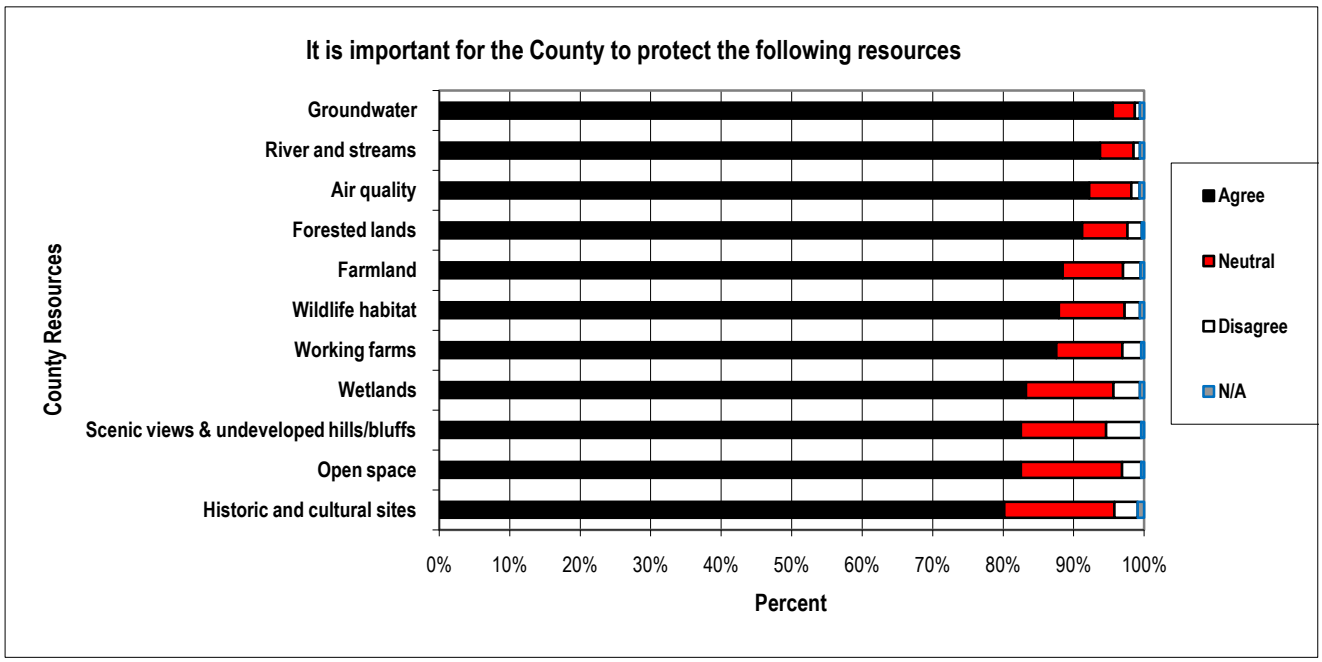
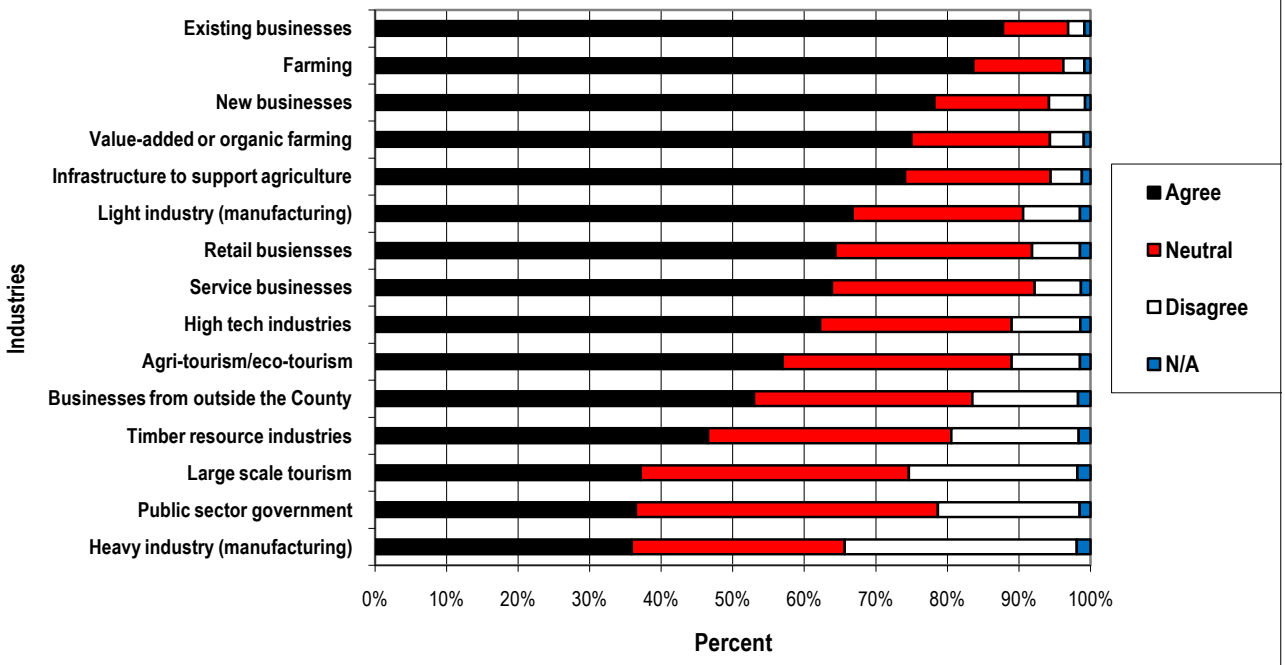

It is important for the County to protect the following resources
County Resources
Groundwater
River and streams
Air quality
Forested lands
Farmland
Wildlife habitat
Working farms
Wetlands
Scenic views & undeveloped hills/bluffs
Open space
Historic and cultural sites
0%
10%
20%
30%
40%
50%
60%
70%
80%
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. *State of the Basin Plans, Wisconsin DNR:*
   These plans provide an overview of land and water resource quality in their basins and outline actions to address resource concerns.

- The State of the Bad Axe – La Crosse River Basin, 2002
  Web site – http://dnr.wi.gov/water/basin/balax/badaxe_1.pdf
- The State of the Lower Wisconsin River Basin,
  Web site - http://dnr.wi.gov/water/basin/lowerwis/index.asp

2. *Crawford County Farmland Preservation Plan,* 1982 (revised 2005 to include performance standards, and in the process of being 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.

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 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.

Land Management

Goal 1: Encourage sustainable forestry practices that respect 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.

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.

A view of Crawford County's Rolling Landscape

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 2015, Crawford County's population was estimated at 16,739 a gain of 95 people from the 2010 census figure of 16,644.

Agriculture Snapshot

The following tables illustrate historical trends in agriculture over the past 23-years. Table 1-1 shows that the total number of farms in Crawford County has increased from 978 in 1992 to 1,105 in 2012. This is an increase of 127 farms since 1992 however it is a decrease of 242 farms since 2007. The table also illustrates that farms are being fragmented as the number of farms over 180 acres has substantially decreased over the 15-year period while the number of smaller farms (less than 180 acres) has increased. 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

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 23-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 546,586 bushels in 2012.

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

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 over 30 percent. In addition, annual milk production also decreased by 45%.

Table 2-3 Livestock Changes (Crawford County)

	Milk Cows			
Year	Annual Milk Production	Annual Average Milk Cows	Cattle	Hogs All
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-

USDA-National Agriculture Statistics Service (NASS) Quick Stats

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.

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 have been *reduced* to an average of 2.2-tons/acre/year-soil loss as figured in the 2009 Crawford County transect survey. Each year the Crawford County LCD and NRCS assist producers in laying out additional contour strips, which will also greatly aid in reducing erosion.
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. It should also be noted that any measure of erosion does not necessarily mean the soil is being delivered to surface waters.

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.

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). 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. 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 be 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 plans.

Watersheds

There are five major Watersheds in Crawford County, Rush Creek, Reads & Tainter Creek, Lower Kickapoo River, Knapp Creek, and Millville Creek (for map, see Appendix D-2).

The Rush Creek Watershed extends west from Highway 27 toward the Mississippi. 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.). There are many small steep prairies on the bluffs that create a unique climate for rare flora and fauna. USDA – NRCS and WI DNR are moving to protect these areas. The Mississippi Valley Conservancy is also active here purchasing conservation easements.

The Reads and Tainter Creeks watershed is the northeast corner 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 Lower Kickapoo River Watershed, in south central Crawford County, and 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 Kickapoo River near Gays

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

The Millville Creek 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.

Watershed Rankings and DNR Basin Plan Recommendations

Crawford County contains all or part of five 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 Crawford County watershed rankings and 303(d) list status.

Table 2-4 Crawford County Watershed Rankings

Watershed Name	River Basin	NPS Ranking	NPS 303(d) list	Comments
Knapp Creek LW08	Lower Wisconsin	Medium		
Reads and Tainter Creek LW03	Lower Wisconsin	High		
Lower Kickapoo LW02	Lower Wisconsin	High	Kickapoo River near Steuben Halls Branch (lower 3 miles)	Impaired by mercury, total phosphorous Impaired by sediment
Millville Creek LW01	Lower Wisconsin	Not Ranked		
Rush Creek BL01	Bad Axe – La Crosse	High		

Crawford County has used these plans and consulted with DNR staff on resource priorities in the county. DNR staff and Crawford County LCD staff agree on the resource priorities in the basins and watersheds. These plans make the following recommendations and observations:

Lower Wisconsin River Basin: (July 2002 plan date)

Millville Creek Watershed (LW01)

- Gran Grae should be surveyed for fish, habitat, and rare aquatic elements. The stream uplands should have a non-point source pollution reduction project.

Lower Kickapoo River Watershed (LW02)

- DNR should perform fish and habitat surveys on Sand, Plum, Halls Branch, and the Kickapoo rivers to update existing data
- DNR should summarize the long term (since 1977) water quality data at Steuben

Reads and Tainter Creeks Watershed (LW03)

- DNR should update fish & habitat survey on Baker, Bear, and Tainter Creeks
- In-stream habitat improvement is needed in Nederlo, Tainter, and Trout Creek
- Do an experimental wild brook trout stocking above the county dam (BK#6) on Nederlo Creek

Knapp Creek Watershed (LW08)

- Collect fish, habitat, and water quality data for Richland Creek
- Consider West Fork of Knapp Creek & Boydtown Creek for non-point source pollution reduction project and experimental wild strain brook trout introduction

Bad Axe – La Crosse Basin: (July, 2002 plan date)
Rush Creek Watershed (BL01)

- Conduct fish and habitat surveys on Buck, Copper, Sugar, and Kettle Hollow Creek
- Consider riparian buffers and in-stream habitat for Cooley Creek

Hydrology and Fish Habitat

The streams of Crawford County are defined and greatly influenced by the steep topography of the area. Five drainage areas, defined by the Wisconsin DNR, lie within the county: Rush Creek, Reads and Tainter Creeks, Lower Kickapoo River, Millville Creek and Knapp Creek. The Rush Creek Watershed is located within the Bad Axe – La Crosse River Basin and flows into the Mississippi River. The remaining four watersheds drain into the Lower Wisconsin River.

A rip rap project in the County

Crawford County contains approximately 415 miles of streams (recent source – DNR personnel) (excluding the Mississippi River), with 51 different streams totaling 294.11 miles (or 71%) classified as trout streams. See Table 2-5 for a list of trout streams located in Crawford County. Of these, 176.38 miles of streams (or 43% 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.

Table 2-5 Trout streams in Crawford County

Bear Creek	Kickapoo River	Rush Creek
Boydtown Creek	Knapp Creek	Sand Creek
Buck Creek	Leitner Creek	South Branch Copper Creek
Citron Creek	Little Kickapoo Creek	South Fork Sugar Creek
Clear Creek	Nederlo Creek	Sugar Creek
Cooley Creek	North Branch Copper Creek	Tainter Creek
Copper Creek	Otter Creek	Trout Creek
Du Charme Creek	Picatee Creek	Upper Copper Creek
East Branch Richland Creek	Pigeon Run	West Fork Knapp Creek
English Run	Pine Creek	16 Unnamed Creeks
Gran Grae Creek	Plum Creek	
Hoover Hollow Creek	Richland Creek	

Because of the topography of Crawford County, sediment from eroding streambanks is a major contributor to the degradation of the counties 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. Referring upstream to Monroe County's Middle Kickapoo River Watershed Inventory, 66% of the degraded streambanks had agricultural erosive impacts. This is a reasonable figure to apply to Crawford County. The Land Conservation Department staff believes this finding shows that cattle exclusion does not necessarily solve stream bank erosion problems.

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.

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 (Class I portion)	Rush Creek	2.7	ERW
Tainter Creek (Cnty B to County Line)	Reads / Tainter Creek	4.8	ERW
Wisconsin River	Several	3.1	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

The Crawford County actively operates and maintains one large, earthen embankment flood control dam built under the federal program PL566 in partnership with USDA/NRCS. 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 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 plantation and changes in inventory criteria.

Over 93% of the forest 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, 2016, a total of 807 landowners had enrolled 47,990 acres of forestland into the Managed Forest Law Program.

Climate Change

According to the Wisconsin Initiative on Climate Change Impacts 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 Wisconsin, the average annual temperature rose about 1.1° from 1950 to 2006, according to analysis by scientists at the University of Wisconsin-Madison. The one-degree increase combined with the shorter length of time that our lakes remain frozen, the change in timing of some bird migrations, and the emergence and flowering of certain plants indicate milder winters and earlier springs. The state's climate scientists suggest that Wisconsin's warming trend will not only continue, it will 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 rain storms heighten the potential for significant soil erosion, 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 manage flood waters, mitigate risks to public health, and prevent degradation to water quality. Changes in temperature and precipitation could affect Wisconsin's growing seasons, crop yields, weed and pest infestations, and animal productivity.

Invasive Plants and 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 and Southwest Badger RC&D have received WI DNR Rapid Response Grants to help fight Japanese hops in Copper Creek and Citron Creek. Gypsy Moth and Emerald Ash Borer are pests that pose a great threat to the County's forested lands. Gypsy moths are not abundant in the County but continue to be a growing threat as they spread from the east. The WDNR operates a Gypsy Moth Suppression program that's goal is 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.

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, USDA-FSA 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. These meetings took place between March and June of 2016.

Land Conservation Committee:

- The Committee reviewed past goals, objectives and actions at its March 2016 meeting 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 June 2016 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 a member on the Land & Water Plan Advisory Council.

USDA-NRCS Staff:

- Sent draft of revised plan and requested review of goals, objectives and actions.
- 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 Planning Staff:

- Sent draft plan to West Central DNR planning staff and requested review of goals, objectives and actions.

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. One of the principal reasons for the change is a decrease in the number of dairy farms.

The Crawford County Soil Erosion Control Plan 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. Excessive summer rains of 2004, 2007 and 2008 in Crawford County have caused widely noticed sheet, rill, and gully erosion. More waterways and effective use of good ground cover and contour strips are needed. Soil erosion rates for watersheds based on soil transect surveys can be found in Table 3.1.

Table 3-1 Soil Erosion Rates

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 has 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. Crawford County will have at least some watersheds re-surveyed within five years. We will also investigate the Wisconsin DNR's EVAAL (Erosion Vulnerability Assessment for Agricultural Lands) tool, which can be used to prioritize areas within a watershed that are more susceptible to erosion. More information for this model can be found at http://dnr.wi.gov/topic/Nonpoint/EVAAL.html. Nutrient Management Planning and the Snap+ software will also aid in tracking soil loss patterns. Within five years, 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.

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 action plans, they are: Crawford County Land Conservation staff, USDA-NRCS Field Office staff, USDA-FSA staff, the WI-DNR Forestry staff, the UWEX Ag/Resource Agent, 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 and maintain soil erosion to "T" tolerable soil loss limit 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 and changes over time at 10 farms.

Objective B

Inform and educate landowners on conservation practices.

Actions:

1. Identify 20 absentee landowners and provide specialized outreach information.
2. Develop and provide 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 every year.
4. Work one-on-one with 20 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 of 18% or steeper slopes to use less intensive cropping practices.

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 loggers and earth movers on utilizing best management practices.

Actions:

1. Participate in 3 Best Management Practices workshops 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.

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 intensive rotational grazing practices and provide technical assistance to 5 operators per year.
3. Encourage forest landowners to participate in local "Selling Timber Smart" workshops 2 times during this 10-year plan.

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.

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 when available twice during this 10-year plan.
3. Work with southwest Badger RC&D to look for private sources of money for 2 projects during this 10-year plan.
4. Apply for other applicable funding for conservation work once during this 10-year plan.

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 and enhance surface, groundwater and riparian areas.

Objective A

Inform and educate landowners (both 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.

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. Provide Nutrient Management Plan outreach via annual targeted mailings to encourage operators to properly apply manure and fertilizers.
4. Partner with UW-Extension on a radio segment highlighting proper lawn and garden fertilizer/ pesticide use.
5. Apply for 1 education grants.
6. Provide annual information on radio and in newspaper on preventing urban runoff.
7. Stencil 5 area storm drains with "Dump no waste. Drains to river".
8. Coordinate annual Youth Conservation Day for approximately 250 area students.
9. Provide annual hands-on experience for students relating to stream rehabilitation and encourage them to speak with their parents about steam 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 1 new storage facility and 1 storage closure per year.

Objective C

Reduce groundwater pollution from direct conduits to groundwater.

Actions:

1. Distribute educational materials on sinkholes, well abandonment, septic systems, and underground tanks once per year.
2. Provide technical assistance on 5 well abandonment and sinkhole protections per year.
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. Provide information to 10 landowners regarding wells and groundwater pollution per year.

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 Best Management Practices.
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 what wetland restoration with 1 annual outreach event.
4. Inform and educate the public about the function and need of wetlands with 1 annual press release.

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

Objective A

Conduct farm inspections to implement state performance standards and prohibitions.

Actions:

1. Conduct 25 farm inspection/ year, and maintain Farmland Preservation records of Certificates of Compliance.

Objective B

Work with WIDNR to coordinate farmer compliance with NR151 standards.

Actions:

1. Document the number of non-compliance determinations (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.
4. Work with Southwest Badger RC&D to secure 1 private grants during this 10-year plan.
5. Work with local sports groups for to secure 1 grant during this 10-year plan.
6. Work with federal and state agencies to secure funds for 2 demonstration projects during this 10-year plan.
7. Participate in an annual meeting with partner agencies for updates and planning.
8. Obtain grants/funds for 1 demonstration projects 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

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. Explore options for developing of a GIS system.

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.

Actions:

1. Use radio advertisement, bulletins, demonstrations, and biennial workshops to inform landowners.
2. Use county scales to calibrate manure spreaders.
3. Work with Southwest Technical College to facilitate training designed to certify landowners to write their own nutrient management plan (5 new plans per year).
4. Secure grant and cost-share opportunities for 5 new nutrient management plans per year.
5. Work with landowners to complete 5 new nutrient management plans.
6. Collect annual NMP Checklists from all FPP zoning participants (60), Animal Waste Storage Permit holders (8), and all Livestock Facility Siting Permit holders (2).

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 respect our unique ecosystems.

Objective A

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

Actions:

1. Make information available through an annual mailing regarding forest best management practices to landowners and loggers.
2. Promote the DNR's Managed Forest Law Program to 15 forest landowners per year.

Objective B

Provide opportunities for residents to practice forest regeneration.

Actions:

1. Conduct annual Tree and Shrub Sale and sell 2,000 trees/ shrubs per year.
2. Provide information to residents via an annual mailing on the WDNR State Nursery Program and the opportunity to purchase seedlings.

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 one annual press release to inform the public on wildlife issues.
3. Serve as the agricultural liaison to the Crawford County Deer Advisory Council.
4. Conduct annual birding field trips to a site in the county
5. Coordinate with Buffalo County LCD/ NRCS on an annual "Prairie Tour", highlighting local sites that have had restoration work.
6. 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, especially prescribed burning.
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 1 directed mailing.
2. Provide information to landowners on identifying invasive plant, animal and insect species.
3. Participate in 2 Southwest Wisconsin Invasive Species Coalition meetings per year.
4. Coordinate 1 DNR Rapid Response Grants for aquatic invasive species control.
5. Promote (and maintain) the LCD sprayer as a tool to control invasive species (rent to 2 landowners/ year).

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.

Recycling collection

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
4. Encourage paint and used battery recycling through an annual press release.

Objective B

Collect and remove hazardous waste.

Actions:

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

This Page Was Intentionally Left Blank

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. 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 Festival, Youth Conservation Days, Prairie du Chien Schools' Outdoor Ed day, Breakfast on the Farm; 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.
- Continue storm drain stenciling project with Prairie du Chien 5th graders.
- Construct stream table and use at Youth Conservation Day.
- Utilize Prairie du Chien High School for seedling tree and shrub sale.
- Provide staff for Wisconsin Conservation Camp & Mississippi River Festival

Youth Conservation Day

Landowner Recognition/Appreciation

Landowners are vital to conservation efforts in the 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**",** "Owning Rural Lands" a Guide for the Kickapoo Watershed, And "Farmland Conservation Choices"
- 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 to lend manure scales and provide assistance for spreader calibration.
- 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 meeting.

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 and Performance Standards

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 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.org.

Non-Metallic Mining Ordinance

Crawford County adopted a nonmetallic mining reclamation ordinance in response to Wis. Administrative Code NR 135, and 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.org.

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.org.

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 set-backs 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.org.

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. The following is the Crawford County Land Conservation Department's strategy for the implementation of the NR 151 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. Current NR151 standards can be found at http://docs.legis.wisconsin.gov/code/admin_code/nr/100/151.

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 Rush Creek, Millville Creek, Lower Kickapoo, Reeds Tainter, and Knapp Creek.
- Farms in watershed draining to DNR listed as "Impaired Waters (Section 303D)"
- Farms in Water Quality Management Areas

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 strategy is based on staff and funding availability.

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 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 on 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 the Transect Survey (see Action Plan – Soil Erosion section)

The Compliance Checklist will be recorded and kept in the Land Conservation Department/USDA landowner file. A copy also will be kept in a countywide GIS database maintained by Crawford County and the Land Conservation Department.

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 prohibition
- Corrective measures needed to be brought into compliance a 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 indication 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, Steambank & 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.

Environmental and Water Quality Practices:

Sinkhole Treatment, Tree and Shrub Establishment, Forest Site Preparation, Cover Crops, Fencing, Conservation Cover.

Demonstration Practices:

Prescribed Grazing, 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 by other than 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 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. Appropriate DNR Regional Nonpoint Source Coordinators will be notified of landowner refusal. http://dnr.wi.gov/topic/nonpoint/NPScontacts.html
- 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 Reserve Program* (CRP). A set-aside land program.
3. *Conservation Reserve Enhancement Program* (CREP). A buffer creation program implemented by DATCP, NRCS, FSA, and Crawford County.
4. *Agricultural Conservation Easement Program (ACEP).* A wetland restoration from program.

DNR Programs

1. *Targeted Resource Management Program* (TRM). A program to address an area water quality problem.
2. *Managed Forest Law* (MFL). A forest management program
3. *Trout Stamp Program.* Trout habitat work.
4. *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= 1,400 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 Badger RC&D
6. Southwest Technical College
7. Mississippi River Regional Planning Commission
8. Lower Wisconsin State Riverway
9. Crawford County municipalities, 11 townships, 10 villages, one city
10. Great River Graziers
11. Trout Unlimited
12. Wild Turkey Federation
13. Pheasants Forever
14. Wisconsin Land and Water Conservation Association
15. Crawford County Apple Growers Association
16. Crawford County Farm Bureau
17. School Districts of North Crawford, DeSoto, Seneca, Prairie du Chien, and Wauzeka- Steuben

This Page Was Intentionally Left Blank

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
Southwest Badger Resource Conservation & Development
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 funding)
Department of Agriculture, Trade, and Consumer Protection Nutrient Management Plan Funds (SEG funding)

Federal Sources

Farm Service Agency and Natural Resources Conservation Service
- -Conservation Reserve Program (CRP) Competitive and Continuous
- -Environmental Quality Incentives Program (EQIP)
- -Agricultural Conservation Easement Program (ACEP)

Environmental Protection Agency
- -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 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 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 Modeling and 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 increase 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.

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. 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 Land Conservation Department will collect county data from the Water Action Volunteer site http://erc.cals.wisc.edu/programs/volunteer-monitoring/ and use the water quality data to compare and contrast with the ranking of the transect survey year to year to pinpoint education and informational efforts.

While water quality monitoring is important, the ability of citizen volunteers to record the affects of heavy rainfall is limited. More effort is needed to put dedicated continuous monitoring equipment in county streams to accurately reflect water chemistry.

Geographic Information System (GIS)
As Crawford County modernizes its land records all NR 151 evaluations will be recorded and tracked in a geo-database linked to tax parcel I.D. numbers. Crawford County hopes to have a completed parcel mapping database completed by 2020, depending on available funding. Manure storage permits, nonmetallic mining permits, and CREP agreements and easements will also be linked to the tax parcels. 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 Was Intentionally Left Blank

Appendixes

Appendix A

Crawford County Land Conservation, Zoning, and Planning Committee

Henry Esser, Chair
Wade Dull
Don Dudenbostel
David Olson
Harriet Behar
Tom Cornford (County Board Chair)

Crawford County LWRM Plan Advisory Council

Name	Representing
Henry Esser	Chair Land Conservation Committee
Wade Dull	Land Conservation Committee
Don Dudenbostel	Land Conservation Committee
David Olson	Land Conservation Committee
Harriet Behar	Land Conservation Committee
David Troester	County Conservationist
Travis Bunting	Land Conservation Department - Conservation Specialist
Carol Wolcott	Land Conservation Department - Clerk
John Rybarczyk	Zoning
Vance Haugen	UW- Extension
Karyl Fritsche	USDA- NRCS
John Baird	USDA- FSA
Kobby Antwi	DNR- Forestry
Ben Wegleitner	Southwest Badger RC&D
Edie Ehlert	Crawford Stewardship Project

Advisory Council Meetings

March 15, 2016 - Seneca
May 10, 2016 - Prairie du Chien
May 24, 2016 - Prairie du Chien- Public Hearing on Draft LWRM Plan
June 14, 2016 - Prairie du Chien- LCC Approval of Draft LWRM Plan

This Page Was Intentionally Left 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. The first step is to educate and inform landowners and operators of the relevant requirements of ATCP 50 and NR 151. A steep learning curve in this area is ahead for most Crawford County farmers. The statewide performance standard information and education effort to assist counties needs a wider scope and more resources. 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.

2016-2025 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***
Control erosion to 'T' on crop fields	Track average soil loss and meet 'T' on cropland	$12,000		Use Nutrient Management Planning software to track soil erosion estimates on 500 acres/ year
				Maintain a database of soil erosion estimates
				Compare aerial photos and changes over time at 10 farms
	Inform and educate landowners on conservation practices	$7,000		Identify 20 absentee landowners and provide specialized outreach information
				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 with 20 landowners/ year, 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	$7,000		Write 5 annual conservation plans and treat cropland to tolerable soil loss levels or less
				Provide technical assistance to landowners to install crop 500 acres/ year of contour strips and contour buffer strips
				Promote no-till, zone-till, and reduced tillage systems, as well as cover crops with 15 landowners per year
				Encourage landowners that crop fields of 18% or steeper to use less intensive cropping practices
	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**	$6,500		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 county's annual report/ fees to DNR
	Work with area loggers and earth movers on utilizing best management practices	$1,500		Participate in 3 Best Management Practices workshops 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
	Inform landowners on methods to prevent erosion on land other than cropland	$3,500		Develop 1 model logging contract, or encourage timber landowners to work with forestry consultants on developing an adequate logging contract
				Promote rotational grazing and provide technical assistance to 5 operators per year
				Encourage landowners to participate in "Selling Timber Smart" workshops 2 times during this 10-year plan
	Increase riparian area protection	$3,500		Work with FSA and NRCS to establish 2 new CREP agreements annually
				Provide landowners information on the importance of buffers through direct mailings

Resource Concern #1 – Soil Erosion - continued				
Goals	**Objectives**	**LCD Costs**	**Cost-share available**	**Actions with Annual Benchmarks**
Increase available cost-share dollars for erosion prevention practices	***Assist landowners in signing up for cost-share***	$40,000	$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	$16,000	$45,000	Secure and contract annual DATCP SWRM funding for cost-share practices (8 contracts per year)
				Apply for other state grant funding when available twice during this 10-year plan
				Work with Southwest Badger RC&D to look for private sources of money twice during this 10-year plan
				Apply for other applicable funding for conservation work once during this 10-year plan
		$97,500	$295,000	

Resource Concern #2 - Water Resources				
Goals	**Objectives**	**LCD Costs**	**Cost-share available**	**Actions with Annual Benchmarks**
Preserve, protect, 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***	$5,000		Create a brochure explaining proper use and application of fertilizers and pesticides
				Continue the Pesticide Applicator Training program (15 certifications per year)
				Provide NMP outreach via annual targeted mailings to encourage operators to properly apply manure and fertilizers
				Partner with UW- Extension on a radio segment highlighting proper lawn and garden fertilizer/ pesticide use
				Apply for 1 education grant
				Provide annual information on radio and in print on preventing urban runoff
				Stencil 5 area storm drains with "Dump no waste. Drains to river"
				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 of groundwater pollution from improperly constructed and mismanaged manure storage structures	$6,500		Work with and educate 1 owner/ operator of a mismanaged systems per year
				Provide technical assistance to 3 owners of manure storage per year
				Permit 1 new storage facility and 1 storage closure 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***	$2,500		Distribute educational materials on sinkholes, well abandonments, septic systems, and underground tanks once per year
				Provide technical assistance on 5 well abandonments/ year
				Encourage 2 landowners to sign up for EQIP for well abandonment and sinkhole protections
				Partner with Crawford County Health Dept. to increase opportunities for private well testing/ distribute 10 annual well testing kits
				Provide information to 10 landowners regarding wells and groundwater pollution
	Reduce sediment delivery from erosion sources	$4,000		Utilize funding sources to cost-share 2 Best Management Practices
				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 1 annual outreach event
				Inform and educate the public on the function and need of wetlands with 1 annual press release
Implement NR151 strategy outlined in Section 4	***Farm inspections to implement state performance standards and prohibitions***	$8,500		Conduct 25 farm inspections/ year, and maintain FPP records of Certificates of Compliance.
	Work with WIDNR to coordinate farmer compliance with NR151 standards	$1,000		Document the number of non-compliance determinations per year (2 farms/ year)

Resource Concern #2 - Water Resources - continued				
Goals	**Objectives**	**LCD Costs**	**Cost-share available**	**Actions with Annual Benchmarks**
Increase funding for cost-sharing and demonstration projects	Increase the amount of cost-share and grants available to landowners	$2,500		Assist 2 landowners/ year applying for federal cost-share programs
				Assist 1 landowner/ year applying for state cost-share dollars
				Apply for 2 state grants when available
				Work with Southwest Badger RC&D to secure 1 private grant
				Work with local sports groups to secure 1 grant
				Work with federal and state agencies to secure funds for 2 demonstration projects during this 10-year plan
				Work with sports groups such as Trout Unlimited and Wisconsin Waterfowl to secure funds for demonstrations
				Participate in an annual meeting with partner agencies for updates and planning
				Obtain grants/ funds for 1 demonstration project
	Communicate and coordinate with adjacent counties on projects	$1,000		Partner with adjacent counties on 2 conservation projects during this 10-year plan
		$32,500	$0	

Resource Concern #3 - Land Use Planning				
Goals	**Objectives**	**LCD Costs**	**Cost-share available**	**Actions with Annual Benchmarks**
Work with towns on the implementation of their comprehensive plan	Support towns, villages, and cities with the implementation of their land use element goals identified in their comprehensive plan	$1,000		Provide information and education to the local municipalities regarding plan implementation methods through biennial meetings
				Provide local municipalities GIS support for their planning needs- 2 projects during this 10-year plan
Promote and support local land use planning to protect the natural resources of the county	Support towns, villages, cities, and other government agencies with the implementation of land use planning which protects the natural resources of the county	$1,500		Provide information and education to the local municipalities regarding land use planning implementation methods
				Inform and educate the public on the importance of land use planning 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 our natural resources

Resource Concern #3 - Land Use Planning - continued				
Goals	**Objectives**	**LCD Costs**	**Cost-share available**	**Actions with Annual Benchmarks**
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***	$10,000		Use radio ads, bulletins, demonstrations, and biennial workshops to inform landowners
				Use county scales to calibrate 1 manure spreader/ year
				Work with Southwest Technical College to facilitate training designed to certify landowners to write their own Nutrient Management Plan (5 new plans/ year)
			$14,000	Secure grant and cost share opportunities to provide Nutrient Management Planning (5 new NMPs)
				Work with landowners to complete 5 NMPs
				Collect annual NMP checklists from FPP participants (60), Animal Waste Storage Permit holders (8) and all Livestock Facility Siting Permit holders (2)
		$12,500	$14,000	

Resource Concern #4 - Land Management				
Goals	**Objectives**	**LCD Costs**	**Cost-share available**	**Actions with Annual Benchmarks**
Encourage sustainable forestry practices that respect our unique ecosystems	Inform residents and loggers about the importance of sustainable forestry practices	$1,250		Make information available through an annual mailing regarding forest Best Management Practices to landowners and loggers
				Promote the DNR's Managed Forest Law Program to 15 forest landowners per year.
	Provide opportunities for residents to practice forest regeneration	$2,500		Conduct annual Tree and Shrub Sale- sell 2,000 trees/ shrubs
				Provide information to residents via an annual mailing on the WI DNR State Nursery Program and the opportunity to purchase seedlings there
Protect and enhance important wildlife and associated habitat areas	Inform and educate landowners on the importance of wildlife and associated habitat areas	$3,500		Inform and educate the public about the economic value of the county's wildlife through the county fair display
				Use 1 annual press release to inform the public on wildlife issues
				Serve as the agricultural liaison to the Crawford County Deer Advisory Council
				Conduct 1 annual birding field trip/ nature hike in the county
				Coordinate with Buffalo County LCD/ NRCS on an annual "Prairie Tour", highlighting local sites that have had restoration work
				Maintain prairie on County lands and use as a demonstration area for an annual outreach event

Resource Concern #4 - Land Management - continued				
Goals	**Objectives**	**LCD Costs**	**Cost-share available**	**Actions with Annual Benchmarks**
Protect and enhance important wildlife and associated habitat areas	***Protect existing wildlife areas and increase the amount of important wildlife habitat***	$4,500		Provide technical assistance to 7 landowners/ year seeking advice on land management, especially prescribed burning
			$3,000	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
				Participate in 2 Southwest Wisconsin Invasive Species Coalition meetings per year
				Coordinate 1 DNR Rapid Response Grant for aquatic invasive species control
				Promote (and maintain) the LCD sprayer as a tool to control invasive species (rent to 2 landowners/ year)
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
		$17,750	$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
				Encourage paint and used battery recycling through an annual press release
	Collect and remove hazardous waste	$2,000		Encourage collection of mercury and fluorescent bulbs through an annual press release
				Coordinate an annual Household Hazardous Waste/ Ag Clean Sweep/ Prescription Drug Collection event
		$7,500	$0	

Annual LCD Costs totals $167,750 in staff time.

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 2016 and follow crop management practices that are planned to comply with the 590 standard across the crop rotation. The NM plan must include current soil tests conducted by DATCP certified lab. Fields in a NM plan must: 1. Be updated when cropping systems change, 2. Include maps identifying NRCS 590 nutrient application restriction areas, 3. Have phosphorus applications planned over the entire rotation, and 4. Show no visible signs of gully erosion.
- Pastures are exempt from NM plan requirements if the pasture is a feedlot, or when the pasture's average stocking rate is 1 AU/acre or less during grazing season and no nutrients are mechanically applied [ATCP 50.04(3)(b)]. When the pasture's average stocking rate is more than 1 AU/acre over the grazing season, a planner may assume soil test values of 150 ppm P and 6% organic matter content [ATCP 50.04(3)(d) and (de)].

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.	☐		☐

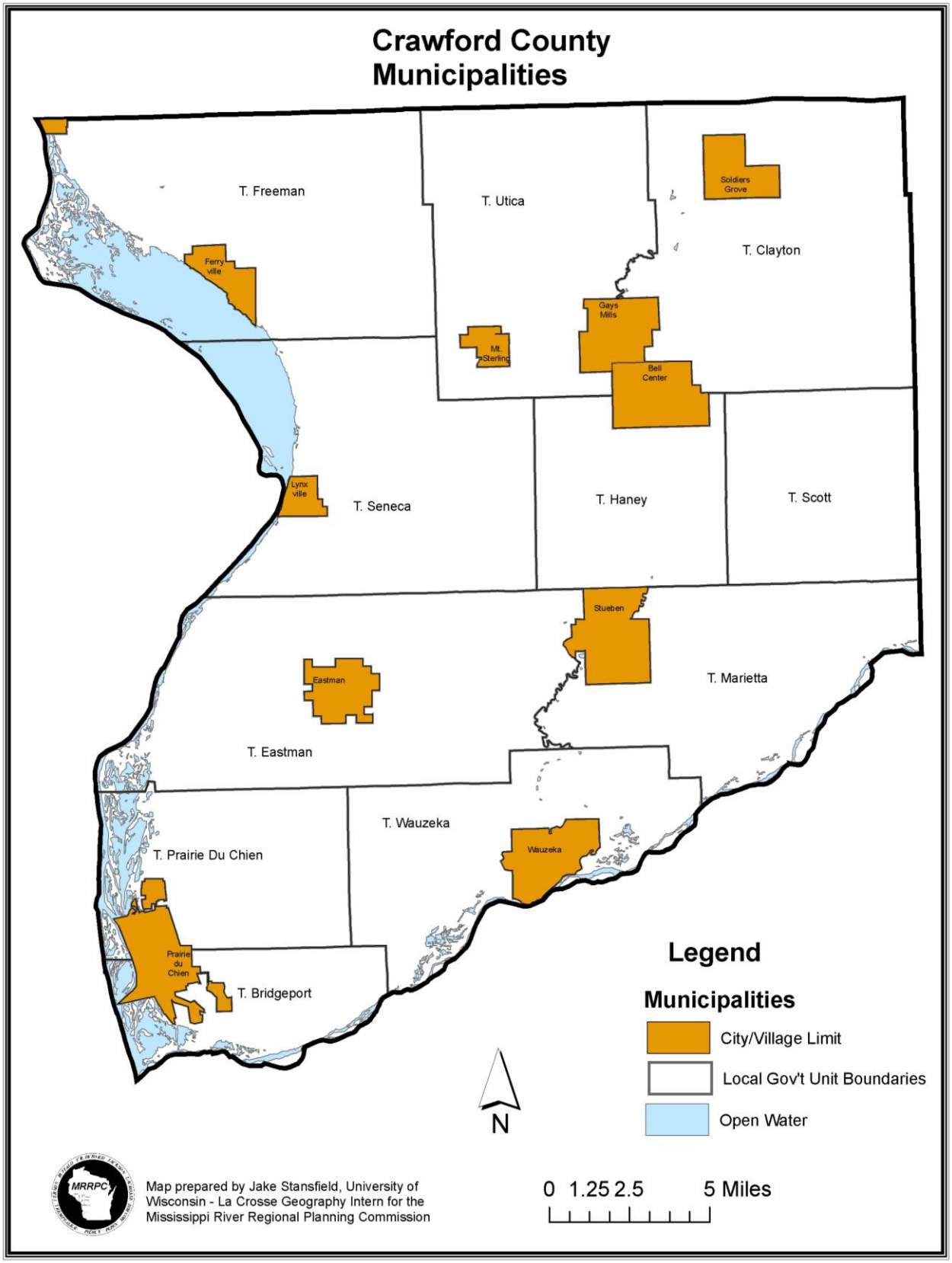
- All cropland and pastures must comply with the Phosphorus Index (PI) standard [NR 151.04] [ATCP 50.04(1)]. A NM plan meeting the standard in ATCP 50.04(3) may be used to demonstrate compliance with DNR's PI standard.

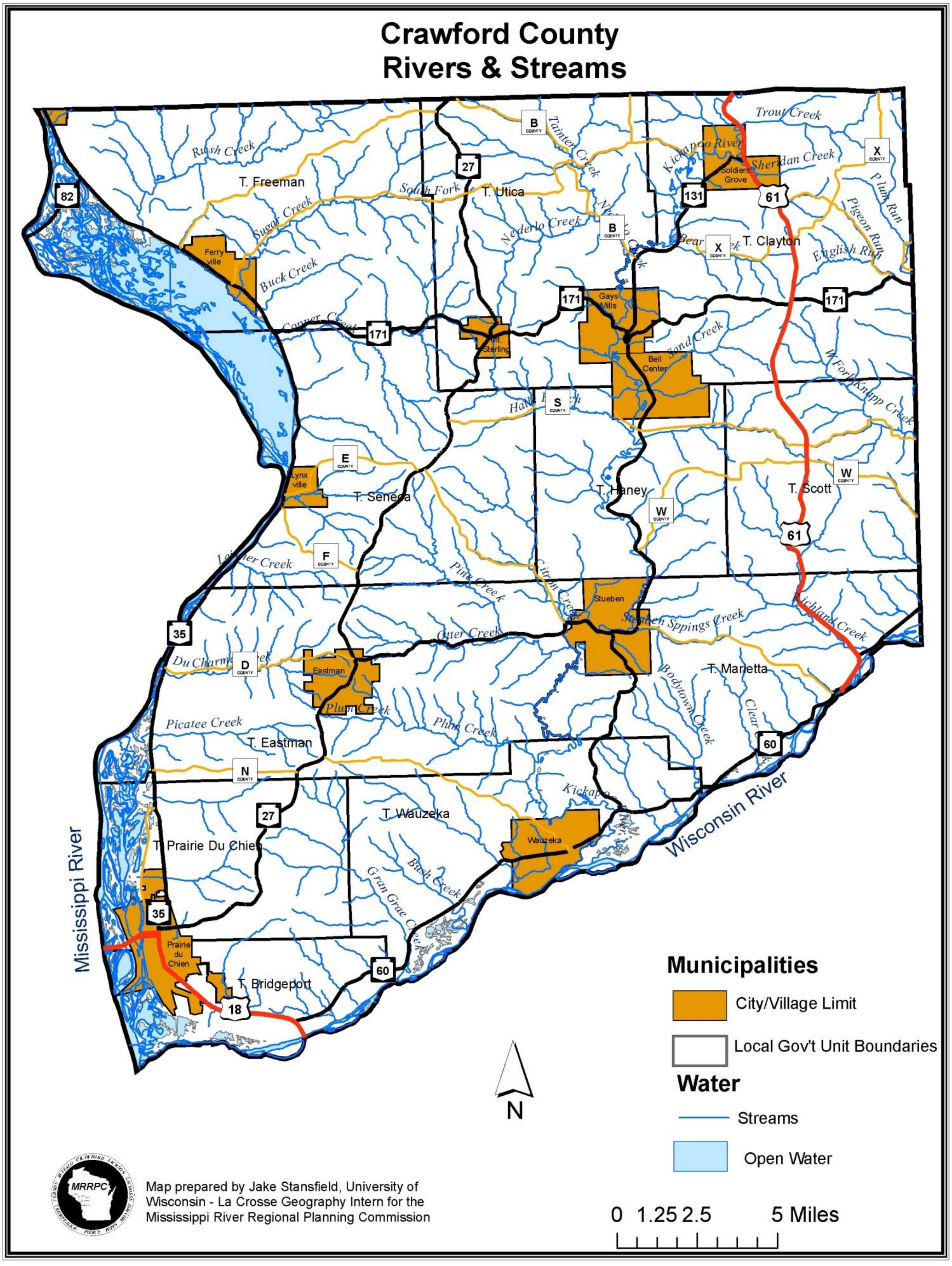
No tillage conducted within a minimum of 5 feet of surface water.	☐		☐

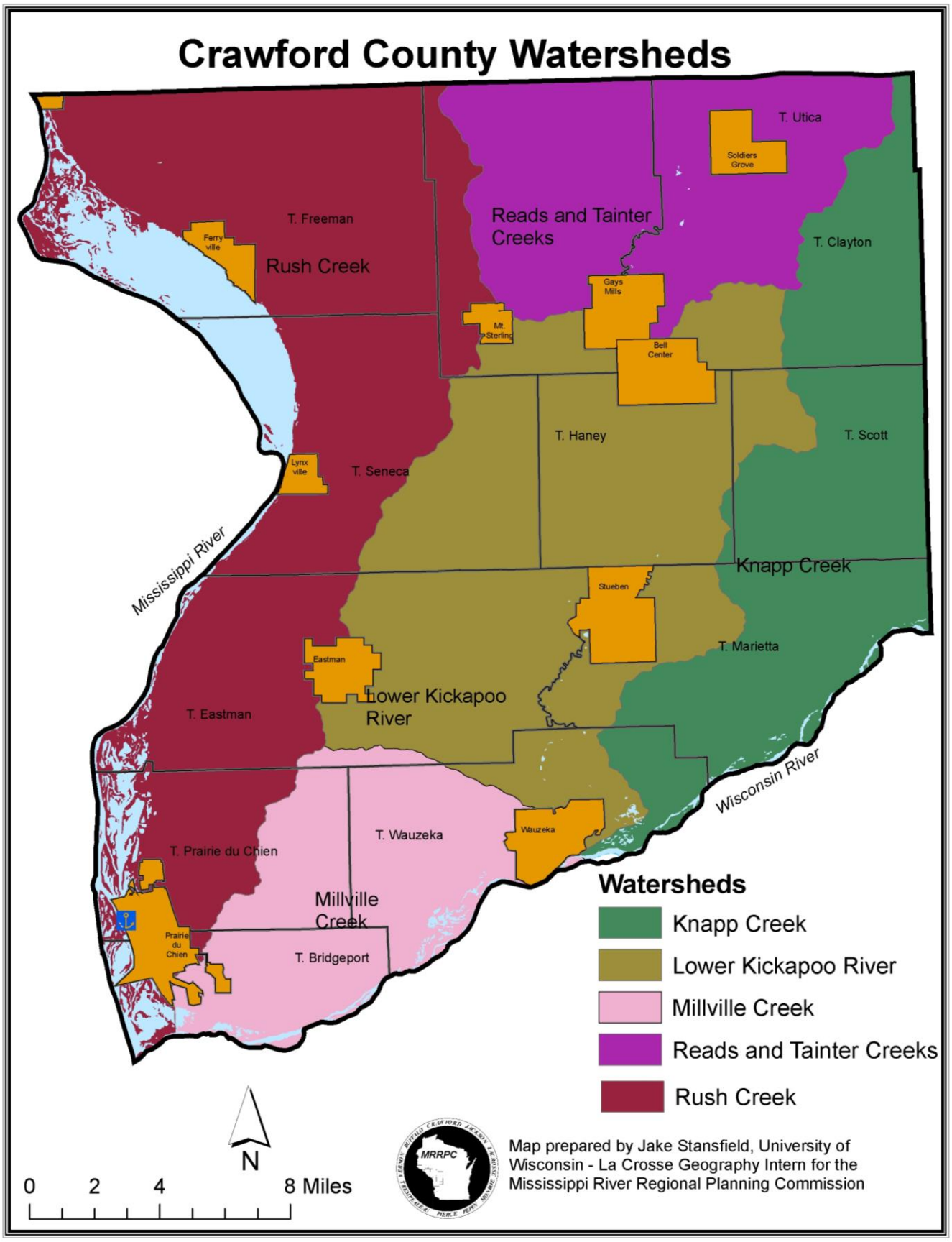
- Cropland must be managed to include a minimum setback of 5 feet from the top of the channel of surface waters. No tillage can occur and 70% vegetative cover must be maintained in that tillage setback zone to ensure bank integrity. Cost-sharing is not required to implement this practice [ATCP 50.04(4)(a); 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
Gays Mills
Bell Center
Soldiers Grove
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
Soldiers Grove
Gays Mills
Bell Center
Lynxville
Stueben
Eastman
Wauzeka
Prairie du Chien
Rush Creek
Sugar Creek
Buck Creek
South Fork
Nederlo Creek
Tainter Creek
Kickapoo River
Trout Creek
Sheridan Creek
Plum Run
Pigeon Run
English Run
Sand Creek
Knapp Creek
Pine Creek
Citron Creek
Otter Creek
Du Charme Creek
Picatee Creek
Plum Creek
Bodytown Creek
Richland Creek
Bush Creek
Gran Grae Creek
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
MRRPC
Map prepared by Jake Stansfield, University of Wisconsin - La Crosse Geography Intern for the Mississippi River Regional Planning Commission


Crawford County Watersheds
T. Utica
Soldiers Grove
Reads and Tainter Creeks
T. Clayton
T. Freeman
Ferry ville
Rush Creek
Gays Mills
Mt. Sterling
Bell Center
T. Haney
T. Scott
Lynx ville
T. Seneca
Mississippi River
Knapp Creek
Stueben
T. Marietta
Eastman
Lower Kickapoo River
T. Eastman
Wisconsin River
T. Wauzeka
Wauzeka
T. Prairie du Chien
Millville Creek
Prairie du Chien
T. Bridgeport
Watersheds
Knapp Creek
Lower Kickapoo River
Millville Creek
Reads and Tainter Creeks
Rush Creek
N
0 2 4 8 Miles
MRRPC
Map prepared by Jake Stansfield, University of Wisconsin - La Crosse Geography Intern for the Mississippi River Regional Planning Commission