DUNN COUNTY LAND & WATER RESOURCE MANAGEMENT PLAN

Fourth Edition

2017 - 2026

DUNN COUNTY

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EXECUTIVE SUMMARY

This 2017 fourth edition of the Dunn County Land and Water Resource Management Plan (LWRM Plan) will provide direction for the Dunn County Land and Water Conservation Division for the next ten years. This LWRM Plan meets the requirements of Wisconsin Act 27, Chapter 92 of the Wisconsin Statutes and is consistent with the *Dunn County Comprehensive Land Use Plan, 2010-2030*.

The community of Dunn County is requesting "clean" "fishable-swimmable" water. Farmers, students, citizens, businesses, the City of Menomonie, the Natural Resources Conservation Service, University of Wisconsin-Stout, the Wisconsin Department of Natural Resources, University of Wisconsin Cooperative Extension Service (UWEX), the County of Dunn, and many other partners have come together and initiated several new programs in the past five years that are leading toward clean water. Many of these initiatives are recognized here and are products of a community engaged in conservation and water quality.

The plan is laid out in six sections:

1. Executive summary
2. New programs initiated implementing the 2012 LWRM Plan
3. Assessment of Dunn County's natural resources
4. Planning process to develop this LWRM
5. A work plan containing goals, objectives, and action items
6. An appendix containing supporting documentation

Through the implementation of the 2017 Plan, LWCD will continue to identify the social infrastructure and community capacity that will enhance the achievement of measurable and sustainable results. It is the intention of Dunn County Land and Water Conservation Division to continue to build upon the many new programs and initiatives that were developed while implementing the 2012 plan. These initiatives identify and understand the obstacles that inhibit people, governments, and non-governmental organizations from realizing the goal of healthy soil and clean water. This will be done by linking the management of natural resources and water quality restoration work to active citizenship through civic governance. This will create an active role for all citizens and institutions to solve the challenges of resource management and work toward the common goal of clean water.

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NEW PROGRAMS AND INITIATIVES

Dunn County Board of Supervisors

Directional Plan

Over the course of the last year, Dunn County government engaged in strategic planning (Figure 1). This was a coordinated collaborative process done for the first time on a county-wide basis. All twenty-nine elected officials and twenty-two department managers participated in the project. Analysis was both qualitative and quantitative and concentrated in two research areas: (1) development and prioritization of enterprise-wide initiatives, and (2) alignment of current department programs with prioritized issues and goals.

Results of the issue identification study designated four policy priority areas: The Environment, Public Outreach and Information, Legislative, and Criminal Justice. Additionally, the Executive Committee defined the county vision, mission, and values to assist in the application of the strategic plan - a framework defined as The Directional Plan.

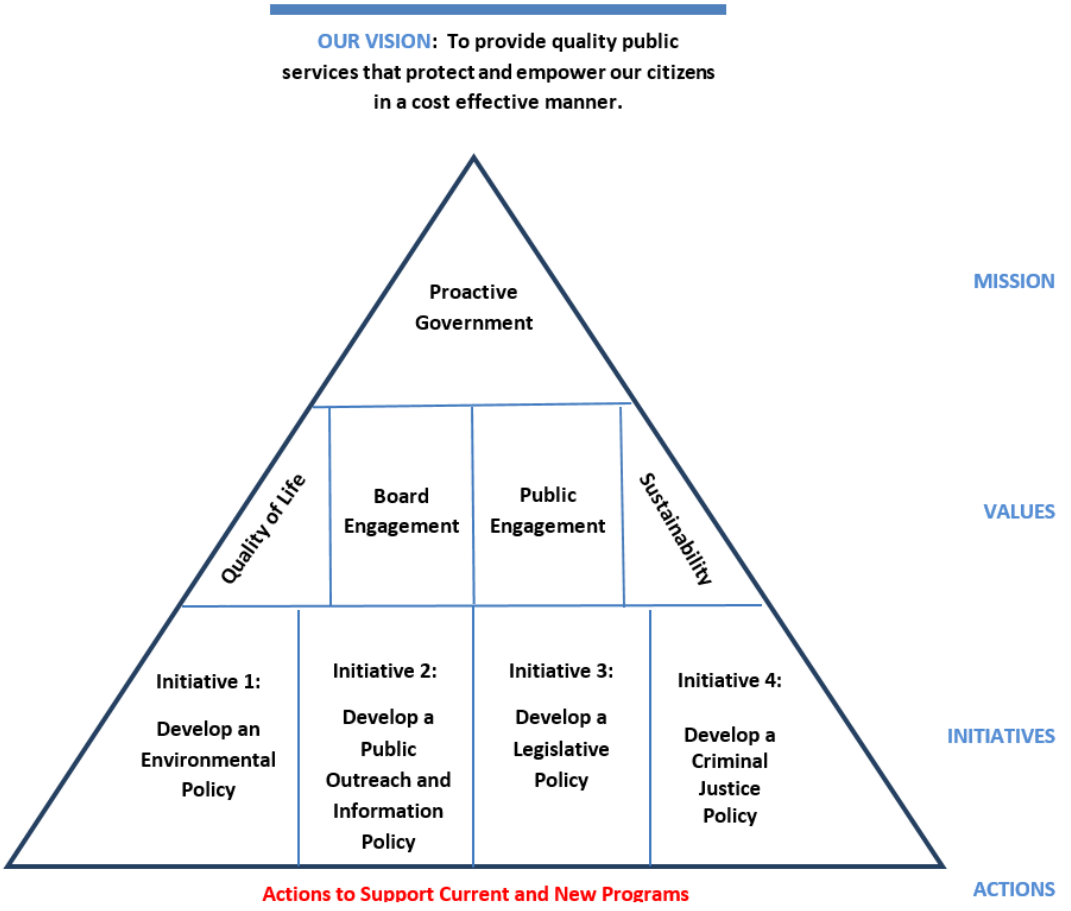


Figure 1. The Dunn County Directional Plan Pyramid

This framework was then used to align over one-hundred and seventy current county programs with the goals of the four prioritized issues. Assessment determined that seventy-two programs align specifically

to the Environmental Policy. These include programs in the following departments: Administration, UWEX, Public Works-Facilities and Highway, Health Department, Emergency Management, Sheriff, Solid Waste and Recycling, and Environmental Services.

The Environmental Policy Statement:

> "Dunn County is committed to protecting the environment and improving environmental practices within the community as well as for government operations and facilities. The County recognizes that the protection of the environment, particularly water quality, is a key component of enhancing the quality of life for its residents and will integrate environmental awareness into its core philosophies to allow continued progress and future sustainability."

When considering updating the Land and Water Resource Management Plan and reviewing programs within the Land and Water Conservation Division (LWCD), all twenty-seven current programs have strong alliance with three of the strategic plan initiatives: Environmental, Public Outreach and Information, and Legislative. The Directional Plan was unanimously adopted by the Dunn County Board on March 16, 2016. The strategic planning process is now part of the culture and plans are moving forward to introduce priority-based budgeting to further integrate long-range planning and strategic thinking.

Farmland Preservation Plan

Dunn County's Farmland Preservation Plan, as required by Wis. Stat. § 91.10(2), was updated and incorporated into the Dunn County Comprehensive Land Use Plan in April of 2016. In order for a county and its residents to participate in the Farmland Preservation Program, the county must have a state-certified farmland preservation plan pursuant to Wis. Stat. § 91.10 which clearly identifies farmland preservation goals, objectives and policies. At this time the towns of Grant, Lucas, and Wilson have adopted farmland preservation zoning on areas identified in the plan as areas that the county intends to preserve for agricultural use. LWCD is working with the owners of these parcels to ensure they are in compliance with the runoff rules contained NR-151 so that they may qualify for farmland preservation tax credits.

Non-Metallic Mining

Because of an increase in the interest in non-metallic mining of silica sand (industrial sand or frac sand) in western Wisconsin, the Dunn County Board approved a moratorium on non-metallic mining reclamation permits in January of 2012. A work group comprising of members of the Health Department, Environmental Services (Land Conservation, Planning and Land Use Control Divisions), and Highway Department were charged with studying and analyzing the potential impacts of non-metallic mining in regard to the health, safety, and welfare of Dunn County residents and to make recommendations to their respective governing committees and the County Board of Supervisors.

After reviewing applicable federal, state and local laws and receiving input from the public and the mining industry, a document titled Non-Metallic Mining and Processing in Dunn County--Environmental Impacts and Regulatory Analysis with Recommendations to Improve Industry Oversight was published. The data collected in this process was then used to create standards that were adopted in the Comprehensive Zoning Ordinance separating industrial sand mines from construction aggregate mines.

The new standards for industrial sand mines and all mines over 25 acres minimize the risks to the health, safety, and welfare of Dunn County residents and natural environment.

Livestock Siting

Dunn County adopted Wisconsin's statewide livestock siting standards in the Comprehensive Zoning Ordinance in 2014. New and expanding livestock operations with over 500 animal units that are located in the 16 Towns that have adopted the ordinance are subject to these new rules. The ordinance also requires that livestock facilities of this size be located in the Intensive Agriculture District. Language in the ordinance requires a hearing before the Board of Adjustment to ensure that the standards and procedures of law are being met. The standards address:

- Property line and road setbacks
- Management and training plans
- Odor management
- Nutrient management
- Manure storage facilities
- Runoff management

Shoreland Protection Ordinance

In June of 2012, the Board of Supervisors adopted a Shoreland Protection Ordinance for Dunn County that contained standards that were more restrictive than the minimum standards contained in NR-115. The Board attempted to treat all riparian landowners equally and required a 35-foot no-mow buffer zone in residential areas and 35-foot tillage setback on all cropland adjacent to navigable water. The 35-foot tillage setback could be reduced to 20 feet if the Phosphorous Index on the adjacent field was 2 or less. The ordinance also included impervious surface mitigation and restrictions on viewing corridors. The standards were developed in an open public process and were intended to be implemented in a manner that requires riparian landowners to contribute equally to improved water quality. Unfortunately, standards such as these that went beyond the minimum State Standards were repealed in the biennial budget bill, 2015 Wisconsin Act 55. The tillage setback contained in NR 151.03 is still in effect but not contained in any county ordinance at this time (see Exhibit 4: Cost-Share Practice/Funding Source Table & Guidance for Completing NR 151 Codes).

Water Quality Contingency Fund

In 2015, the Board began designating and making available up to $100,000 of the Contingency Fund for water quality improvement projects. Requests are submitted to the Committee on Administration from any of the standing committees of the Board including the Land Conservation Committee. Some of the projects selected for funding included applying lime and collecting and analyzing soil samples so that LWCD can track changes in the health of the soil at the Red Cedar Demonstration Farm; winter water sampling in the Red Cedar River and Hay River conducted by UW-Stout to help determine groundwater phosphorus contributions to Lakes Tainter and Menomin; developing a scorecard so that waterfront property owners can evaluate their property for potential phosphorus runoff into lake and rivers; and, purchasing the Wellntel units that monitor groundwater levels in the Tri-County Groundwater Level Monitoring Project.

Water Quality Specialist Position

As part of the 2015 budget process the Board created a new Water Quality Specialist position. This is a professional position within the LWCD focused on the management of the county's surface and groundwater resources. The purpose of the position is to develop programs, policies, technical standards, data, and research to identify water resource issues and use management tools, practices and social skills to help people manage those issues. The Water Quality Specialist is a member of the Red Cedar Partnership, is involved in the Red Cedar Basin Assessment Project and the Tri-County Groundwater Level Monitoring Project, as well as being part of many community educational events that raise the public's awareness to water issues. In a true collaborative effort, the City of Menomonie contributes partial funding for this position.

Dunn Environmental Education Steering Committee

The Dunn Environmental Education Steering Committee (DEESC) is a group of environmental and youth education advocates that formed in 2014 to provide multiple opportunities for citizens to become more aware, active, and knowledgeable on the environment. DEESC currently has members that work for Dunn County LWCD, Solid Waste & Recycling, and the NRCS. The group uses the civic governance approach at their meetings to be open and transparent in all decisions, goals and direction.

Identity Statement: DEESC is a group that will use Civic Governance as a new approach to educating citizens needed to produce a basis to govern for the common good and sustain democracy as a just system while achieving goals toward environmental action.

Purpose/Mission: The mission of the DEESC is to develop awareness in students that will inspire to create a sustainable interaction with the environment and its natural resources.

The DEESC developed a list of equipment and materials needed to host field days and educational events. From that list both LWCD and NRCS purchased equipment to the extent possible. Save Our Hills Alliance, Inc., a local non-profit conservation organization, donated a 5' x 8' enclosed trailer to store and transport the equipment. The DEESC affixed decals on the trailer to identify it and they also maintain it so it can be brought to multiple events each year.

The DEESC hosted their first annual Spring Environmental Field Day for Boyceville and Colfax 5th grade students at the SDMA Bjornson Education-Recreation Center in Knapp, Wisconsin, in May of 2015. This field trip gave students opportunities to learn about four environmental topics including Soils 101, water through stream monitoring, land surveying, and native/invasive plant identification. They also assisted with the Tri-County Land Judging Contest, that was hosted by Dunn County, where 130 students representing 6 schools participated.

Through September of 2016, they have participated in, assisted with, or organized numerous events including the Conservation Awareness Poster & Speaking Contests; The Red Cedar Watershed Conference; Spring Environmental Field Day, Career Explorers at the Red Cedar Demonstration Farm; Boys & Girls Club Field Day at Lake Menomin Park; and, Farm-City Day (Kid's Day).

Hay River Farmer-Led Watershed Council

The Hay River Farmer-Led Watershed Council is one of four farmer-directed conservation groups in the St. Croix and Red Cedar River - Farmer-Led Watershed Council Project. The purpose of the project is to develop a model that engages farmers in water quality leadership roles that can be replicated throughout the Red Cedar Basin and the State of Wisconsin. Increasing farmer knowledge of water quality issues, the adoption of conservation practices utilizing performance-based incentives, and enhancing agricultural productivity are also goals of the project. Dry Run, Horse Creek and Rocky Branch Farmer-Led Watershed Councils located in St. Croix, Polk, and Pierce Counties along with Hay River Farmer-Led Watershed Council in Dunn and Barron Counties work toward improving soil health and water quality while sharing information with each other.

The Hay River Famer-Led Watershed is located in both Barron and Dunn Counties and includes Big Beaver Creek, Little Beaver Creek, Vance Creek, and the North Fork of the Hay River. The Barron County Towns of Vance Creek and Prairie Farm and the Dunn County Towns of New Haven, Sheridan, Tiffany, and Hay River all have land included in the watershed.

The farmers of the Council are enabled to influence and choose the strategies of increasing conservation and improving water quality in their watershed and community. The Council is assisted by staff from LWCD and UWEX. The staff act as a resource to provide information and technical support while the farmers take the lead and are the decision makers. Financial and administrative support is appreciated from the McKnight Foundation of Minnesota, Wisconsin Farmers Union, USDA-Sustainable Agricultural Research and Education, and DNR. The Council also values input from agency partners including USDA-Natural Resource Conservation (NRCS) Service Menomonie Field Office; NRCS Northwest Area Office; UWEX; Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP); and the DNR.

On June 26th of 2013 those people owning 20 or more acres of land in the watershed were invited to gather at Pioneer Park in Prairie Farm to learn about the project. The first Council meeting was held on August 13th of 2013. The Council tends to meet more often during the winter months and less often during the growing season. They decided to call themselves the Hay River Farmer-Led Watershed Council and by January, 2014 approved their Mission Statement and Goal.

Mission Statement: A voluntary, producer-led program to promote and enhance environmentally sound management of soil and water in the Hay River Watershed.

The goal of the Farmer Led Watershed is to keep soil and nutrients on the land through increased adoption of best management practices including, but not limited to: grassed waterways, no-till and minimum till systems, perennials, and cover crops.

To date, the Hay River Farmer-Led Council has provided three seminars with guest speakers open to the public focused on topics relevant to farmers such as soil health, contract grazing, and cover crops. They have also attended the Red Cedar Conference at the University of Wisconsin-Stout in Menomonie, and have also had farmers and staff featured in 2 breakout sessions with high attendance. They also have an edge-of-field monitor that collects information on surface runoff, and have a field plot comparing the effects of no-till, single, and multi-species cover crops to conventional farming methods. The farmers have attended events hosted by the other three Farmer-Led Councils to gain knowledge and share their thoughts to improve their farming practices and learn from the challenges and success of others.

Furthermore, the Council works together to select incentives that they believe will assist farmers in improving their own soil health and water quality. Incentives were first offered in 2014 and have been offered every year thereafter. Incentives include farm walkovers, soil testing, cover crops, Haney soil testing, and grassed waterways.

Interstate Civic Governance Organizing Agency

Civic organizing, guided by civic governance principles, is a new approach for managing watersheds, lakes, and many other natural resources. By working with local citizens and organizations, the LWCD can greatly expand management of Dunn County's natural resources well beyond the capabilities of local government. Active civic engagement develops trust, expands awareness, develops meaningful partnerships, and ultimately raises the level of citizen involvement. Developing civic engagement following civic standards and principles ensures that the LWCD cultivates a lasting infrastructure that will hold people accountable for producing outcomes that are transparent, collaborative, and sustainable.

The principles of civic governance are being practiced by members of the Dunn and St. Croix County Land and Water Conservation staff through membership in the Interstate Civic Governance Organizing Agency. The project is currently funded by a Department of Natural Resources (DNR) Lake Planning Grant awarded to the Tainter Menomin Lake Improvement Association. The main purpose of the project is to implement Environmental Protection Agency (EPA) approved 9 key element plans.

Dunn County LWCD staff have successfully provided leadership using civic governance standards and principles by organizing farmer led watersheds, invasive species cooperatives, and environmental education events. By bringing stakeholders together and expanding citizen engagement, the LWCD has been able to harness and capitalize on the passion and great work of Dunn County's citizens.

The staff of the LWCD have adopted the following purpose statement and civic standards which will be used for implementing this Land and Water Resource Management Plan.

Purpose Statement: To work with people to sustainably use, enhance and preserve Dunn County's natural resources by developing the civic imagination and infrastructure needed to make a case for civic governance as our way to govern for the common good.

All Dunn LWCD decision making is based on these civic standards:

- All those impacted by the problem are stakeholders and help define the problem in light of civic principles and the realities of their situation.
- All stakeholders are accountable for contributing resources (leadership/time, knowledge, constituencies & dollars) to solve the problem.
- All stakeholders are engaged in decision-making and policy-making that contributes to the common good.
- All stakeholders implement policies grounded in civic principles in the places where they have the authority to act.

Lower Chippewa Invasives Partnership

In 2011, a concerned citizen approached the LWCD with a request to work on terrestrial invasive species on roadsides that were spreading to their private property. Dunn County LWCD responded by bringing local non-profit organizations, government agencies, corporations, and other concerned citizens

together to discuss options. The original group started a Cooperative Weed Management Area in 2012 named the West Central Wisconsin Invasive Plant Management Area (WCWIPMA). This group formed a mission statement of fostering partner cooperation and community action on invasive species and then started engaging in many projects.

Initial projects were working with local schools, private landowners, citizen groups/organizations, and public properties to educate and restore native habitat by controlling, eliminating, and monitoring terrestrial invasive plants. The group expanded to include speaking at conferences and events to educate the public on what, where, when, why, and how invasive plants establish and spread. Several grants from the State of Wisconsin funded the purchase of an enclosed trailer, field event equipment, citizen monitoring/training, transportation for schools to events, and organizational growth. With the help of many dedicated citizens, UW-Stout, and LWCD staff, thirty-one NR40-listed terrestrial invasive species have been found in Dunn County.

WCWIPMA continued to grow to become the first, local non-profit, Cooperative Invasive Species Management Area in the state and in 2015 changed their name to Lower Chippewa Invasives Partnership (LCIP). This organization, chaired by Dunn LWCD staff member Chris Gaetzke, completes over 25 presentations, poster exhibits, educational events, and projects annually. A need for more information to be shared publically led to a service learning project with UW-Eau Claire to develop the LCIP website, www.lcinvasives.org, and a LCIP Facebook page that contains information on invasive plants and events.

LCIP has a growing momentum thanks to the implementation of the Civic Governance model in early 2015. This organizational model facilitates citizen participation through a transparent approach that defines everybody as a citizen with a role to serve the community. Monthly meetings, work events, presentations, and educational events are focused on the goals, direction, and standards found in the LCIP Governing Document. The Civic Governance approach has led to LCIP becoming one of the three organizations to win the 2016 Invasive Crusader Award from the Wisconsin Invasive Species Council.

Red Cedar Basin Assessment

The Red Cedar Basin Assessment for Water Quality Improvement is a three-year project which implements a number of components relevant to the Red Cedar River TMDL Implementation Plan, “A River Runs Through Us: A Water Quality Strategy for the Land and Waters of the Red Cedar River Basin”. The plan calls for a 40 percent reduction in the amount of phosphorus that reaches Tainter Lake within the next 10 years. The phosphorus comes from a variety of inputs across the watershed. The Red Cedar Basin Assessment Project will address these key areas:

- Sociological – Survey work performed by UW-Stout will assess attitudes, social networks, and opportunities for soil health and water quality improvement among farmers and cropland renters. The assessment will lead to the development of a community capacity model, which will outline strategies for the civic engagement necessary for long-term water quality improvement.
- Economic – UW-Stout economics students and faculty will analyze the impacts of poor water quality on businesses, real estate/property values, tourism, and recreation. Research of this nature was performed in the Menomonie area and conservative estimates concluded that improved water quality would translate to approximately $36 million dollars in additional

economic activity. Research during the summer of 2016 and beyond will focus on the economic impact of water pollution in the Chetek chain of lakes.

- Community Capacity – The community's capacity to collaborate on initiatives is necessary to support sustainable, cost-effective change in water quality. To do so, the Multi-Level Community Capacity Model developed by Dr. Mae Davenport of the University of Minnesota will be adapted for use in the Red Cedar Basin. This model will combine the economic, sociological, and ethnographic research to form a framework to develop evidenced-based policies and projects that will support long term water quality improvement in the Red Cedar Basin.
- Biophysical – The biophysical characteristics of the Red Cedar River Basin will be assessed using three methods:
    - A limnological analysis of the Tainter-Menomin reservoir system through water sample analysis by UW-Stout
    - 2D modeling of the Tainter-Menomin reservoir system using CE-QUAL-W2
    - GIS analysis using the Agricultural Conservation Planning framework performed by the US Army Corps of Engineers

These analyses will provide a better understanding of nutrient and algal dynamics, leading to more efficient targeting of water quality improvement practices. The results will also provide much needed new water quality data to support updates to the total maximum daily load (TMDL) targets and provide a base study for assessment of management effectiveness.

Red Cedar Demonstration Farm

Promoting Soil Health and Water Quality through Education

The Red Cedar Demonstration Farm is located on approximately 150 acres of farmland owned by Dunn County and the City of Menomonie on the east side of Menomonie within the Red Cedar Basin. In the spring of 2015, the county entered into a five-year lease with the Chippewa Valley Technical College (CVTC) for the purpose of changing land management practices to those that would promote healthy soil and improve water quality. Soil health is defined as the continued capacity of the soil to function as a vital living ecosystem that sustains plants, animals, and humans. Extensive soil health testing is being done to document the existing soil conditions following many years of corn and soybean production using conventional tillage and planting methods. Future tests will be taken to demonstrate anticipated increases in soil organic matter, soil microorganisms, and water infiltration rates.

Management of the farm is directed by a steering committee titled the Dunn County Soil and Water Health Partnership. Committee members include: Dan Prestebak, County Conservationist; Rick Ingli, LWCD Conservation Planner; John Sippl, District Conservationist, Natural Resources Conservation Service (NRCS); Mark Denk, Farm Business Production Management Instructor at the Chippewa Valley Technical College (CVTC); and, Katie Wantoch, Dunn County Agriculture Educator, UWEX.

Some of the things the Partnership hopes to accomplish are:

- Provide an opportunity for soil and water conservation education, on-farm research, and field demonstrations
- Implement the four major concepts of creating a healthier soil:
    - Increase biodiversity by having a minimum of three crops in the rotation

    - Reduce soil disturbance by using no-till planting methods
    - Maximize soil cover by establishing cover crops
    - Provide a continuous living root by establishing cover crops
- Demonstrate potential for increased crop yields utilizing fewer inputs, including commercial fertilizer application, fuel for implements, etc.
- Demonstrate increased water efficiency and improve water quality
- Reduce the impact of off-site movement of soil, runoff, and erosion from cropland

Some of the accomplishments achieved in the first year:

- UWEX tests on one acre grids (150 samples)
- Variable rate lime application
- Haney soil health test on one acre grids (150 samples)
- Establish a three-crop rotation (corn, soybeans, small grain) on 125 acres
- Establish a four- crop rotation (corn, soybeans, small grain, full season cover) on 25 acres
- No-till drill 18 acres of multi-species cover crops following small grain harvest
- Air-flow 17 acres of multi-species cover crops following small grain harvest
- No-till drill 37 acres of winter wheat following soybean harvest
- Aerial application of 22 acres of winter rye prior to corn harvest
- One field day for farmers and one field day for non-farmers

The Red Cedar Demonstration Farm provides an opportunity for agency staff to experience the challenges that Dunn County farmers face as the practice of "improving soil health" is instituted throughout the county. Members of the Dunn County Soil and Water Health Partnership are excited for this opportunity and welcome the chance to link soil health and water quality and share their findings with farmers, students, and citizens throughout the State.

Red Cedar Watershed TMDL Implementation Plan

Following the approval of the TMDL for Lakes Tainter and Menomin in 2012, a stakeholder group called the Red Cedar Water Quality Partnership (Partnership) formed to write an implementation plan for the TMDL. The plan, titled "A River Runs Through Us: A Water Quality Strategy for the Land and Waters of the Red Cedar River Basin," includes the nine-key elements required to be included in watershed plans using Sec. 319 funds by the Environmental Protection Agency.

The implementation plan outlines an interim goal to reduce phosphorus from nonpoint sources upstream from Tainter Lake by 40 percent within 10 years. This is a realistic goal set by the Partnership which recognizes that achieving the full 65 percent reduction will likely take longer than 10 years. When achieved, the interim goal will reduce the phosphorus load to Lakes Tainter and Menomin by 186,000 pounds of phosphorus per year.

To ensure the success of the implementation plan, an emphasis was placed on developing education, outreach, and civic engagement strategy. The Partnership recognizes the role that residents have in achieving true water quality improvement. Civic engagement principles are used to inspire greater citizen involvement in solving the water quality problems facing the watershed. Farmer-led watershed councils, field days at the Red Cedar Demonstration Farm, and lake associations are some of the way citizens are encouraged to become involved in taking ownership of the solution.

A major outreach and education activity of the implementation plan is continued support of The Red Cedar Watershed Conference: Land, Water, and People Coming Together. This conference is put on annually by the Tainter Menomin Lake Improvement Association (TMLIA) with sponsorship from the city, county, and area non-government organizations (NGOs) and corporations. Nearly 400 people were in attendance to listen to three world-renowned keynote speakers at the 2016 Conference. This marked the fourth year of the conference and the highest turnout yet.

To track, monitor, and modify the implementation strategy, the plan outlines four 'realms' that will be tracked. They are listed in the relative chronological order they will occur in:

1. Attitudes, knowledge, and social networks
2. Participation by stakeholders (farmer-led councils, attending field days, soil testing, farm assessments, etc.)
3. Land management changes on the ground that directly reduce phosphorus loads to rivers and lakes
4. Water quality monitoring

Town of Grant Agricultural Enterprise Area

In 2002, the people in the Town of Grant, Dunn County, adopted a Comprehensive Plan for the Town with the following goals:

- Goal 1: Preserve the Red Cedar River from development
- Goal 2: Protect the rural character of the town
- Goal 3: Keep farms viable
- Goal 4: Preserve productive farmland for continued agricultural use

In 2009, farmers in the Town of Grant began participating in the Town of Grant Phosphorus Reduction Pilot Project aimed at reducing soil erosion and the amount of nutrients leaving their fields and entering local streams. Many local farmers benefitted by adopting no-till planting, updating soil samples, and developing fertility management plans that avoid over application of commercial fertilizer. Staff from Dunn County LWCD and River Country RC&D helped producers with these practices. Landowners who participated in the project saved time and fuel and increased profits while improving water quality.

In 2013, the Dunn County Towns of Grant, Colfax, Otter Creek, and Sand Creek and the Chippewa County Towns of Auburn and Cooks Valley petitioned the State and were granted an Agricultural Enterprise Area (AEA). Landowners in AEAs are not subject to any new land use regulations but the designation is intended to encourage preservation of agricultural land use and to promote agricultural economic development.

The Town of Grant AEA encompasses 25,908 acres in an area where cropland and forest land make up 95 percent of the present land use. The theme of the AEA is supporting an "agricultural way of life". To date, one long-term contract has been signed. LWCD staff will continue to work with landowners considering entering a long-term contract to ensure compliance with the NR 151 performance standards.

Tri-County Groundwater Level Monitoring Pilot Project

Residents of Chippewa, Dunn, and Eau Claire Counties are concerned about the documented increase in the use of groundwater. In 2015, the Counties, in partnership with the Wisconsin Geological and Natural History Survey and the U.S. Geological Survey Wisconsin Water Science Center, began working to monitor and protect this shared natural resource. Land Conservation staff in each county worked with five well owners who agreed to voluntarily install groundwater level sensing systems designed by the Wellntel Corporation of Milwaukee. The Wellntel units have been measuring daily, static groundwater levels to document long term and seasonal trends in groundwater fluctuations. Data is transferred from the monitoring device to the internet where it will be shared with the public in the fall of 2016. The collected data will be used to:

1. Form a better understanding of the groundwater resource
2. Create a knowledge base for making water management decisions affecting all three counties, including the permitting of high-capacity wells
3. Evaluate the accuracy and suitability of this technology

The Wellntel units are a relatively new technology that appear to reliably monitor groundwater levels in a way that is less invasive than prior technologies. Part of the study will be to scientifically document the accuracy and effectiveness of the new Wellntel units. Data will be compared to that of traditional pressure transducers which are more expensive and require the use of time consuming data collection methods.

The Counties, with the assistance of all project partners, are prepared and plan to implement this program for the next several years. Project partners are especially interested in installing this technology on wells near potential new, large-scale water users to develop baseline data and evaluate changes in groundwater levels that may occur. Dunn County funded five units through a request from the county water quality contingency fund. Additional units will be installed within the county as the program develops.

UW-Stout LAKES-REU Program

UW-Stout has been home to the Linking Applied Knowledge in Environmental Sustainability Research Experience for Undergraduates (LAKES REU) program starting in 2014 and continuing for three summers. This program brings 10-15 students from around the country to Menomonie to study the root causes of phosphorus pollution for 10 weeks during the summer. The program is funded by the National Science Foundation and provides students with room and board, travel expenses, and a living stipend. Students are mentored by professors to addresses the complex nature of water quality impairments by conducting research in the areas of sociology, economics, ecology, anthropology, geology, geography, mathematics, and communications.

Dunn County LWCD has been part of the LAKES-REU Program by offering assistance to faculty and students in research project design, providing datasets, hosting field outings (Figure 2), and educating students on topics such as soil health and agriculture basics. Water quality is a top concern of citizens in Dunn County and improving water quality is a primary goal of LWCD. The results of the LAKES-REU student's research continues to fill in gaps in knowledge about the complex water quality challenges the county faces and will ultimately help LWCD and other agencies to further their efforts to improve local water quality.

Figure 2. LWCD Engineering Technician Bob Kaner (left) teaching LAKES-REU students about surveying and engineering practices used to design water quality best management practices

Water Quality Monitoring

Water quality monitoring has expanded dramatically in Dunn County following the establishment of the volunteer-led Red Cedar Basin Monitoring Group (RCBMG) in January, 2011. The purpose of RCBMG is to promote improvement of waters in the Red Cedar Basin, to encourage citizen monitoring, to provide water quality data to the DNR, other government agencies, and interested citizens, and to encourage the development of programs by educational institutions and public agencies to improve water quality in the Red Cedar Basin.

Within Dunn County, the group monitors 23 sites on 18 streams. Stream monitoring is a part of the DNR Water Action Volunteers (WAV) Program. There are three levels of WAV monitoring. WAV level for sites within Dunn County vary based on data need and funding availability. Total phosphorus (TP) is monitored on 14 stream sites. The goal of TP monitoring is to provide a baseline of growing season TP concentrations with a long-range goal of monitoring over several years to document a trend in TP as a result of targeted conservation practice installation.

Through the DNR Citizen Lake Monitoring Program, RCBMG monitors seven sites on Lake Menomin and Tainter Lake. Three of the Tainter Lake samples and one of the Lake Menomin samples are also total phosphorus monitoring sites, and one of the Tainter sites is part of the DNR's long-term monitoring program. Sample site locations and the data collected at these sites can be viewed on the DNR Surface Water Data Viewer.

In addition to volunteer monitoring, DNR Fisheries conducts monitoring at many additional locations in the county for the purpose of monitoring conditions for fish habitat. As with the citizen-based data, the location of the monitoring sites and data are available for viewing on the Surface Water Data Viewer. Additional volunteers to perform monitoring are always needed.

Beginning in 2015, Dunn County contracted with UW-Stout Professor Dr. Bill James to collect winter phosphorus concentrations at locations on the Red Cedar and Hay Rivers above Lake Tainter. Samples were collected under freezing conditions when surface water runoff was minimal and groundwater was contributing the majority of water in the rivers. Data will be used as part of an ongoing study of determining groundwater contributions of phosphorus to lakes. These samples are being analyzed for both total phosphorus and dissolved phosphorus which is the form of phosphorus available to algae for assimilation, driving growth and bloom development. This research will continue in 2016-2018 as a part of the Red Cedar Basin Assessment (see below).

Wilson and Annis Creek Watershed Partnership

Wilson Creek, located in in western Dunn and eastern St. Croix Counties (Figure 3), and Annis Creek, which flows into Wilson Creek about two miles northwest of Menomonie, are class II trout streams with some tributaries being class I. After their confluence, the two waterways flow together into Lake Menomin just above the dam before joining the waters of the Red Cedar River. Over 11 miles of Wilson Creek and 3.4 miles of Coon Creek, a tributary to Annis, have been 303(d) listed for reasons of excess sedimentation, phosphorus, and other pollutants. A 303(d) listing means that these streams are impaired and the water quality does not meet the minimum standards set by the EPA. The impairments to the creeks have caused elevated water temperature, degraded habitat, and a degraded biological community.

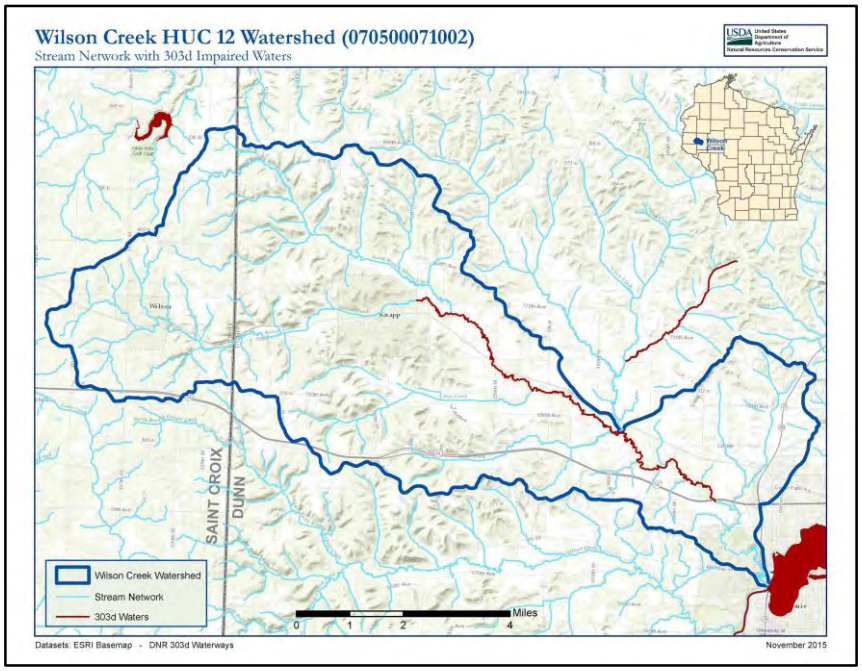


Figure 3. Wilson Creek Watershed

In 2015, the LWCD and NRCS submitted an application for funding through the National Water Quality Initiative Program. The funding was granted for Wilson Creek in the Spring of 2016. These funds support the installation of conservation “best management practices” on land in the Wilson Creek Watershed while general Environmental Quality Incentive Program funds are available to landowners in the Annis Creek Watershed. Additional funding opportunities exist and may be leveraged to expand the project to include trout stream restoration.

To ensure the success of the project, LWCD and NRCS initiated the Wilson and Annis Creek Watershed Partnership, a citizen-led group tasked with guiding project implementation. The Civic Governance model is being used to ensure that all community members have the ability and opportunity to serve as stakeholders in the project. This partnership promotes land stewardship practices and works together to select conservation best management practices to prioritize, such as grassed waterways, stream bank restoration, cover crop establishment, stream crossings and manure storage structures. These practices will improve soil health and water quality with the goal of removing Wilson Creek from the federal impaired waters list.

RESOURCE ASSESSMENT

Dunn County is located in West Central Wisconsin. The county is bordered to the north by Polk and Barron Counties, to the east by Chippewa and Eau Claire Counties, to the south by Pepin County, and to the west by Pierce and St. Croix Counties. Dunn County has a total land and water area of approximately 552,960 acres. It is rectangular in size, about 24 miles east to west, and 36 miles north to south.

Topography in the county ranges from flat, wide-open fields in the eastern areas to rough hilly terrain in the western and northern areas. Throughout most of the county, sandstone bedrock is prevalent. In the higher elevations of the western portion of the county, sandstone is capped by dolomitic limestone.

Dunn County consists of 22 unincorporated towns, 7 incorporated villages, and one city. The county seat is located in the City of Menomonie, which is the largest municipality.

Dunn County lies totally within the Lower Chippewa River Basin and is divided into eight watersheds, four draining into the Red Cedar River before it empties into the Chippewa River, and four draining into the lower Chippewa River. The three biggest lakes in the county are all impoundments, Tainter Lake, Lake Menomin and Lake Eau Galle. Each of these lakes is susceptible to excess phosphorus loading and algal blooms. Dunn County is home to a number of impaired lakes, rivers, and streams. Watershed plans have been, and continue to be, drafted to address these impairments and the concerns of citizens.

Groundwater provides drinking water for all county residents and a majority of the water used by industry. The county relies on one primary aquifer located in the sandstone bedrock that underlies a wide variety of soils ranging from loamy sands to heavy silts. Having one aquifer means that wells cannot be drilled deeper to solve groundwater contamination issues, making it that much more important to protect the aquifer and prevent groundwater pollution from occurring. A major concern of Dunn County citizens is septage spreading on agricultural lands. Citizens want to be assured that septage spreading is being monitored and performed only on suitable sites.

Frac sand mining - Much of the sandstone bedrock on the western side of the county is of the Cambrian formation which is made up of sand particles of the ideal size and shape for hydraulic fracking or “frac

sand" in the oil and natural gas industry. The long term impact of frac sand mining on drainage patterns, groundwater, and wildlife is undetermined, but it definitely has the potential to change much of the natural landscape. Frac sand mining has been and continues to be a concern of citizens in the county and as such is addressed in this plan.

Invasive Species - Invasive species of both the terrestrial and aquatic variety threaten native flora and fauna. Dunn County recognizes this threat and has dedicated staff time to address this concern.

Soil Erosion - Soil erosion is one of the biggest threats to both the agricultural economy and water quality. Soil erosion can occur from both wind and runoff/rainfall and results in the loss of productive topsoil. The Dunn County LWCD works with agricultural landowners to reduce soil erosion by promoting erosion-reducing farming practices such as reduced tillage, planting cover crops, and contour farming.

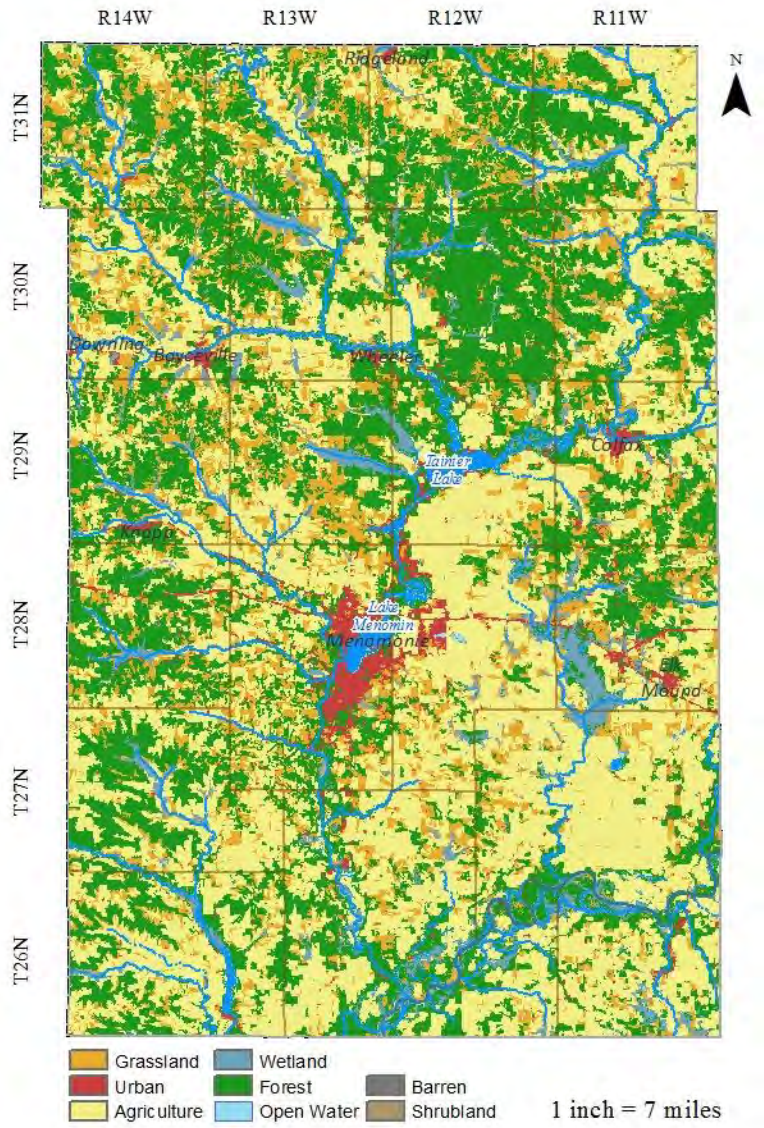


Figure 4. Land cover in Dunn County

Soils

The Soil Survey of Dunn County was originally published in 1975. An update was issued in 2005. The soil survey contains information that affects land use planning and predictions of soil behavior for selected land uses. The survey highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment. Figure 4 illustrates land cover in Dunn County based upon 2015 satellite imagery.

The southern part of Dunn County is made up of the Northern Mississippi Valley loess hills. The northern part of the county is similar to Central Wisconsin and Minnesota thin loess and till. Areas in the western part of the county are similar to eastern Iowa and Minnesota till Prairies. There are areas scattered throughout the central and southern parts of the county that are more similar to Wisconsin and Minnesota sandy outwash.

The calculated average soil losses for Dunn County continue to show very little change. Since 1999, Dunn County has used DATCPs approved Transect Survey to estimate soil erosion on agricultural land.

Minor changes in the yearly calculated soil loss can be contributed to changes in the soil loss formula itself (which took place in 2008) and to changes in staff who conducted the survey.

Soil erosion concerns are a twofold problem. When soil is eroded from an area, it is transported and deposited in another area. The original soil suffers the loss of some of its productivity when the upper layer is removed. The soil that is eroded is deposited as sediment in another location. If this sediment makes its way to surface water, the nutrients that were in the soil are now available to water loving plants including algae. It is necessary to reduce soil erosion for the sustainability of food and crop production. Sediment is also the number one source of nonpoint source pollution.

The percent of ground cover after planting is one of the management practices that can have a significant influence on soil erosion. The county is experiencing a steady increase of residue left after planting especially in the categories over 50%. Conservation planning efforts have and will continue to encourage producers to leave more than 30% residue.

Data from the DATCP approved transect survey is used to assess soil erosion (Figure 5), cropping trends (Figure 6), and tillage methods. Soil erosion rates in Dunn County have not significantly changed over the past 12 years.

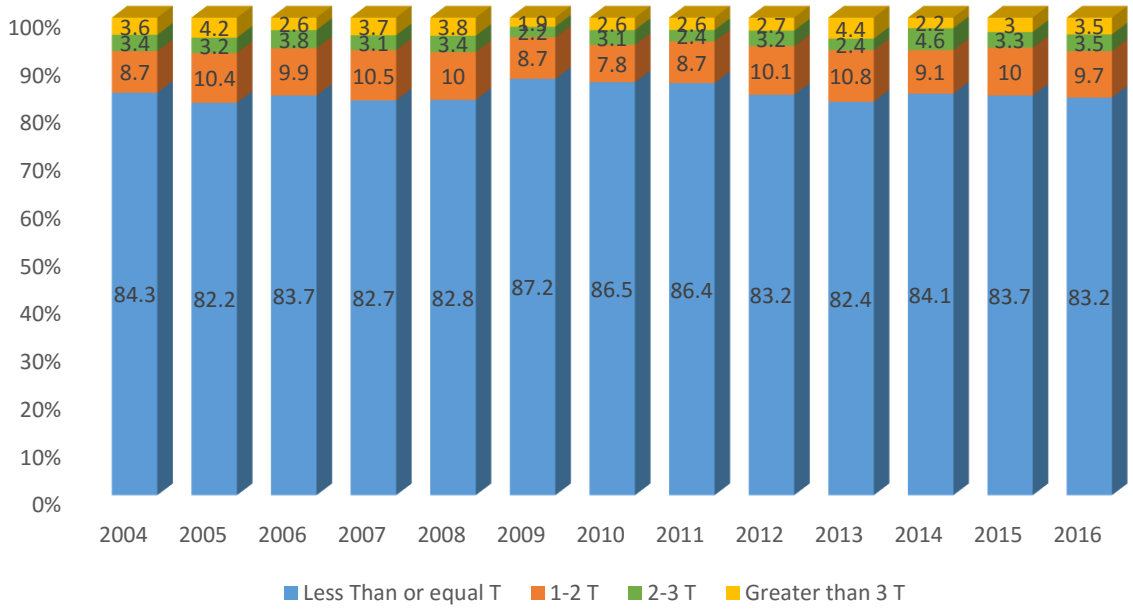


Figure 5. Average soil loss from agricultural fields

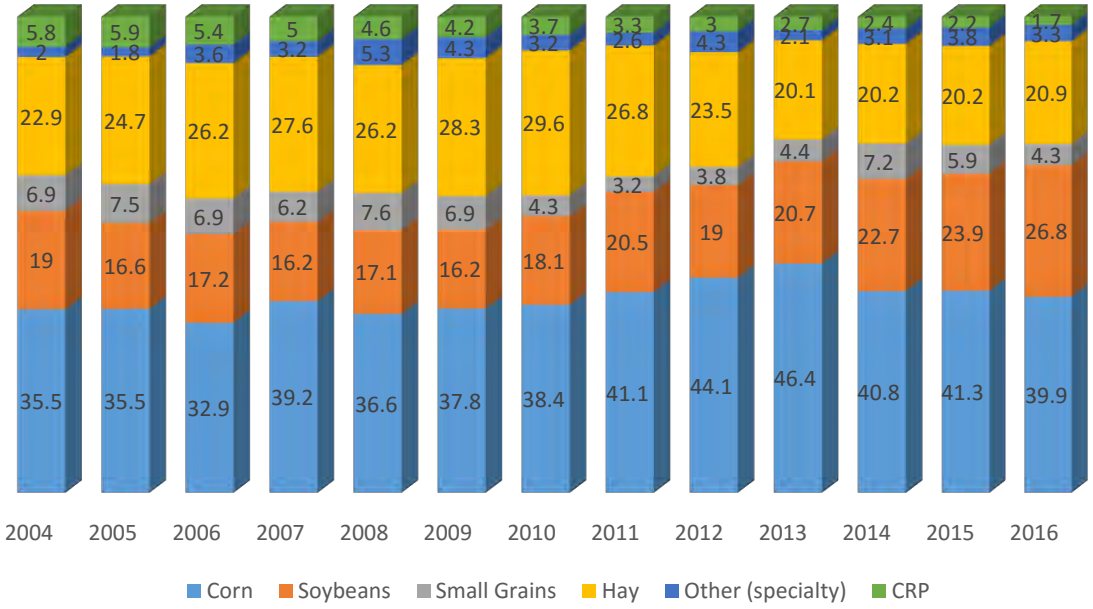


Figure 6. Crop types by percentage of cropland

Soil erosion in Dunn County is being evaluated using the DNR GIS tool "Erosion Vulnerability Assessment for Agricultural Lands" (EVAAL, Figure 7). So far, two watersheds have been processed with the tool - Wilson and Annis Creek. These watersheds were prioritized due to the Wilson and Annis Creek Watershed Partnership Project that is on-going. It is the intention of LWCD staff to run EVAAL on all watersheds in the county as time allows over the winter of 2016-17. The results of EVAAL analysis highlight the most at-risk fields in each watershed. This information is useful in conservation planning and prioritizing where to direct conservation funds.

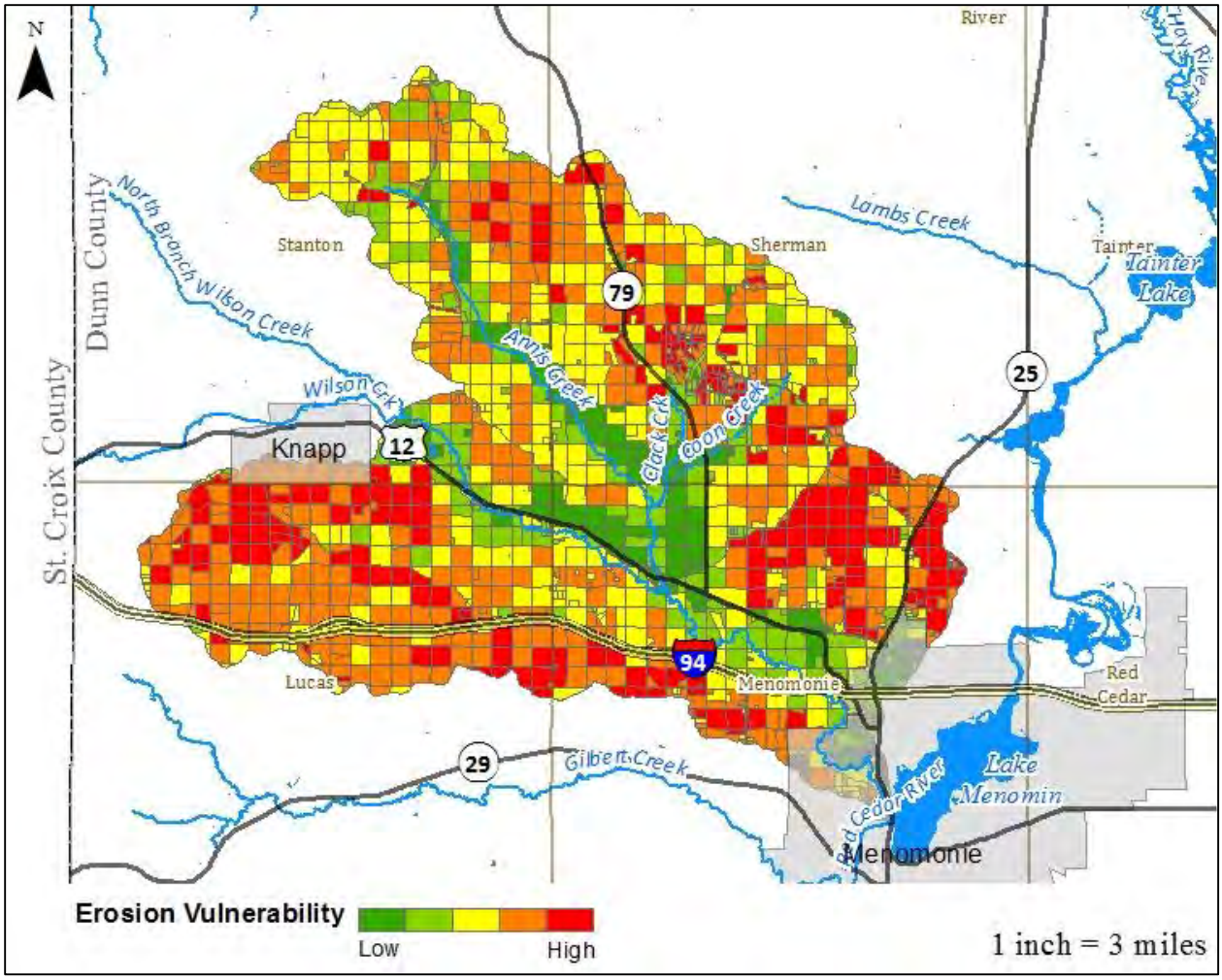


Figure 7. Erosion vulnerability by parcel in the Wilson and Annis Creek Watersheds

Water Resources

Watersheds

Dunn County is home to about 1,100 miles of streams and rivers and 3,300 acres of lakes and impoundments (DNR, 2016). There are parts of eight HUC-10 watersheds in the county (Figure 8). About two-thirds of the county, from the Wilson Creek Watershed north, is within the Red Cedar River Basin. The lower one-third, making up the southeast and southwest corners of the county, are within the Lower Chippewa River Basin.

The major river systems in the county are the Hay River and the South Fork of the Hay River in the northwest, the Red Cedar River flowing from the northeast to south central, the Eau Galle River in the southwest, and the Chippewa River in the southeast. There are 12 named lakes, with the two largest being Tainter Lake (1,605 acres) and Lake Menomin (1,009 acres). These two lakes are impoundments of the Red Cedar River and are centrally located in the county.

Figure 8. Watersheds in Dunn County

Wisconsin DNR (2016) has classified water conditions to be excellent in 17 miles of stream, good in 136 miles of stream and 405 acres of lake, fair in 21 miles of stream, and poor or suspected poor in 186 miles of stream and 2,486 acres of lake. The remaining 742 miles of stream and 386 acres of lake are not classified for water condition.

There are eight watersheds in Dunn County. Additional information about each of these watersheds is available on the DNR website by searching the keyword “watersheds”.

Bear Creek (LC01)

Description: Just 2 square miles of the northern most part of Bear Creek Watershed is located in south-central Dunn County. The primary land use is forest, with the secondary use as grassland/pasture and cropland. The Chippewa River, an impaired water body, is within this watershed.

Management Objectives: DNR has identified fisheries in this watershed as the priority focus area. This watershed is within the Lower Chippewa River Basin and has seen a decline in rare species populations.

These populations are threatened by sedimentation from erosion filling in the natural coarse substrate. Dunn County will continue to manage the land in this watershed to reduce soil erosion by working with landowners to develop soil health and implement best management practices on their land.

Eau Galle River (LC03)

Description: Much of the southern half (65,000 out of 171,000 total acres) of the Eau Galle River Watershed is located in southwest Dunn County. The main stem of the Eau Galle River, as well as Knight's Creek and some tributaries, are class II trout streams, with some tributaries being class I. Missouri Creek is listed as impaired due to sediment/total suspended solids and has degraded habitat as a result. The primary land use in the watershed is agriculture in the lowlands and uplands, with forestland dominating the side slopes. A small amount of pasture/grassland also exists in the watershed.

Management Objectives: Trout streams in the Eau Galle Watershed are primarily threatened by runoff from agricultural activities including barnyards, feedlots, and streambank grazing. Flooding and streambank scour is also a concern. A primary management goal of the Eau Galle River Watershed is to reduce the amount of sediments entering waters in this watershed by implementing best management practices (BMPs) that promote infiltration and water storage, thus reducing sediment and pollutant laden runoff from entering the system. Ultimately, these practices could lead to Missouri Creek becoming delisted from the Impaired Waters List by the DNR. The DNR also has plans to conduct biological monitoring in the Eau Galle River.

Wilson Creek (LC04)

Description: Wilson Creek is a 245 square mile watershed mostly in West Central Dunn County with a small area in St. Croix County. Most of the streams in this watershed are class II trout streams, with several class I streams in the upper tributaries of Wilson and Gilbert Creeks. These coldwater streams are fed by springs which are commonly found in this part of Dunn County. Forestland makes up 40% of the watershed, while the remainder of the land use is agriculture, grassland, and some wetlands. The main stem of Wilson Creek, as well as its tributary Coon Creek, is impaired for the reasons of total phosphorus and suspended sediment, respectively. Sources of pollution include streambank pasturing and agricultural nonpoint source runoff.

Management Objectives: The northern-most HUC12 sub-basins of this watershed are included in the Tainter-Menomin TMDL and will be managed according the TMDL Implementation Plan. The NRCS successfully secured National Water Quality Initiative funding in 2016 for the Wilson Creek HUC12 sub-basin that is not included in the TMDL. This funding is expected to extend for three years and makes additional Environmental Quality Incentives Program funding available to landowners in this subwatershed.

Stemming from this recent initiative, the DNR has added several water quality monitoring sites along Wilson Creek. Additionally, the DNR has undertaken recent trout habitat work on Wilson Creek and Gilbert Creek to restore trout habitat to degraded stream segments. Most of these projects are located on public easements and create valuable recreation areas for citizens. Parts of Wilson and Coon Creek, located in this watershed, are impaired and will be managed with a goal of reducing total phosphorus and sediment to levels that would result in the DNR's removal of the water from the 303(d) list.

Hay River (LC05)

Description: The Hay River Watershed spans across Barron and Dunn Counties with the lower third being in north-central Dunn County. The Hay River is impaired due to total phosphorus and flows into Tainter Lake (which is also impaired) at its terminus. A 1989-90 study found that 94 percent of the Hay River phosphorus load is controllable. Of the total load, about 80 percent is from polluted nonpoint source runoff and 20 percent is from point sources. All main tributaries to the Hay River in Dunn County are class II trout streams, with several class I streams flowing into Big Beaver Creek from the uplands.

Management Objectives: The Hay River has been subject to a number of studies over the past few decades due to its contribution to the downstream Tainter Lake. A primary management objective is to reduce the amount of phosphorus entering the River to an acceptable level, leading to its delisting by the DNR from the Impaired Waters List. A TMDL has been written and approved for the Red Cedar Basin, and the Hay River Watershed will be managed according the TMDL Implementation Plan.

At the time of this writing, the Hay River Watershed is also the location of Dunn County's only Farmer-Led Watershed (FLW), which was initiated in 2013. Farmer-led watersheds allow farmers to become knowledgeable about, engaged in, and form leadership over water quality issues. The Hay River FLW has received grants and adopted conservation practices using those funds with a goal to improve water quality in the watershed.

South Fork Hay River (LC06)

Description: The South Fork of the Hay River is located in northwest Dunn County. This watershed drains agricultural and forested land. About one-third of the watershed is located in Dunn County, one-third in St. Croix County, and the remaining one-third being located in Barron and Polk Counties. There are no impaired waters in this watershed and all streams are either class I or class II trout streams. Problems facing surface waters in this watershed include streambank erosion, sedimentation of riffle and pool areas, organic and nutrient loading from animal waste, and elevated stream temperatures (DNR, 2016). The South Fork of the Hay River Watershed was selected as a priority watershed in 1993 and the project was closed in 2005. The DNR performed a final stream inventory in 2015 to gather data on long-term effects of the project.

Management Objectives: DNR goals for the watershed include continued monitoring of fish tissue and wetland restorations. The South Fork of the Hay River is located within the Red Cedar River Watershed TMDL area and will be managed as a part of the Red Cedar River Basin TMDL Implementation Plan to reduce phosphorus loading into Tainter Lake.

Pine Creek and Red Cedar River (LC07)

Description: The Pine Creek and Red Cedar River Watershed is located in northeast Dunn County. The Red Cedar River, Eighteen Mile Creek, Running Valley Creek, and an unnamed tributary to Eighteen Mile Creek are degraded and listed on the impaired waters list for reasons of sedimentation and phosphorus pollution. Many of these streams are class I, II, and III trout streams, and Sand Creek is designated by the DNR as an exceptional resource water. Concerns in this watershed are primarily from streambank pasturing and agricultural runoff.

Management Objectives: A management priority within this watershed is to work toward delisting the impaired streams. The Red Cedar River has been subject to a number of studies over the past few decades due to its contribution to the downstream Tainter Lake. A TMDL has been written and approved

for the Red Cedar Basin, and the Red Cedar River Watershed will be managed according the TMDL Implementation Plan.

Other priorities and goals identified by the DNR include continued monitoring of fish tissue and evaluation of stream base flow.

Muddy and Elk Creeks (LC13)

Description: The Muddy and Elk Creek Watersheds comprise about 91,000 acres in southeast Dunn County. This area is dominated by large, flat agricultural fields, most commonly in a corn-bean rotation of row crops. A large wetland area found in the central part of the watershed is managed as the Muddy Creek State Wildlife Area. Other protected areas in the Dunn County portion of the watershed include the Dunnville State Wildlife Area (commonly referred to as the Dunnville Bottoms) and Hoffman Hills State Recreation Area. In the northern part of the watershed, Muddy Creek begins as a class II trout stream and becomes a class III in the main stem. Big Elk Creek and a smaller, unnamed stream are class I trout streams and designated as exceptional resource waters by the DNR. A portion of Elk Creek flowing out of Elk Creek Lake is impaired and listed on the Impaired Waters List due to phosphorus pollution resulting in use restrictions.

Management Objectives: This watershed will be managed to maintain and improve the existing trout streams and exceptional resource waters as well as work toward improving Elk Creek to a level that it may be delisted by DNR from the Impaired Waters List. Management of the state natural and recreation areas, as well as encouraging best management practice implementation in farmland of the watershed, will improve surface waters and ensure they continue to serve as healthy fisheries. Due to the flat nature of the watershed, stream buffers, reduced/no tillage, and cover crop adoption are the primary agricultural conservation practices that will be promoted. The DNR has also identified invasive species management in Elk Creek and biological monitoring as a priority for the watershed.

Lowes and Rock Creeks (LC24)

Description: The Lowes and Rock Creek Watershed is located in southeast Dunn County and is approximately 32,000 acres in size. The streams in the Dunn County portion of this watershed include Cook, Rock, Cranberry, Duscham, and Fall Creeks. Rock Creek upstream of the Rock Falls Millpond is impaired due to suspended sediment/solids leading to elevated water temperatures and degraded habitat. It is considered a class II trout stream below the millpond. Coon and Fall Creeks are also class II trout streams. Land use in the watershed is dominated by vast, flat agricultural fields and some pasturing. Forestland increases with proximity to the Chippewa River, and some areas of wetland also exist, including the Rock Falls Wildlife Area, through which Rock Creek flows.

Management Objectives: Current DNR management objectives are to continue citizen-based stream monitoring at Fall Creek. In 2015, phosphorus exceeded state standards in Fall Creek 100% of the time. LWCD efforts to implement BMPs in this watershed will also help reduce both phosphorus and sediment inputs into streams, ideally leading to the delisting of Fall Creek from the impaired waters list.

Designated Waters

Trout Streams

There are many trout streams in Dunn County. Wisconsin DNR classifies trout streams as one of three classes based on their ability to support healthy trout populations for sustainable reproduction as well as their ability to support fishing.

Class I trout streams can sustain sufficient populations of trout for natural reproduction. These streams do not require stocking to maintain a healthy population and stand up to fishing pressure. Class I stream segments are often small segments of stream and fish found in these streams may be small or slow-growing.

Class II trout streams may have some natural reproduction but not enough to use available food and space in the stream. For this reason, stocking is usually required to maintain a population to support fishing. Survival rates are high and fish are generally of average or above average adult size.

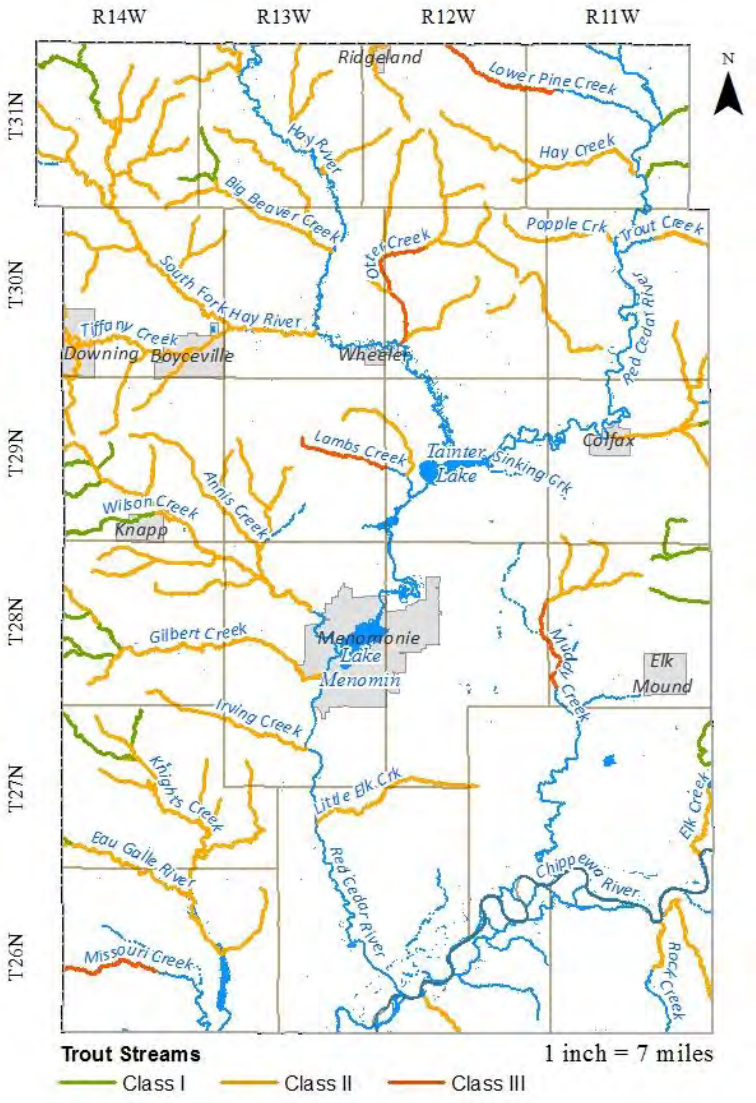


Figure 9. Class I, II, and III trout streams

Class III trout streams have trout present but are usually found in marginal habitat and do not support a reproductive trout population. They require annual stocking to support trout fishing and generally do not have carry over from year to year.

Dunn County is home to 78 miles of class I, 363 miles of class II, and 24 miles of class III trout streams (Figure 9). The majority of the class I streams are located in western Dunn County where local hydrology, geology, and land use provide ideal conditions for trout habitat. In this part of the county there are many cold water springs, and forested land is more common than vast open areas of intensive agriculture. The Wilson Creek and South Fork of the Hay River Watersheds contain the highest concentration of trout streams in the county.

In recent years, the DNR has undertaken several trout stream restoration projects on Gilbert and Wilson Creeks in western Dunn County. Trout Unlimited and LWCD have assisted with the projects. Additional potential habitat improvement projects exist on Wilson, Gilbert, North Branch of Hay, and Tiffany Creeks. All of these easements are open to the public for fishing.

The DNR Trout Regulations and Opportunities User Tool (TROUT) can be used to find access points for trout fishing in the county. It also provides information about trout fishing rules and regulations, the location of fishing easements, and custom map-making tools.

Outstanding and Exceptional Waters

Wisconsin DNR defines outstanding and exceptional resource waters as "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" (DNR, 2016). Because of this designation, the State of Wisconsin has determined that these waters warrant additional protection from pollution.

Outstanding resource waters (ORW) are those waters which do not have any point sources discharging pollutants directly into the water. New effluent discharges may only be permitted as long as the discharge is equal to or better than the water quality of the stream at all times.

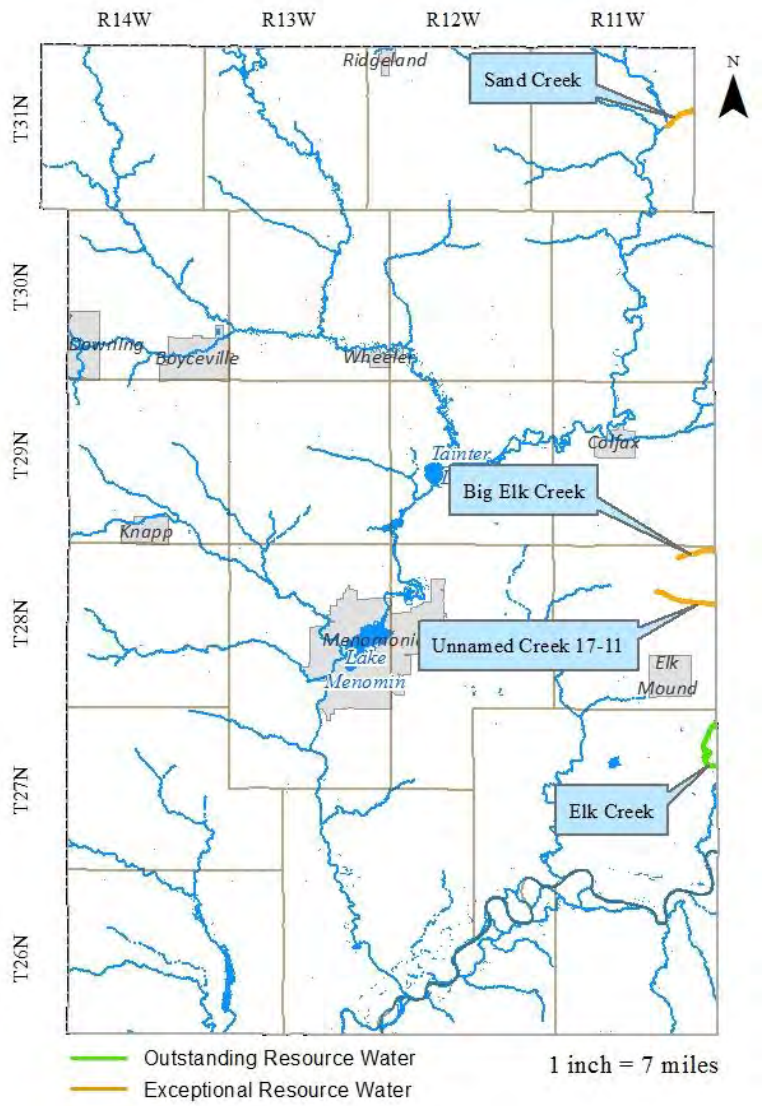


Figure 10. Outstanding and exceptional resource waters

Exceptional resource waters (ERW) may have a point source discharger; however, existing and new point source dischargers must meet or exceed water quality of the stream with few exceptions. Both ORWs and ERWs may be subject to nonpoint source pollution.

There are 3 miles of ORWs and 18 miles of ERWs in Dunn County (Figure 10). Elk Creek, located on the east edge of the county, is an ORW. Big Elk Creek and Unnamed Creek 17-11 are designated as ERWs and flow into Elk Creek just east of Dunn County into Chippewa County. Sand Creek, located in the northeast part of the county, is also an ERW; it flows into the Red Cedar River. Because of their designations, it is important for Dunn County to pay special attention to land use activities in the watersheds of these streams and to ensure proper permitting of point source discharges as necessary.

Impaired Water of Dunn County

Surface waters are determined to be impaired when they do not meet water quality standards set by the Clean Water Act (CWA) of the United States Environmental Protection Agency. These waters are required by Section 303(d) of the CWA to be published to a list known as the Impaired Waters List. The list is revised every two years to add additional waters determined to be impaired or to remove those that have been successfully restored or no longer have a water quality impairment. In the state of Wisconsin, there are over 700 water bodies on the Impaired Waters List (DNR, 2016). There are 19 waterbodies on the Impaired Waters List in Dunn County (Figure 11). As water quality monitoring is on-going, the DNR may add or remove waters from the Impaired Waters List over time. Dunn County LWCD will also work with the DNR to identify new impairments.

Prior to 2016, there were 223 miles of streams and rivers listed. Thirteen additional miles of stream are proposed for the next list. They are extensions to already impaired streams as well as some new streams. Two impoundments and one lake make up the 2,704 acres of lakes on the Impaired Waters List. Of particular note are the two impaired impoundments, Tainter Lake and Lake Menomin. These impoundments are Dunn County's largest lakes. They are hypereutrophic and experience severe summer algae blooms and very poor water clarity. Recreational use of both lakes during the summer is greatly limited by poor water quality. Blue-green algae (cyanobacteria) were found in abundance in both lakes during surveys conducted in 2004 and 2005. The Wisconsin Department of Health Services reported 22 cases of potential algae-related illnesses in Dunn County in 2009 and 2010.

The main cause of impairment to surface waters in the county are excess phosphorus (P), excess total suspended solids (sedimentation), and polychlorinated biphenyls (PCBs). These pollutants can cause a wide range of stream impairments leading to reduced recreational and sporting opportunities as well as human health concerns, making water quality a top resource concern of Dunn County citizens (Table 1).

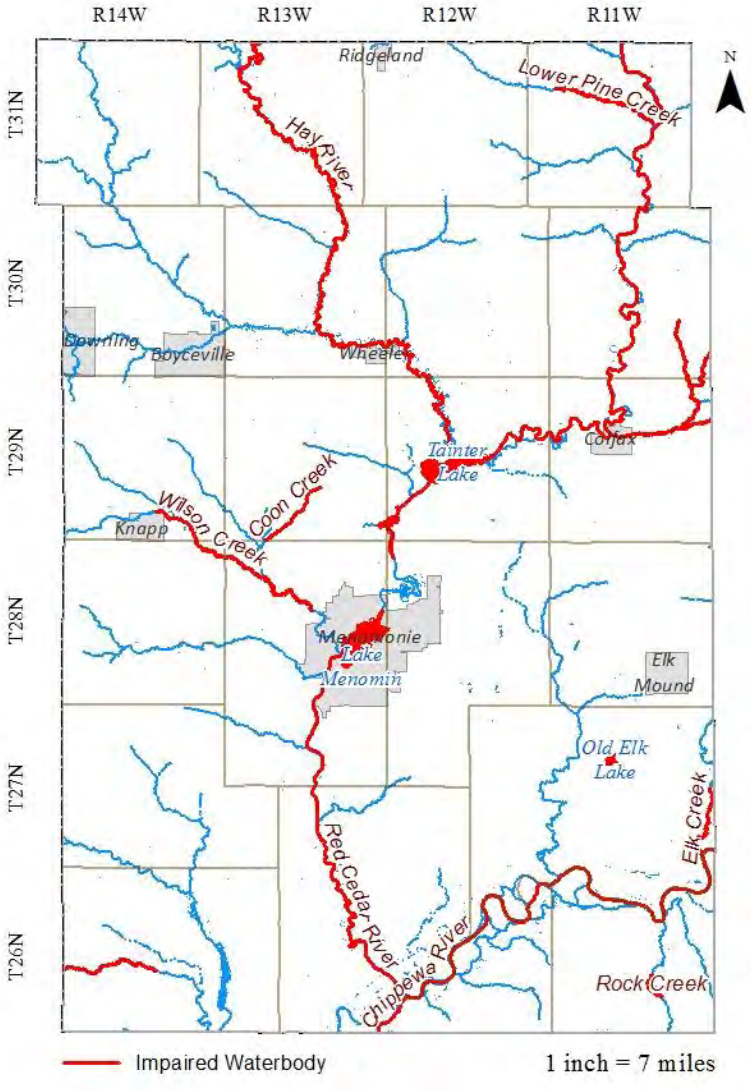


Figure 11. Impaired waters of Dunn County (WDNR, 2016)

Table 1. Impaired waters of Dunn County

Name	Start Mile	End Mile	Pollutant	Impairment	Status	Date Listed
Chippewa River	21	38	PCBs	Contaminated Fish Tissue	303d Listed	4/1/98
Chippewa River	38	59	PCBs	Contaminated Fish Tissue	303d Listed	4/1/98
Coon Creek	0	3	Unknown Pollutant	Degraded Biological Community	303d Listed	4/1/14
Coon Creek	0	3	Sediment/Total Suspended Solids	Elevated Water Temperature, Degraded Habitat	303d Listed	4/1/02
Eau Galle River	0	9	Total P	Impairment Unknown	303d Listed	4/1/14
Eighteen Mile Creek	0	5	Total P	Water Quality Use Restrictions	303d Listed	4/1/12
Eighteen Mile Creek	5	6	Total P	Water Quality Use Restrictions	303d Listed	4/1/12
Elk Creek	0	4	Total P	Water Quality Use Restrictions	303d Listed	4/1/12
Hay River	0	38	Total P	Impairment Unknown	303d Listed	4/1/12
Jarrett Creek at Schneider Ave	0	3	Chloride	Chronic Aquatic Toxicity, Acute Aquatic Toxicity	Proposed for List	4/1/16
Lake Menomin	-	-	Total P	Eutrophication, Excess Algal Growth, Elevated pH	TMDL Approved	4/1/98
Lower Pine Creek	0	7	Total P	Impairment Unknown	303d Listed	4/1/12
Lower Pine Creek	14	17	Total P	Impairment Unknown	303d Listed	4/1/14
Missouri Creek	9	14	Sediment/Total Suspended Solids	Degraded Habitat	303d Listed	4/1/98
Old Elk Lake	-	-	Total P,	Low DO, Eutrophication	303d Listed	4/1/98
Old Elk Lake	-	-	Sediment/Total Suspended Solids	Degraded Habitat	303d Listed	4/1/98
Red Cedar River	0	9	Total P	Impairment Unknown	303d Listed	4/1/14
Red Cedar River	0	9	PCBs	Contaminated Fish Tissue	303d Listed	4/1/06

Name	Start Mile	End Mile	Pollutant	Impairment	Status	Date Listed
Red Cedar River	9	14	Total P	Eutrophication, Elevated pH	303d Listed	4/1/98
Red Cedar River	9	14	PCBs	Contaminated Fish Tissue	303d Listed	4/1/98
Red Cedar River	14	16	Total P	Impairment Unknown	303d Listed	3/1/13
Red Cedar River	14	16	PCBs	Contaminated Fish Tissue	303d Listed	4/1/98
Red Cedar River	16	19	Total P	Eutrophication, Elevated pH	303d Listed	4/1/98
Red Cedar River	23	29	Total P	Eutrophication, Elevated pH	303d Listed	4/1/98
Red Cedar River	29	74	Total P	Impairment Unknown	303d Listed	4/1/12
Rock Creek	3	5	Sediment/Total Suspended Solids	Elevated Water Temperature, Degraded Habitat	303d Listed	4/1/02
Running Valley Creek	0	5	Total P	Water Quality Use Restrictions	303d Listed	4/1/12
Tainter Lake	-	-	Total P	Eutrophication, Excess Algal Growth, Elevated pH	TMDL Approved	4/1/98
Unnamed Creek 1-8 (T29N, R11W)	0	3	Total P	Water Quality Use Restrictions	303d Listed	4/1/12
Unnamed Creek 2065700 - at Third St	0	3	Chloride	Chronic Aquatic Toxicity, Acute Aquatic Toxicity	Proposed for List	4/1/16
Unnamed Creek 20-16 Trib. To Gilbert Creek	0	4	Total P	Degraded Biological Community	Proposed for List	4/1/16
Wilson Creek	0	3	Total P	Impairment Unknown	Proposed for List	4/1/16
Wilson Creek	3	14	Total P	Impairment Unknown	303d Listed	4/1/12

Total Maximum Daily Load Plan for Lakes Tainter and Menomin

A watershed restoration action plan called a Total Maximum Daily Load (TMDL) Plan is required for all waters listed on the impaired waters list. This plan sets limits for the amount of pollutants a waterbody

can receive and still meet water quality standards. To define the TMDL for a water body, modeling is used to determine the current pollutant loads, their sources, and the amount of reduction needed from each source to reach the water quality goal. Water quality goals for Wisconsin surface waters are set in Wisconsin Administrative code NR 102: Water Quality Standards for Wisconsin Surface Waters. A TMDL considers both waste load allocation (WLA, point sources) and load allocation (LA, nonpoint sources). The WLAs determined in the TMDL for point sources, such as wastewater treatment plants or factories, are addressed through Wisconsin Pollutant Discharge Elimination System (WPDES) permits. Nonpoint source LAs, on the other hand, are more complex and require collaboration by many partners and stakeholders to effectively use available multi-agency programs, education, regulations, and financial and technical resources.

At the time of this writing, Dunn County has one approved TMDL. It is for the two largest lakes in the county: Tainter Lake and Lake Menomin. The TMDL area (Figure 12) is composed of the Red Cedar River Basin down to Lake Menomin. It encompasses over 1.1 million acres, covering the northern half of Dunn County and extending north through nearly all of Barron County as well as parts of Washburn, Sawyer, Rusk, Chippewa, St. Croix, and Polk Counties. The TMDL, titled "Phosphorus Total Maximum Daily Loads (TMDLs) Tainter Lake and Lake Menomin Dunn County, Wisconsin", was written by the DNR and is publicly available on both the Dunn County and DNR websites.

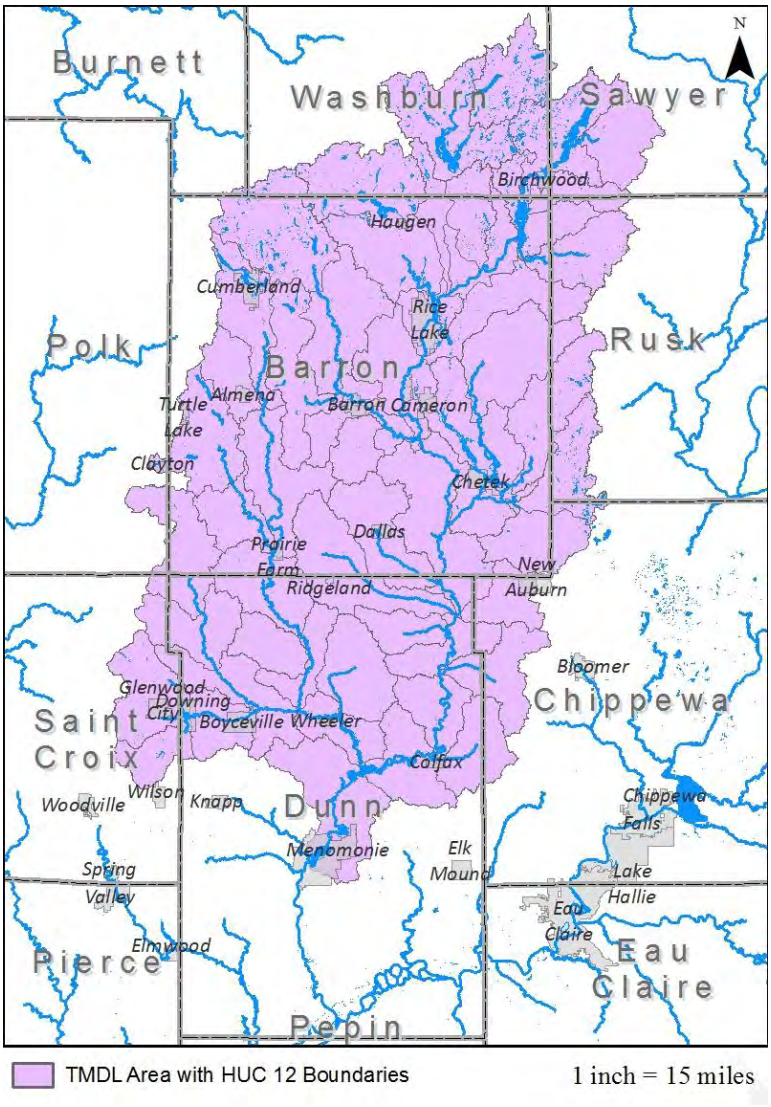


Figure 12. HUC 12 watersheds in the Red Cedar River Basin TMDL area

Using the Simulator for Water Resources in Rural Basins (SWRRB), which is a computer-based water quality model, with inputs including land use, soil type, cropping practices, topographic data, routing characteristics, and local weather, the DNR was able to determine average annual phosphorus contributions from various land uses. The SWRRB model determined that approximately 67 percent of the phosphorus load comes from cropland, 10.6 percent from forestland, 7 percent from point sources, 6.7 percent from barnyards, 6.3 percent from

grassland/pasture, and 2.5 percent from urban areas. The TMDL calls for a 65 percent reduction in the quantity of phosphorus entering Tainter Lake to achieve water quality goals.

Other Water Quality Concerns

Streambank Erosion and Sedimentation

In 2014, the Tainter Menomin Lake Improvement Association (TMLIA) was awarded a Lake Planning Grant from the DNR (LPL-1535-14) to perform an assessment of stream bank erosion along the Red Cedar River. The assessment, titled "Red Cedar River Erosion and Habitat Assessment Report," was conducted by Inter-Fluve Inc. of Madison. The study built off an initial stream bank erosion inventory conducted by LWCD in the fall of 2006 on both the Red Cedar River and the Hay River upstream of Tainter Lake.

Figure 13. Streambank stabilization along Lake Menomin at Menomin Park, Menomonie, WI

These studies did not evaluate tributaries of the main river channel. This LWCD inventory estimated that the main stem of the Red Cedar River was displacing 14,271 cubic yards per year and the Hay River was displacing 7,978 cubic yards of soil each year. The 2014 study by Inter-Fluve only assessed the Red Cedar River and estimated the rate of erosion to be closer to 50,000 cubic yards per year. The discrepancy in LWCD and Inter-Fluve's numbers is attributed to the more comprehensive site analysis completed as part of the Inter-Fluve study.

In addition to sedimentation, the 2014 study considered phosphorus contributions to Lake Tainter from streambank erosion. In 2013, Dunn County LWCD and TMLIA sampled soils at various sites along the Red Cedar River. Results indicated an average phosphorus concentration of 39 ppm. Inter-Fluve extrapolated that concentration to the estimated annual erosion volume and predicts that streambank erosion contributes an estimated annual volume of 5,700 pounds of phosphorus, or 1.1 percent of the expected total load. This indicates that reducing streambank erosion would not significantly reduce phosphorus inputs into Tainter Lake.

Although reducing channel erosion will not likely have a significant impact on phosphorus inputs into Tainter Lake, reducing sediment delivery rates would help slow the rate of sedimentation to the delta at the east end of the lake. Actions such as bluff stabilization, revegetation of slopes, and adding a buffer between cropland and slope breaks above bluffs would help to minimize the erosion.

Dunn County LWCD is committed to continue repairing high priority streambank erosion sites as identified in the work plan. In 2014, Dunn County restored shoreline along Lake Menomin in Menomin Park (Figure 13). This project was completed using a Conservation Aids Grant from the DNR. The purpose of the project was to repair ice-heave damaged lakeshore. Approximately 800 linear feet of shoreline was stabilized with trees sourced from within Menomin Park, and it was graded and planted to native grasses and forbs. The restored shoreline now serves as a demonstration of a healthy shoreline in Lake Menomin.

Confined Animal Feeding Operations

Dunn County is home to six permitted confined animal feeding operations (CAFOs). A CAFO is an agricultural operation with 1,000 animal units or more. CAFOs are considered point sources of pollution and are regulated under Wisconsin state statutes Ch. NR 151 and NR 243 and are required to have a Wisconsin pollutant discharge elimination system (WPDES) permit. CAFOs are also required to keep an inspection calendar and submit an annual report to DNR per their WPDES permit.

In addition to CAFO rules and regulations, Dunn County also has a manure management ordinance (Dunn County Ordinance No. 33) in effect to protect water quality. The ordinance regulates the location, design, construction, installation, operation, and maintenance of all new or altered manure storage facilities and the application of manure from all new or altered facilities.

Drainage Districts

Drainage Districts are government entities created for the purpose of draining lands for agricultural purposes. Landowners with land in the drainage district generally pay for assessments to cover the cost of constructing, maintaining, and repairing district drains. This allows landowners to pool their resources to manage drainage across many acres and multiple landowners. There is one drainage district in Dunn County. The district, called the Little Missouri Drainage District, is located in the Town of Eau Galle (T26N-R14W, Sections 8, 15, 16, 17, and 22).

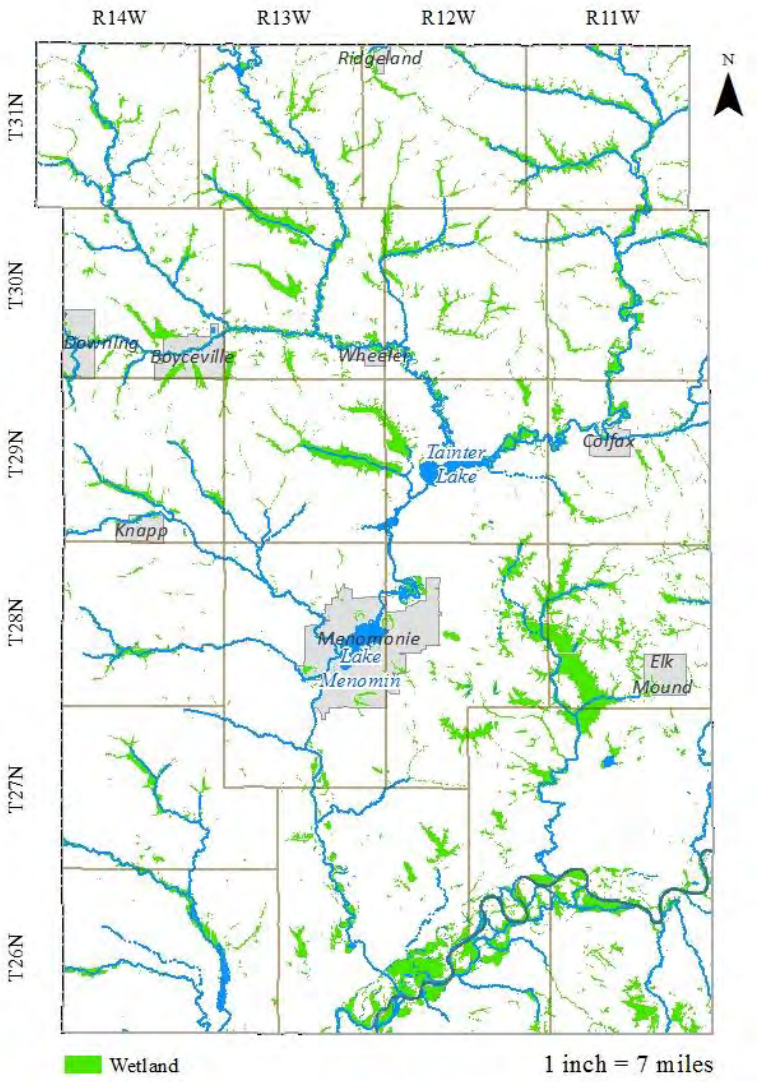


Figure 14. Mapped wetlands in Dunn County (WDNR, 2016)

Wetlands

Wisconsin State Statutes define a wetland as "an area where water is at, near, or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which has soils indicative of wet conditions" (Chapter NR 30). Wetlands serve many important land functions including flood control, groundwater recharge, and sediment storage. The also filter out pollutants for better water quality and provide habitat for countless species of birds, mammals, amphibians, and invertebrates.

Dunn County contains 44,222 acres (approximately 8% of the county land area) of wetlands as mapped by the

DNR Wetland Inventory (Figure 14). This information is based on air photo interpretation between 1978 and 1979 and includes only those wetlands of five or more acres in size. The soil survey of Dunn County (Soil Survey Staff et. al., 2016) indicates there are 53,600 acres of hydric soils in the county.

Many of the County's wetlands had been drained and filled, primarily for agricultural purposes, prior to the Wetland Conservation Compliance Provisions (also known as the "Swampbuster provisions") of the 1985 Farm Bill. Per the Swampbuster provisions, persons converting any wetland into farmland after November 28, 1990, are ineligible for federal program benefits until the functions of the wetland that was converted are mitigated. These federal regulations, along with state rules and regulations and education about the importance of wetlands, have greatly reduced the amount of wetlands being drained or degraded.

Dunn County LWCD is committed to protecting remaining wetlands and does not fund or provide assistance for projects which involve draining or filling these valuable resources. The restoration of historically drained wetlands is a priority.

Groundwater

Dunn County's groundwater was originally investigated by the Wisconsin Geological and Natural History Survey in the "Executive Summary of the Dunn County Groundwater Resource Investigation" (Lippelt and Madison, 1988). During the study, 600 domestic well samples were collected and analyzed for chemistry. This study produced the first groundwater maps of the county showing soil attenuation potential, water table elevation, depth to bedrock, aquifer potential, and chemical parameters.

Groundwater in Dunn County is plentiful and generally easy to access in an unconfined Cambrian age sandstone aquifer. The aquifer is overlain by a wide variety of soils with varying recharge rates. Surficial deposits affecting groundwater recharge include loams in the majority of the county, sandy deposits along the west boundary, peat in the east-central wetlands, and sand and gravel in the Red Cedar and Chippewa River floodplains. Areas where these surficial deposits are overlain by highly permeable medium to coarse textured soils are more susceptible to groundwater contamination due to high recharge rates (Figure 15). The recharge rate is the time it takes for surface water, such as rain, to move downward to groundwater. Soils with higher recharge rates have less time to absorb contaminants than low recharge soils, which can mean easier contamination to groundwater.

To reduce the probability of groundwater contamination, the LWCD's approach is to reduce or eliminate potential contamination sources. This can be done by properly abandoning unused wells and manure storage structures, improving the manure storage ordinance, and monitoring land spreading of septage. To that effect, the county's manure management ordinance safeguards water quality by assuring the proper installation of manure storage structures. The county offers cost-sharing to abandon unused wells.

One of the items identified by committee members for the LWRM Plan development was a lack of recent groundwater quality data and a central repository for such data. To address this need, the county is developing a county-wide water database which will include a section for groundwater.

Another concern of committee members is the impact that high capacity wells have on groundwater quantity and quality. As a result of climate change and changes in the frequency and duration of storm events, in addition to several years of below average total rainfall, the number of high capacity wells for irrigation has been increasing. The county has formed a Groundwater Council comprised of state and local government, landowners, and industry professionals who will guide groundwater monitoring and research needs to gain a better understanding of the impacts of high capacity wells to groundwater.

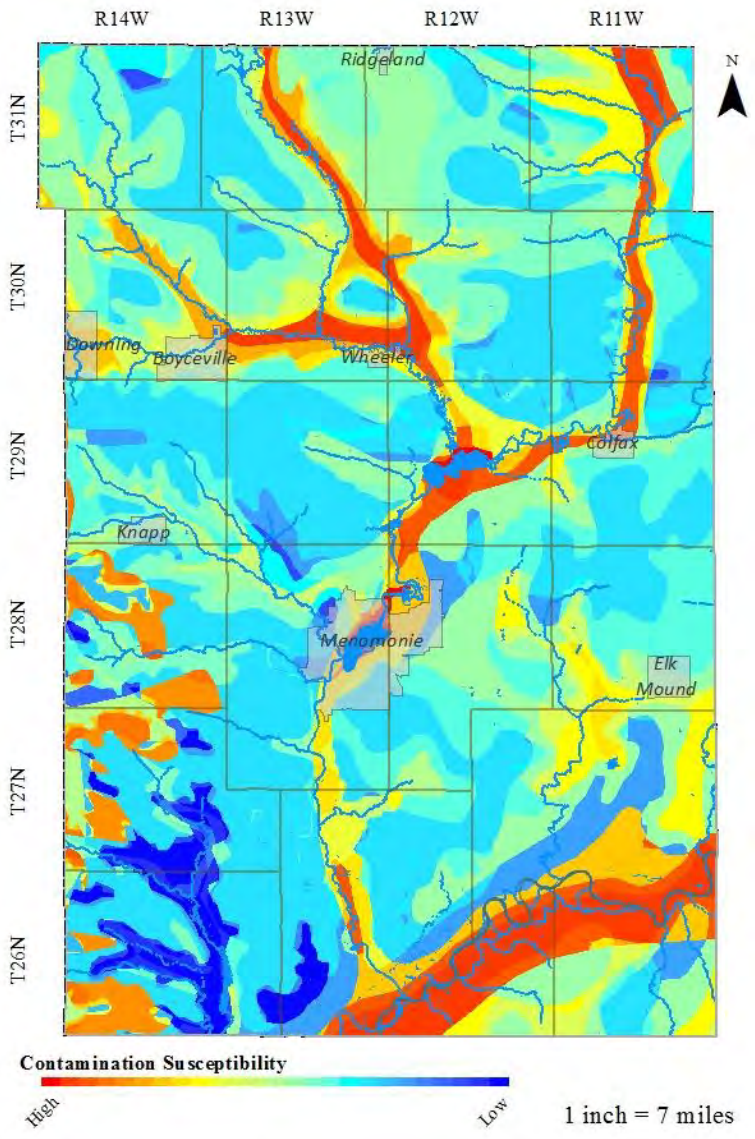


Figure 15. Groundwater contamination susceptibility

Wellhead protection plans are now required for municipal wells. Two of seven municipal systems, Boyceville and Downsville, have a wellhead protection plan. At the time of this writing, the City of Menomonie also has a draft plan that was submitted to the DNR for approval.

Dunn County provides No3-N (nitrite-nitrogen) sampling through the rural drinking water program, administered by the County Health Department. Between 1995 and 2005, eight-hundred and fifty-two wells were tested for nitrates. Of those, 16.5 percent exceeded the safe drinking water threshold of 10 ppm. Comparatively, of the 600 samples collected as a part of the 1988 study, 9.1 percent of samples exceeded safe limits. Because nitrate rarely occurs naturally, the cause of elevated values in groundwater is generally attributed to land use activities. Dunn County encourages citizens to test wells annually and take corrective measures if high values are discovered.

Groundwater use in Dunn County has increased over 400% between 1979 and 2005 (Figure 16). The primary use of groundwater withdrawals is for agricultural irrigation, at over 25 million gallons per day (USGS, 2008). All other uses of groundwater are less than 3 million gallons per day.

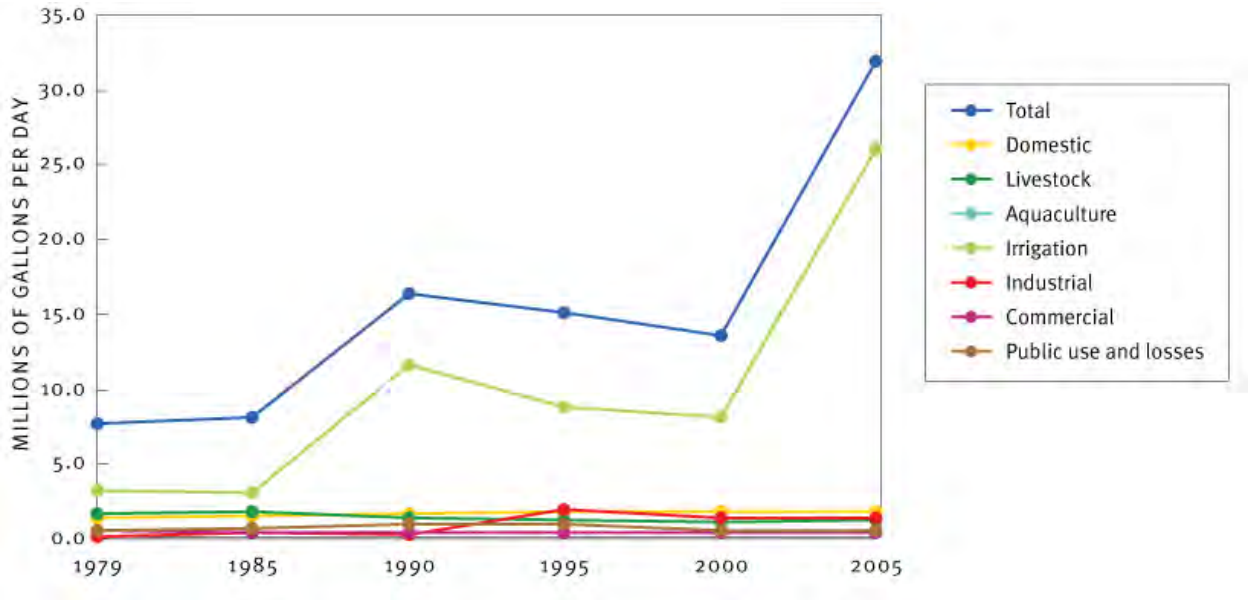


Figure 16. Water use in Dunn County by category

Land Resources

Woodlands

According to USDA Forest Service Federal Inventory and Analysis (FIA) Dunn County has 181,273 acres of forest land of which 12,371 acres (7%) are publicly owned, 54,382 acres (30%) are currently entered into the Wisconsin Managed Forest Law Program, and approximately 12,000 acres of this land are open to the public for hunting.

The LWCD has taken an active role encouraging the establishment of new woodlots. Dunn County owns five tree planters that are available for County residents to rent on a daily basis. They are best suited for machine planting of 1,000 or more trees. The LWCD works with the public to coordinate the use of the tree planters with delivery dates of trees ordered from both the DNR and private nurseries. Two of the tree planters can accommodate a large root system and work well in planting all types of tree and shrub seedlings. Two tree planters are compact and easy to maneuver and are best suited for planting pine trees. The remaining planter is equipped with a hand hydraulic pump and works well on small jobs and sites with long rows of trees such as windbreaks and shelterbelts.

Major threats to the forest resources in Dunn County identified by DNR Foresters are:

- Over browsing from deer which is having a negative impact on forest regeneration
- Fragmentation of large blocks of forest land through rural development and farming activities
- Invasive Species: Garlic mustard, honeysuckle, and buckthorn
- Insects/Disease: Annosum root rot, oak wilt, gypsy moth, and emerald ash borer
- Improper Forest Management: Destructive cutting practices, such as diameter, limit harvesting and high grade logging; and, neglect of management such as not thinning pine plantations or missing opportunities to regenerate oak, aspen and jack pine stands at rotation age

State Natural Areas

Prior to European settlement, Dunn County contained a mosaic of natural communities ranging from prairies and oak savannas to vast pine and hardwood forests to wet meadows. Through decades of intensive settlement, the quality and extent of these communities have been extremely reduced by urbanization, agriculture, industry, and by the ecological impact of fire suppression and the spread of exotic plant species. Fortunately, there are areas in the county where the natural ecosystem has persisted. These eight areas have received permanent protection through the State's Natural Areas Preservation Program:

- Nine Mile Island – 1,587 Acres
- Otter Creek Oak Barrens – 405 Acres
- Caryville Oak Savanna – 420 Acres (owned by Dunn County)
- Lower Chippewa River – 2,184 Acres
- Red Cedar River Savanna – 210 Acres
- Muddy Creek Sedge Meadow – 195 Acres
- Big Beaver Meadow – 110 Acres
- Dunnville Bottoms – 594 Acres

County Parks, Forests, and other Lands

The county park system consists of 22 properties including 16 parks, 3 public shooting ranges, and 2 cultural/historic museums. The largest park is Lake Menomin Park which consists of 147 acres with more than 35 acres of restored native prairie and one mile of shoreline on Lake Menomin. All of the county parks are included in the Dunn County Outdoor Recreation Plan and are managed by the Facilities Committee of the County Board. LWCD regularly assists with improvement projects by providing technical design and installation supervision for projects using County Conservation Aids funding.

The county owns and leases out 160 acres of cropland located next to "The Neighbors of Dunn County," which is Dunn County's skilled nursing home facility. This land is now managed as the Red Cedar Demonstration Farm which promotes soil health for improved productivity and better water quality.

The Dunn County Highway Department owns and manages several parcels of land primarily for use as sources of gravel and other road building materials. LWCD assists with reclamation on four sites.

LWCD is responsible for managing three islands located in the Chippewa River. The upper island is 420 acres in size and is designated as the Caryville Oak Savanna State Natural Area. It contains one of the largest remaining oak savanna and native prairies in the State.

The next island is called Happy Island and covers about 1,100 acres. There were nine farms on this island in the 1940s when the county purchased the land from willing sellers because it was cheaper than maintaining a bridge to the Island. About 300 acres of pine were planted in the open fields after humans moved off the Island. The remainder of the Island is floodplain forest and river bottom hardwoods.

The downstream island is called Pasture Island. Access to this 500-acre Island is by boat only. A road suitable for logging equipment is being considered that would allow harvesting the forty to fifty acres of red and white pine. These trees were planted in the 1950s and have not received any management since that time.

Plant and Animal Resources

Invasive Species

Invasive species are non-native plants, animals, and pathogens whose introductions are likely to cause economic or environmental harm or harm to human health. Invasive species can alter ecological relationships among native species and can affect ecosystem function and structure.

A majority of aquatic invasive monitoring in Dunn County has been done by the Beaver Creek Reserve with assistance from the Red Cedar Monitoring Group and concerned citizens. A "Clean Boats, Clean Waters" Program has been undertaken by volunteers on Lakes Tainter and Menomin for the past several years. Aquatic and terrestrial invasive species present in Dunn County are listed in Table 2 and Table 3 below.

Table 2. Aquatic invasive species present in Dunn County by waterbody

Water Body	Species
Chippewa River	Rusty Crayfish (*Orconectes rusticus*)
Lake Eau Galle	Curly-leaf Pondweed (*Potamogeton crispus*)
Lake Menomin	Curly-leaf Pondweed Chinese Mystery Snail (*Bellamya chinensis*)
Red Cedar River	Rusty Crayfish
Tainter Lake	Curly-leaf Pondweed Chinese Mystery Snail

Table 3. Terrestrial invasive species present in Dunn County

Classification	Species
Prohibited	Amur cork tree (*Phellodendron amurense*) Common barberry (*Berberis vulgaris L.*) Japanese honeysuckle (*Lonicera japonica*) Phragmites or common reed (*Phragmites australis*)
Prohibited/Restricted	Amur honeysuckle (*Lonicera maackii*) Japanese hops (*Umulus japonicus*) Phragmites or common reed (*Phragmites australis*) Wild chervil (*Anthriscus sylvestris*)
Restricted	Autumn olive (*Elaeagnus umbellata*) Bell's or showy bush honeysuckle (*Lonicera x bella*) Black locust (*Robinia pseudoacacia*) Canada thistle (*Cirsium arvense*) Celandine (*Chelidonium majus*) Common buckthorn (*Rhamnus cathartica*) Creeping bellflower (*Campanula rapunculoide*) Crown vetch (*Securigera varia*)

Classification	Species
Restricted	Dame's rocket (*Hesperis matronalis*) Garlic mustard (*Alliaria petiolata*) Glossy buckthorn (*Frangula alnus*) Japanese barberry (*Berberis thunbergii*) Japanese knotweed (*Fallopia japonica*) Leafy spurge (*Euphorbia esula*) Morrow's honeysuckle (*Lonicera morrowii*) Narrow-leaf cattail (*Typha angustifolia L.*) Oriental bittersweet (*Celastrus orbiculatus*) Purple loosestrife (*Lythrum salicaria*) Siberian elm (*Ulmus pumila L.*) Spotted knapweed (*Centaurea maculosa*) Tansy (*Tanacetum vulgare*) Tartarian honeysuckle (*Lonicera tatarica*) White poplar (*Populus alba L.*) Wild parsnip (*Pastinaca sativa*)

Endangered Resources

Dunn County is home to many rare and endangered plants and animals (Appendix Exhibit 3: Endangered Species Listed in Dunn County by the Wisconsin Natural Heritage Inventory). The Lower Chippewa and Red Cedar Rivers provide a home for 70 percent of all fish species in the state including the rare paddlefish, blue sucker, crystal darter, and goldeye. The Chippewa River is also one of three places in the world that is home to the endangered Pecatonica River Mayfly. In an effort to ensure that construction activities associated with conservation practice installation do not harm endangered plants or animals, the NRCS first conducts a Wisconsin Natural Heritage Endangered Resources review.

Wildlife Areas

The Wisconsin DNR owns and manages approximately 11,160 acres of land in Dunn County. This includes the Hoffman Hills State Recreation Area (Figure 17) and the Red Cedar and Chippewa River State Trails which are open for cross-country skiing and hiking; the Muddy Creek Wildlife Area and Dunnville Wildlife Area (commonly referred to as the Dunnville Bottoms), which are public hunting & fishing grounds; and, the Gilbert Creek Fishery & Wildlife Area which is open for fishing & hunting. The U.S. Fish and Wildlife Service (USFWS) own 1,100 acres of land devoted to waterfowl production in the prairie pothole landscape in the southeastern portion of the county. Joint efforts of the DNR and USFWS have restored and preserved thousands of acres of prairie ecosystem that provide habitat for wildlife and recreation land for the public.

Figure 17. View from the tower at Hoffman Hills in autumn

PLANNING PROCESS

Purpose and Authority

The legislature finds that the soil resources of the State are being depleted by wind and water erosion and that the waters of this State are being polluted by nonpoint sources of pollution. The legislature further finds that these are statewide problems endangering the health and welfare of the State's citizens, its recreational resources, agricultural productivity and industrial base.

The legislature declares it to be the policy of this State to halt and reverse the depletion of the State's soil resources and pollution of its waters.

Chapter 92, Wisconsin Statutes (1982)

The purposes of the land and water resource management planning program are to conserve long-term soil productivity, protect the quality of related natural resources, enhance water quality and focus on severe erosion problems.

WI Act 27, Amendments to Chapter 92.10 (2), Wisconsin Statutes (1997)

Local leadership in natural resource management is an important component of Wisconsin Act 27 which amended Chapter 92 of the Wisconsin Statutes in 1997. Elected officials and policy makers have reaffirmed that local leaders are in the best position to successfully manage natural resources. More importantly, it is local government's responsibility to engage the public in land use management planning that impacts the quality of the natural resources in each county.

As evidenced by the below 1965 letter to Senator Gaylord Nelson (Figure 18), the local management of natural resources dates well before November 16th, 1982, when the Dunn County Board of Supervisors officially designated the Land Conservation Committee as the County Board's agent to authorize and approve Land Conservation Committee (LCC) powers and programs. The resolution also charged the LCC with approval of annual and long-range plans.

The first Dunn County Land and Water Resource Management Plan was adopted in 2000, and it was updated in 2007 and again in 2012. The planning process for this Fourth Edition to the Dunn County Land and Water Resource Management Plan began in January of 2016. The main purpose of the plan is to guide LWCD in its mission "To protect, preserve and enhance the natural resources of Dunn County". It is also intended to provide information and guidance to the citizens of Dunn County and Dunn County government, and to facilitate coordination between Federal, State, and local units of government and programs. Plan implementation will continue through 2026.

Menomonie, Wisconsin
January 15, 1965.

Senator Gaylord Nelson
Senate Office Building
Washington, D. C.

Dear Senator Nelson:

The Dunn County Soil and Water Conservation District firmly believes that a "Great Society" cannot endure unless we increase our efforts to preserve our soil and water resources.

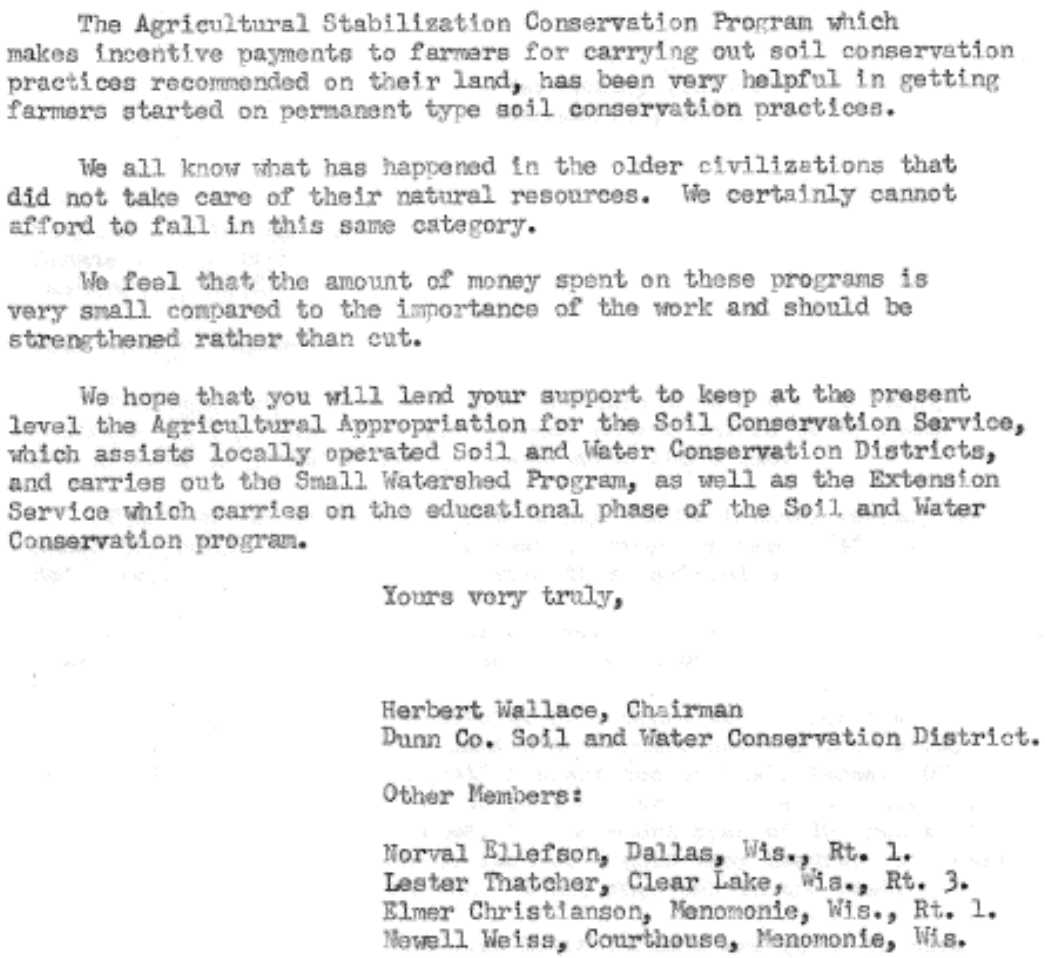
There was an article in today's Eau Claire Leader, January 15, under the headlines "U. S. Conservation Programs Face Cut". We definitely are not in agreement with this legislation.

Dunn Dounty is a rural area and most of its citizens rely heavily on farm prosperity for their livelihood.

Since 1940 we have had several Soil Conservation Service employees working out on the land with farmers helping them apply needed soil and water conservation practices on their farms. Of the original twelve inches of topsoil on our hillsides we have lost on an average about four inches, in the short span of 100 years of cultivation. This land has to last us a good many hundreds of years and needs better management than it has received in the past.

We are told that by the year 2,000 farmers are going to have to produce twice as much as they do today. The farm population now is 7% of the total population and is expected to drop to 5% by 1975. This points to increased farm efficiency, which certainly cannot be achieved on land impoverished by erosion.

We have three watersheds, all or part of which are in Dunn County, that have applied for assistance in flood control. The 375 farmers living in these areas are patiently waiting for Federal Assistance, under Public Law 566--Small Watershed Act, for constructic of dams in the upper reaches of the valleys to retard excessive run-off. Many of these folks already applied needed soil conservation practices on their land.



The Agricultural Stabilization Conservation Program which makes incentive payments to farmers for carrying out soil conservation practices recommended on their land, has been very helpful in getting farmers started on permanent type soil conservation practices.

We all know what has happened in the older civilizations that did not take care of their natural resources. We certainly cannot afford to fall in this same category.

We feel that the amount of money spent on these programs is very small compared to the importance of the work and should be strengthened rather than cut.

We hope that you will lend your support to keep at the present level the Agricultural Appropriation for the Soil Conservation Service, which assists locally operated Soil and Water Conservation Districts, and carries out the Small Watershed Program, as well as the Extension Service which carries on the educational phase of the Soil and Water Conservation program.

Yours very truly,

Herbert Wallace, Chairman
Dunn Co. Soil and Water Conservation District.

Other Members:

Norval Ellefson, Dallas, Wis., Rt. 1.
Lester Thatcher, Clear Lake, Wis., Rt. 3.
Elmer Christianson, Menomonie, Wis., Rt. 1.
Newell Weiss, Courthouse, Menomonie, Wis.

Figure 18. 1965 Letter to Senator Gaylord Nelson from Herbert Wallace, Chair of the Dunn County Soil and Water Conservation District

Public Participation

A Citizens Advisory Committee and a Technical Advisory Committee were selected and approved by the Land Conservation Committee to take part in this planning process, offer suggestions, and review the plan. The LCC designated Supervisors Gary Bjork and Gary Seipel as their representatives in the planning process. Advisory Committee members were asked to commit to attending three large-group meetings which were held on January 26, February 16, and March 22, and the annual *Red Cedar- Land, Water, and People Coming Together* Conference held at the UW-Stout campus on March 10, 2016 (Appendix Exhibit 1: Dunn County LWRM Plan Committee Meeting Schedule). The agendas and outcomes documents of the planning meetings can be viewed at http://tinyurl.com/DunnLWRM2016.

The focus of the three large-group meetings was to bring committee members up to speed on new developments and programs that have taken place while implementing the 2012 plan. Another main objective was to identify the people of Dunn County and its citizens, agencies, units of government, and non-governmental organizations as the key stakeholders that will implement this fourth edition of Dunn

County's Land and Water Resource Management Plan. All planning meetings were structured to give committee members the opportunity to learn, discuss, ask questions, identify resource concerns, and identify their role in implementation.

Staff members of the LWCD took part in the planning process by attending, presenting, and participating in all of the meetings in addition to meeting periodically to discuss elements of the plan. The Land Conservation Committee will hold a public hearing on the 2017 Land and Water Resource Management Plan on October 25th, 2016 at 8:30 a.m. in Room 58 of the Dunn County Government Center, 800 Wilson Avenue, Menomonie, WI 54751. The public notice for the Public Hearing can be found in Appendix Exhibit 7: Public Hearing Notice.

The Plan will be presented to the Dunn County Board of Supervisors for approval on November 15th, 2016 and the State Land and Water Conservation Board on December 6th, 2016.

Agency and Non- Governmental Organization Participation

Cooperation with local and area DNR, Farm Service Agency (FSA), NRCS, UWEX and UW-Stout staff has been an integral part of the past Land and Water Resource Management Plan implementation success. It was also a fundamental part of this planning process. Agencies and organizations were contacted early in the planning process and are well represented on the Advisory Committees. Below is a list of presentations from the planning meetings that express cooperation and collaboration. Copies of the full presentations can be found at http://tinyurl.com/DunnLWRM2016

- *Dunn County's Directional Plan*, Dolly Catlin, Strategic Planner, Dunn County Planning and Land Use Control Division
- *Introduction to Sociology, Its Purpose and Process in Watershed Planning*, Dr. Nels Paulson, Social Scientist, UW Stout
- *Wisconsin's Runoff Rules for Farmers, NR 151*, Terence Kafka, Water Resource Management Specialist, WI DNR
- *Stormwater and Phosphorus Reduction Efforts in the City of Menomonie*, Randy Eide, Director of Public Works, City of Menomonie

In addition, breakout sessions on the following topics were presented and moderated by DNR, LWCD, NRCS, and UWEX staff.

- Soils
- Ground Water
- Surface Water Quality
- Red Cedar Demonstration Farm, Linking Soil Health and Water Quality
- Tainter/Menomin TMDL Implementation Plan
- Managing Non-Ag Resources - Woodlands, Native Habitat, Pollinators

Following the Red Cedar Conference, LWCD and NRCS staff lead discussions that allowed Committee members to provide final thoughts and concerns:

- Open Discussion: Surface and Groundwater
- Open Discussion: Implementation of "Runoff Rules for Farmers" in Dunn County
- Open Discussion: Soil Health, Big Picture Items

- Open Discussion: What is still on your mind?

NR 151 Implementation

At the February 16th, 2016, planning meeting, Terrance Kafka, Program and Planning Analyst in charge of NR 151 Agricultural Performance Standards and Prohibitions for DNR's West Central Region, led a focused discussion of NR 151 including the performance standards and prohibitions. At the March 22, 2016, planning meeting, Leah Nicol, Conservation Planner, and Bob Kaner, Conservation Engineering Technician, led the open discussion on the Agricultural Performance Standards. The concept that each farm and farmer is unique is a principle that was identified in the planning process and lends itself well to the task of evaluating each farm. See WI Administrative Codes ATCP 50 and NR 151 for complete codes and details.

Dunn County takes a voluntary approach with landowners to implement the state's performance standards with limited enforcement through the Manure Management Ordinance and the Farmland Preservation Standards for soil and water conservation. Landowners will continue to be encouraged to voluntarily implement conservation practices that comply with Wisconsin's nonpoint source runoff rules; however, it is possible to require landowners to comply if voluntary efforts are not successful. To require landowners to comply with the prohibitions and performance standards seventy percent cost sharing must be offered.

Conservation Planning

Dunn County's Conservation Planners work with landowners who are interested in developing conservation plans for their land. The conservation planning process is voluntary and gives landowners the opportunity to select options that will protect their farm's soil and productivity, health, and moisture holding capacity; improve the quality of the water leaving the farm; attract desirable wildlife; and, protect the productive value of the land for future generations. After the landowner selects the practices that will complement his or her operation, a reasonable schedule of implementation is setup to install or apply the practices. The list of conservation practices that can be included in a conservation plan and used to meet the Agricultural Performance Standards can be found in the cost-share funding table (Exhibit 4: Cost-Share Practice/Funding Source Table & Guidance for Completing NR 151 Codes)

Technical Assistance

Assistance to the public is the primary service provided by the LWCD and is an important tool for achieving proper resource management in Dunn County. This assistance may or may not be associated with a specific program, but it addresses a wide variety of resource needs of the general public, other agencies, towns, and municipalities. It is important that the LWCD maintain a personnel resource base of diverse knowledge and expertise in natural resources to most effectively serve the public.

Nutrient Management Planning

The purpose of the Nutrient Management Planning Program is to work with landowners to develop and implement plans that control the amount, source, form, location, and timing of plant nutrient applications. This includes the application of manure, soil amendments, commercial fertilizers, and legumes in order to improve soil fertility while minimizing the movement of nutrients to surface water and groundwater. An important component in a nutrient management plan is to meet state Agricultural Performance Standards. The Dunn County LWCD has been holding nutrient management classes in conjunction with the Chippewa Valley Technical College that allow landowners to develop their own

plans. These plans follow the NRCS 590 Standard, University of Wisconsin fertilizer recommendations, and use soil sample data from Wisconsin-certified soil testing labs. Plans are developed with SNAP-Plus software and calculate a value for the Wisconsin Phosphorus Index (PI). This value is taken into consideration when performing nutrient management planning to determine a field's potential to deliver phosphorus to surface water.

Soil and Water Resource Management Program

Dunn County receives an annual Soil and Water Resource Management (SWRM) Grant from the DATCP that assists with implementation of the LWRM Plan. Since adoption of the first LWRM Plan in 2000, the LWCD has made abandoning idle manure storage structures a high priority for these cost-share dollars. This cost sharing can be used to meet the statutory requirement of the need to offer 70 percent cost sharing before a landowner can be required to meet an Agricultural Performance Standard.

Information and Education

The Dunn County LWCD, DEESC and UWEX will carry out the bulk of the local information and education activities pertaining to the NR 151 nonpoint runoff rules, conservation practices, and available cost sharing. Emphasis will also be placed on using one-on-one contacts with landowners. To increase general knowledge and awareness, the publication *What Farmers Need to Know-Wisconsin's Runoff Rules* DNR Publication No. WT 756, REV. 1/13 will be the primary handout for educating landowners and public on NR-151 requirements.

General circulation press releases and articles will be provided to local newspapers and articles will also be published in the UWEX newsletter that is mailed to producers and rural landowners. Education and training on specific conservation practices will also be provided through research plots, field days, and workshops.

Priority Farm Strategy

The Dunn County LWCD intends to work cooperatively with DNR and other agency staff to implement the NR 151 runoff rules in Dunn County. Following is a description of the activities that the LWCD proposes to undertake in this joint effort with the state. Actual work activity type and work accomplishments will be dependent on the availability of adequate financial and human resources for conservation practice installation.

The following prioritization process will be used to contact landowners and implement practices needed to comply with the NR 151 nonpoint source runoff rules:

- Farmland Preservation Program participants
- Land and livestock facilities located in the Tainter Lake/Lake Menomin TMDL watershed
- New and expanding livestock facilities in zoned towns (state livestock siting standards were adopted in 2014 for facilities with over 500 animal units)
- Complaints
- Permitted livestock facilities (Dunn County Manure Management Ordinance)
- Livestock facilities in surface water quality management areas
- Voluntary requests from landowners

Strategies used to evaluate farms and work with landowners to achieve compliance include the use of the following resources:

- A scorecard to evaluate barnyards, farmsteads, and parcels of land for compliance with all of the components of NR 151 (Appendix Exhibit 5: Components of NR 151)
- Notice of Continuing Compliance letter issued to landowners who have received cost sharing for components of NR 151 and are now required to stay in compliance
- Scorecard reviews for landowners receiving Farmland Preservation tax credits through the Farmland Preservation Program and the Town of Grant Agricultural Enterprise Area
- Nutrient Management Planning courses taught by LWCD staff in conjunction with the Chippewa Valley Technical College where farmers can develop their own plan
- Use the DATCP-developed Microsoft Access-based Farmland Preservation tracking program
- Inform landowners of available federal cost-share programs such as the EQIP through NRCS
- Provide DATCP bond cost-sharing for conservation practices
- Provide DATCP SEG cost-sharing for nutrient management plan implementation
- Discuss NR 151 performance standards and offer scorecard evaluations and technical assistance to landowners when developing conservation and nutrient management plans and designing and installing conservation practices
- Revise Farmland Preservation Standards for Soil and Water Conservation to include the 2012 prohibitions that are now included in ATCP 50
- Explore funding opportunities and develop or purchase a conservation practice, phosphorus reduction, and NR-151 compliance tracking software program
- Identify and secure other sources of cost-share funding

Regulations in Dunn County

Farmland Preservation Program

Dunn County's Soil and Water Conservation Standards were established by the Land Conservation Committee and approved by the Wisconsin Land and Water Conservation Board. They state that:

- Participants in the Farmland Preservation Program shall implement Soil and Water Conservation Standards according to a schedule of compliance approved by the LCC on all lands for which the participant claims Farmland Preservation tax credits. The standards to be implemented are those required under ATCP 50.04, Wis. Adm. Code.
- Participants in the Farmland Preservation Program shall eliminate gully erosion on participating cropland according to a schedule of compliance approved by the LCC. Conservation practices shall be based on the Technical Guide. Surface water runoff shall be delivered to a legal outlet or natural watercourse.

These standards apply to all Farmland Preservation agreements still in effect and to all landowners claiming Farmland Preservation credits through Exclusive Agricultural Zoning. This standard will be updated within the next two years to include revisions to NR 151 that are now incorporated into ATCP 50.

Dunn County LWCD staff will evaluate land that is proposed for new enrollment in the Farmland Preservation Program, either under long-term agreements or under Farmland Preservation zoning, for compliance with NR 151 nonpoint runoff rules. Landowners considering enrolling under a long-term agreement will be made aware of the conservation compliance requirements of the program and will be offered assistance to come into full compliance with the conservation standards prior to signing the

long-term agreement. Owners of land proposed for enrollment under zoning will be assisted on a first-come, first-served basis.

Dunn County LWCD staff will be responsible for documentation and recording of compliance determinations related to participants in the Farmland Preservation Program. Nutrient management checklists will be requested each year and full farm evaluations will be done every four years. A single sheet form has been developed and is used to serve as the method of documenting evaluation findings. A certificate of compliance with a unique number will be issued to each participant with a copy of their NR 151 evaluation results.

If a Farmland Preservation Program participant fails to comply with NR 151 runoff rules as directed and within the allotted time frame, the Dunn County LWCD will initiate action to issue a Notice of Noncompliance for the Farmland Preservation Program. Dunn County LWCD staff will work with local DNR staff in undertaking enforcement action associated with NR 151.09 for any landowners who need to correct one or more NR 151 non-compliance issues on their land but who also refuse to do so voluntarily.

Dunn County Manure Management Ordinance

In 1999, the Dunn County Farm Bureau expressed concerns about groundwater contamination from abandoned earthen manure storage structures. A committee was established to draft a county-wide Manure Management Ordinance. The final draft was prepared and adopted by the Dunn County Board of Supervisors in April, 2000.

The Ordinance has four main components:

1. It requires all new or altered manure storage structures to be constructed according to NRCS standards and specifications.
2. All landowners who alter or construct a new manure storage structure must develop a Nutrient Management Plan in accordance with NRCS 590 Standard.
3. Structures that have been idled for more than one year must be abandoned.
4. All temporary manure stacks must be located away from areas that have the potential to pollute the surface or groundwater.

The revision of this ordinance is underway and expected to be revised in 2017.

Non Metallic Mining Reclamation Ordinance

The mining for non-metallic minerals (sand, gravel, limestone, etc.) is regulated by several different programs and agencies. The LWCD regulates the reclamation of nonmetallic mines when operations cease in all areas of the county.

Dunn County's Chapter 20 Non Metallic Mining Reclamation Ordinance requires each mine larger than one acre to have an approved Reclamation Plan and financial assurance. The Reclamation Plan must state a post mining land use and the procedure that will be followed to obtain that land use. The LWCD is responsible for reviewing the proposed Reclamation Plan to ensure that the procedure outlined meets the requirements of Chapter 20 and NR 135. Annual fees are collected based on the number of un-reclaimed acres in each mine. This encourages reclamation as an ongoing process of mining rather than waiting until all of the material is removed before restoration begins. At this time, there are 26 permitted non-metallic mines in the county covering approximately 510 acres.

NR 216

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

Dunn County LWCD staff work in cooperation with landowners and DNR's Stormwater Specialist on projects that are covered by the code including construction of manure storage structures and non-metallic mining reclamation plans.

Complaints

The LWCD receives complaints on various resource concerns throughout each year. When complaints are received, LWCD staff will review available information and make a field visit to determine if there is a valid resource concern or violation of a current ordinance. If a resource concern is identified that may be a violation of NR 243 or NR 151, LWCD staff will investigate the complaint with DNR staff. The final determination as to whether a site is compliant with state runoff rules will be made by the DNR. It will be the DNR's responsibility to generate and issue the various compliance letters associated with these farm contacts. Given adequate financial and human resources, it will continue to be the county's responsibility to provide technical planning, design and construction inspection services to correct non-compliant sites. The county, with the assistance of DNR staff, will also attempt to secure financial resources needed to make an official "offer of cost sharing" in order to correct non-compliant sites.

WORK PLAN

The plan is primarily focused on "improving water quality by improving soil health and reducing soil erosion". This will be accomplished by implementing a multi-strategy approach in conservation programming that builds awareness of local soil and water resource issues, promotes conservation as a social norm, builds trust, and encourages citizens and farmers to be more engaged in conservation initiatives that promote practice adoption in the community.

This work plan is intended to cover the first ten years of implementation (2017-2026) and contains broad goals identified in this and previous planning processes. Priorities are identified under each goal along with measurable performance benchmarks. An annual work plan will be developed and submitted to DATCP with the annual staffing grant request.

The plan defines LWCD's goals in resource conservation as:

Goal 1: Maintain, Protect and Improve Our Surface Water Resources

Goal 2: Conserve Long Term Soil Productivity of Cropland

Goal 3: Protect Groundwater Quantity and Quality

Goal 4: Preserve Rural Character, Protect the Environment and Related Natural Resources for Residents, Visitors, and Future Generations

Goal 5: Educate and Engage the Public in Natural Resource Management

Goals, Objectives, and Actions

Goals are statements describing the end result desired over the long term.

Objectives are the concepts used to reach a goal. An objective is ideally stated in numeric terms that are readily measurable. An objective should provide an answer as to why investments of time and money are made in a given action item.

Action items are the activities undertaken to reach individual objectives. Action items may, in reality, address more than one plan objective or goal and may be listed more than once.

The **work plan** section of the LWRM Plan identifies the resource concerns in Dunn County, the goals to maintain or improve them, and the objectives and action items necessary to accomplish these goals. It also identifies key partners for each action item and lists evaluation tools and accomplishments where appropriate.

Priorities

The action Items identified in the work plan have been prioritized by how effective they may be at achieving or reaching a goal. More importantly, they are prioritized to reflect needs identified in the planning process and the anticipated availability of staff and funding to meet that need.

Each “Action Item” is designated in the work plan as a high, medium, or low priority indicated by the number of stars (★). At a minimum, each high priority item contains a benchmark listed in the “Evaluation Tools” column.

★★★ High Priority
★★ Medium Priority
★ Low Priority

Budget and Funding

The LWRM Plan is a document that can be used by all partners that work to protect the natural resources of the county. A combination of private, local, state, and federal sources of funding will be needed to implement the goals contained in the plan. The work plan goals and objectives will be used to develop projects and apply for grant funding as the plan is implemented.

LWCD currently has eight full time staff positions and annually receives funding from the State of Wisconsin through the joint DATCP/DNR Soil and Water Resource Management Grant process. NRCS

currently has three full time staff positions in Dunn County. County staff time and the anticipated amount of available cost share funding from all sources will be included in each annual work plan.

It is the intention that this plan will be implemented to the extent possible with available staff and funding. An estimate of available staff time, funding, and cost-share money is included in Appendix Exhibit 6: Estimated Funding Available to Implement Planned Activities.

It is understood that to fully implement each goal in this plan, a substantial amount of additional staff time and money is needed. Additional contributions will also be made by many different agencies, departments, non-profit organizations, and citizens during this ten-year period.

Implementation and Monitoring

Plan evaluation will assess whether the objectives and action items of the LWRM Plan are being accomplished. The Dunn County LCC will review the work plan annually in January prior to completing the LWCD Annual Report and the annual DATCP/DNR County Activities Report on Land and Water Resource Management activities. A new work plan will be developed each year beginning in 2018 and included in the Annual DATCP/DNR grant request.

The annual transect survey will continue to be used as long as the software is available to monitor cropland soil loss and to track changes in tillage and land use. DNR water quality monitoring data will be reviewed periodically and additional monitoring will be initiated as resources become available. The Red Cedar Basin Monitoring Group currently has 7 lake monitoring sites and 23 stream monitoring sites in Dunn County. Data is collected at additional sites by DNR staff for fisheries management and water quality health assessments. Significant changes in water quality or clarity are reported to DNR and LWCD.

The work plan can be adjusted at any time. A public meeting to review plan progress and solicit input on plan implementation and new direction will be scheduled in 2021. This meeting will be open to the public and members of the Advisory Committees.

Conclusion

Throughout this planning process, the Dunn County Community, through the Citizens and the Technical Advisory Committees, the Land Conservation Committee, and the Land and Water Conservation Division Staff have established a commitment to improve and maintain the quality of soil, water, and other natural resources. This will be accomplished by providing assistance to resource users in rural and urban areas, city and town governments, and through public awareness and education.

It is understood that implementing this plan is dependent on funding from many different entities including the State and Dunn County. The Land Conservation Committee intends to implement this plan with available staff and funding. Currently, the State statutory funding amounts are not being met and are inadequate to fully implement all of the work plan action items.

Goal 1: Maintain, Protect and Improve our Surface Water Resources

Overview: The overall theme of our implementation strategy is to help every citizen identify their role in improving the quality of our surface waters and to provide the venue for every citizen to carry out that role

Objective	Action	Lead Agency	Anticipated Outcome	I & E Tools
Objective 1: Increase public participation and active engagement by citizens	**Action 1**: ★★★ Lead Dunn County's implementation of the EPA-approved 9 Key Element Plan for Lakes Tainter and Menomin: A River Runs Through Us: A Water Quality Strategy for the Land and Waters of the Red Cedar River Basin.	UWEX LWCD DNR City of Menomonie TMLIA Citizens Industry	A 40% reduction of Phosphorus (P) entering Lake Tainter (186,000 lbs./P/yr.)	Actively participate in the Red Cedar River Water Quality Partnership. See Chapter 4 of A River Runs Through Us: A Water Quality Strategy for the Land and Waters of the Red Cedar River Basin. Education, outreach, civic engagement/governance, and implementation strategies
	Action 2: ★★★ Provide guidance and technical support for the Hay River Farmer-Led Watershed	LWCD	A reduction in phosphorus entering the Hay River; 80% of the farmers participating by 2018	Email, press releases, field days, council meetings
	Action 3: ★★★Organize and provide technical support for the Wilson & Annis Creek Watershed Partnership, NRCS National Water Quality Initiative	LWCD NRCS DNR	First a reduction in phosphorus, and then a delisting of Wilson Creek from the 303d list	Flyers, fact sheets, public meetings, landowner contacts
	Action 4: ★★★ Assist with the Annual "Red Cedar Land, Water, and People Coming Together" Conference	TMLIA UW-Stout	1 Conference attended by 300 to 400 people annually	The purpose of the conference is to provide information, education, and networking on water quality issues
	Action 5: ★★ Organize new Farmer-Led Watershed Councils	LWCD DATCP	4 New councils	Landowner contacts, public meetings
	Action 6: ★★ Continue to actively participate in the Red Cedar Watershed Working Group *Red Cedar Basin Assessment for Water Quality Improvement* Project	DNR USACOE UW-Stout UWEX LWCD	Assessment to improve implementation of the 9 Key Element Plan	Open house, poster presentations, press releases, quarterly meetings

Objective	Action	Lead Agency	Anticipated Outcome	I & E Tools
Objective 1 (Continued)	**Action 7:** ★★ Monitor and maintain records on surface water quality	RCBMG DNR UW-Stout	Removing and adding waters to the 303d list	23 Monitoring sites located in Dunn County
Objective 2: Assist landowners in preventing contaminants from entering surface water by implementing the Farmland Preservation Program, NR 151 agricultural performance standards, and other water quality improvement practices following the Priority Farm Strategy	**Action 1:** ★★★ Farm inspections to implement state performance standards and prohibitions	LWCD	40 Inspections per year; 720 hours annually	*What Farmers Need to Know - Wisconsin's Runoff Rules,* DNR Pub. No. WT 756, REV 1/13
	Action 2: ★★ Administer the Farmland Preservation Program and ensure participants maintain compliance with Soil and Water Conservation Standards	LWCD	25% of Farmland Preservation Program participants reviewed annually; 200 hours annually	Letters, mailings, landowner contacts, *What Farmers Need to Know - Wisconsin's Runoff Rules,* DNR Pub. No. WT 756, REV 1/13
	Action 3: ★★ Implement the tillage setback under NR 151.03	LWCD	N/A	*What Farmers Need to Know - Wisconsin's Runoff Rules,* DNR Pub. No. WT 756, REV 1/13
	Action 4: ★★ Implement the Phosphorus Index Standard found in NR 151.04	LWCD	N/A	*What Farmers Need to Know - Wisconsin's Runoff Rules,* DNR Pub. No. WT 756, REV 1/13
	Action 5: ★★ Implement the Process Wastewater Handling Standard found in NR 151.055	LWCD	N/A	*What Farmers Need to Know - Wisconsin's Runoff Rules,* DNR Pub. No. WT 756, REV 1/13
	Action 6: ★★ Implement the Clean Water Diversions Standards found in NR 151.06	LWCD	N/A	*What Farmers Need to Know - Wisconsin's Runoff Rules,* DNR Pub. No. WT 756, REV 1/13
	Action 7: ★★ Implement the prevention of overflow from manure storage facility prohibition found in NR 151.08.2	LWCD	N/A	*What Farmers Need to Know - Wisconsin's Runoff Rules,* DNR Pub. No. WT 756, REV 1/13
	Action 8: ★★ Implement the prevention of unconfined manure piles in water quality management areas prohibition found in NR 151.08.3	LWCD	N/A	*What Farmers Need to Know - Wisconsin's Runoff Rules,* DNR Pub. No. WT 756, REV 1/13

Objective	Action	Lead Agency	Anticipated Outcome	I & E Tools
Objective 2 (Continued)	**Action 9:** ★★ Implement the prevention of direct runoff from a feedlot or stored manure into waters of the state prohibition found in NR 151.08.4	LWCD	N/A	*What Farmers Need to Know - Wisconsin's Runoff Rules,* DNR Pub. No. WT 756, REV 1/13
	Action 10: ★★ Implement the unlimited livestock access to waters of the state where high concentrations of animals prevent the maintenance of adequate sod cover or self-sustaining vegetation prohibition found in NR 151.08.5	LWCD	N/A	*What Farmers Need to Know - Wisconsin's Runoff Rules,* DNR Pub. No. WT 756, REV 1/13
	Action 11: ★★★ Install livestock facility conservation practices to implement state performance standards and prohibitions	LWCD	10 Practices installed annually	*What Farmers Need to Know - Wisconsin's Runoff Rules,* DNR Pub. No. WT 756, REV 1/13
	Action 12: ★★★ Continue and expand DATCP/County cost-sharing program and assist landowners with the design and installation of BMPs that resolve a resource concern or insure compliance with the Agricultural Performance Standards found in NR 151	LWCD NRCS	A suite of practices installed; $70,000 annually	Brochures, newsletters, press releases, landowner contacts
	Action 13: ★ Continue to make the mulch spreader available to reduce erosion from construction sites	LWCD NRCS	6 Rentals annually	LWCD website, landowner contacts
	Action 14: ★ Reduce storm water runoff from construction sites (rural and urban)	City of Menomonie DNR LWCD Planning & Land Use Control Division Towns	Less phosphorus entering surface water	Presentations, flyers, website, participation in Rain to Rivers of Western Wisconsin (City of Menomonie)

Objective	Action	Lead Agency	Anticipated Outcome	I & E Tools
Objective 2 (Continued))	**Action 15:** ★ Encourage field edge and stream bank buffers through CREP (Conservation Reserve Enhancement Program) and Continuous CRP (Conservation Reserve Program) when completing conservation plans	LWCD NRCS	5 Acres annually	Conservation Planning, *What Farmers Need to Know - Wisconsin's Runoff Rules,* DNR Pub. No. WT 756, REV 1/13
	Action 16: ★ Develop a Pollution Trading Program with the City of Menomonie if requested	City of Menomonie DNR LWCD	1 Program	N/A
	Action 17: ★ Develop a Pollution Trading Program with the Village of Colfax if requested	Village of Colfax DNR LWCD	1 Program	N/A
	Action 18: ★★ Revise the Farmland Preservation Soil and Water Conservation Standards to include the 2012 revisions to NR 151 and ATCP 50	LCC	1 Revision of current standard	Public meeting, public hearing
	Action 19: ★ Continue to provide review of new subdivisions and sewer service extensions	LWCD City of Menomonie	Review as requested	N/A
	Action 20: ★★ Seek funding for streambank erosion control projects such as the Colfax school bank, Colfax sewage treatment bank, County Hwy M bank, and Chippewa River Bike Trail	LWCD DNR USACOE TMLA	1 Project annually	Public meetings

Goal 2: Conserve Long Term Soil Productivity of Cropland

Overview: "The nation that destroys its soil destroys itself. The soil is indispensable. Heedless wastage of the wealth which nature has stored in the soil cannot long continue without the effects being felt by every member of society." -Henry A. Wallace, U.S. Secretary of Agriculture, 1936

Objective	Action	Lead Agency	Anticipated Outcome	I & E Tools
Objective 1: Promote the four principals of healthy soil: 1. Provide a continuous living root 2. Minimize soil disturbance 3. Maximize soil cover 4. Increase biodiversity	**Action 1:** ★★★ Actively participate in the Dunn County Soil and Water Quality Health Partnership in the management of the Red Cedar Demonstration Farm linking soil health to water quality through education and demonstration	CVTC UWEX LWCD NRCS	Healthy soil, cleaner water	Field days, annual report, presentations
	Action 2: ★★ Seek funding for programs aimed at introducing producers to practices that improve soil health such as no-till, cover crops, and grazing systems	LWCD NRCS	25% of SEG grant; SARE grants	Articles, newsletters, Farmer-Led Watershed Council meetings
Objective 2: Assist landowners in implementing the sheet, rill, and wind erosion performance standards found in NR 151.02 and maintain the long term soil productivity of cropland and pastureland following the Priority Farm Strategy	**Acton 1:** ★★★ Install cropland conservation practices to implement state performance standards and prohibitions	LWCD	3,000 acres of cover crops; 14 nutrient management plans	*What Farmers Need to Know - Wisconsin's Runoff Rules,* DNR Pub. No. WT 756, REV 1/13
	Acton 2: ★★ Develop conservation plans that reduce soil erosion to "T" or below	LWCD NRCS	6,000 Acres per year	*What Farmers Need to Know - Wisconsin's Runoff Rules,* DNR Pub. No. WT 756, REV 1/13
	Action 3: ★★ Work with landowners to develop and implement managed grazing plans that ensure long term productivity of the soil	NRCS LWCD	3 Plans per year	Public meetings, newsletters
	Action 4: ★★ Identify fields with 0-30% residue and work with landowners to increase the amount of residue after planting	LWCD NRCS	3,000 Acres annually	Landowner contacts
	Action 5: ★★ Educate producers when using the Soil Conditioning Index (SCI), Soil Tillage Intensity Rating (STIR), Soil Food Web test, Haney Soil Health Tests and "T" values	LWCD NRCS	Healthy soil	Landowner contacts

Goal 3: Protect Ground Water Quantity and Quality

Overview: Groundwater is referred to as Wisconsin's "buried treasure." Conservation and protection of groundwater was identified as a natural resource concern and priority in Dunn County's first Land & Water Resource Management Plan. In this planning session, committee members recognized that groundwater is abundant in Dunn County and provides critical base flow to our creeks and streams, water for industry, and provides drinking water for all county residents

Objective	Action	Lead Agency	Anticipated Outcome	I & E Tools
Objective 1: Increase public awareness and provide education on ground water quality and quantity	**Action 1:** ★★★ Continue to participate and expand the Tri-County Groundwater Level Monitoring Project	LWCD USGS	2 New wells added per year	Press release, presentations
	Action 2: ★★ Develop a groundwater council comprised of stakeholders to guide groundwater monitoring and research in the county	LWCD Public Health UWEX UW-Stout	1 Council developed	Interactive mapping and information sharing on LWCD website, press releases, public meetings
	Action 3: ★ Continue to distribute and secure funding for additional ground water attenuation maps	LWCD	Print 50 maps and reprint as needed; provide digital copy on LWCD website	Website
	Action 4: ★ Address and assess the impact of high capacity wells on ground water resources	LWCD DNR	N/A	Public meetings, reports
	Action 5: ★ Coordinate with the DNR to keep a current list of approved sites for land spreading of septage and ensure the sites meet standards	DNR LWCD	One List	N/A
Objective 2: Prevent contaminants from entering ground water	**Action 1:** ★★★ Continue the farmer-written Nutrient Management Planning Program developed with Chippewa Valley Technical College to help farmers write and implement plans meeting NR 151.07(3) – Nutrient Management Standard	LWCD CVTC UWEX	6,000 Acres of nutrient management plans per year	Letters, flyers, *What Farmers Need to Know - Wisconsin's Runoff Rules,* DNR Pub. No. WT 756, REV 1/13
	Action 2: ★★ Promote the proper closure of idle manure storage structures	LWCD NRCS	2 Structures properly closed per year	Cost share brochure, website, one-on-one contacts
	Action 3: ★★ Promote the proper decommissioning of abandoned wells	LWCD NRCS	3 Wells decommissioned per year	Cost share brochure, website, one-on-one contacts
	Action 4: ★★ Administer the Dunn County Manure Management Ordinance	LWCD NRCS	2 Permits issued; site visits	Website

Objective	Action	Lead Agency	Anticipated Outcome	I & E Tools
Objective 3: Increase infiltration to recharge ground water	**Action 1:** ★★ Encourage preservation and restoration of wetlands	NRCS Pheasants Forever Ducks Unlimited	20 Acres restored annually	Landowner contacts
	Action 2: ★ Encourage infiltration-friendly land use and best management practices	LWCD Rain to Rivers	Increase infiltration, less erosion	Provide education with presentations and discussions
	Action 3: ★★ Assist the Planning and Land Use Control Division with administration of the Shoreland Zoning Ordinance	Planning & Land Use Control Division LWCD	Provide assistance to the Planning and Land Use Control Division when requested	Landowner contacts, presentations and discussions
	Action 4: ★ Assist in the creation of standards for development in groundwater recharge areas	Planning & Land Use Control Division LWCD	One ordinance	Assist with draft groundwater ordinance for Dunn County
	Action 5: ★ Encourage development of rain gardens and the use of rain barrels	UWEX Sustainable Dunn TMLIA	2 Public workshops/meetings	Participate in Rain to Rivers of Western Wisconsin as a guest member

Goal 4: Preserve Rural Character, Protect the Environment and Related Natural Resources for Residents, Visitors, and Future Generations

Overview: Dunn County is blessed with an abundance of natural resources. These resources are highly valued for their natural beauty, wildlife habitat, the recreational opportunities they provide, and their contribution to the economy

Objective	Action	Lead Agency	Anticipated Outcome	I & E Tools
Objective 1: Preserve farmland and an agricultural way of life in rural Dunn County	**Action 1:** ★★★ Continue to conduct the annual transect survey to monitor soil erosion rates, tillage, and cropping trends	LWCD	Annual transect survey	N/A
	Action 2: ★★★ Assist landowners in the Town of Grant AEA as they consider entering long-term Farmland Preservation contracts	LWCD Planning & Land Use Control Division	2 Contracts per year	Town meetings, land owner contacts
	Action 3: ★★ Assist the Planning and Land Use Control Division with implementing the Dunn County Farmland Preservation Plan	Planning & Land Use Control Division	Protection of farmland	Public meetings, public hearings
	Action 4: ★★ Use EVAAL software to identify areas of high erosion potential for targeted planning efforts	LWCD	Efficient planning in targeted areas	N/A
Objective 2: Improve and enhance the natural resources of property owned by Dunn County	**Action 1:** ★★ Develop a long-range plan for the Dunn County-owned Islands including hardwood and softwood timber management, recreation, invasive species control, and endangered species preservation	LWCD DNR Lower Chippewa River Alliance	1 Plan	Public meeting
	Action 2: ★★ Manage the Dunn County Islands including maintaining logging roads and administering timber sales	LWCD DNR	Maintain 5 miles of access road and one crossing; two timber sales	N/A
	Action 3: ★ Assist the Facilities Committee in maintaining Dunn County parks as aesthetically pleasing recreational areas	Facilities LWCD	2 Projects per year	County website
	Action 4: ★★ Assist the Facilities Committee in making Dunn County Public Shooting Ranges as safe as possible	Facilities LWCD The Alliance	3 Safe public shooting ranges; Successful grant applications	Website

Objective	Action	Lead Agency	Anticipated Outcome	I & E Tools
Objective 2 (Continued)	**Action 5:** ★★ Continue to monitor and manage the three Knights Creek PL 566 structures including updating the Emergency Action Plans	LWCD NRCS Planning & Land Use Control Division	3 Structures maintained; Keep Emergency Action Plans current	Emergency Action Plan
Objective 3: Support community organizations and public agencies that promote the recreational use of natural resources	**Action 1:** ★ Promote recreational use of private land enrolled in programs that have public access requirements such as the Managed Forest Law, Wildlife Damage, and the Voluntary Public Access Program	DNR The Alliance	Increased recreational opportunities for the public	Maps, websites, public meetings
	Action 2: ★★ Continue to provide the tree planter rental program for Dunn County residents (5 county-owned tree planters)	LWCD DNR	12 Landowner rentals	Website, landowner contacts
	Action 3: ★★ Organize and provide guidance and technical support for the Lower Chippewa Invasives Partnership (LCIP)	LCIP Citizens Highway LWCD NRCS DNR	Coordination of the efforts of citizens to combat aquatic and terrestrial invasive species	Website, workshops, events, displays, presentations
	Action 4: ★★ Continue to support trout stream restoration projects on Gilbert and Wilson Creeks and the Eau Galle River	TU DNR	One half mile per year	Newsletters, one-on-one contacts
	Action 5: ★ Support acquisition and restoration of natural areas, wetlands, trout streams, fish and wildlife areas, parks, boat landings, and recreational lands	County Board The Alliance WWLT DNR PF TU	Additional public land acquisition and restoration	Coordinate with agencies to provide assistance as requested
	Action 6: ★★ Administer the Wildlife Damage Abatement and Claims Program and the Deer Donation Program	USDA-APHIS DNR Fish & Game	Implement one program	Website, brochures, landowner contacts
	Action 7: ★ Assist the Dunn County Snowmobile Association (DCSA) by administering and coordinating the local Snowmobile Trails Program	DCSA LWCD	290 Miles of groomed trails	Snowmobile Association website and published trail maps

Objective	Action	Lead Agency	Anticipated Outcome	I & E Tools
Objective 3 (Continued)	**Action 8:** ★★ Continue to administer and financially support the County Conservation Aids Program	LWCD DNR	1 Project per year	Word of mouth
	Action 9: ★★ Coordinate and attend the all-agency meetings	NRCS FSA LWCD DNR USFWLS	2 Meetings per year	Email request for agenda Items and agendas
	Action 10: ★★ Continue to be an advisor to the Dunn County Alliance of Conservation and Sports Clubs	The Alliance LWCD DNR	8 Meetings per year	Email request for agenda items and agendas
	Action 11: ★★ Work with the Planning and Land Use Control Division and the agriculture community to implement the livestock siting language that is contained in the Comprehensive Zoning Ordinance	Planning & Land Use Control Division LWCD	Applications reviewed as submitted	Livestock siting incorporated in 2014, provide assistance as requested
	Action 12: ★★ Administer the Non Metallic Mining Reclamation Ordinance including the monitoring of active acres and encouraging reclamation as an on-going process of mining, thereby minimizing contamination of surface and groundwater	LWCD DNR	Issue annual permits to all mines (currently 26)	Letters, contacts, 20 site visits per year

Goal 5: Educate and Engage the Public in Natural Resource Management

Overview: All Dunn County citizens are stakeholders and play a role in the management of the county's natural resources

Objective	Action	Lead Agency	Anticipated Outcome	I & E Tools
Objective 1: Improve public awareness and provide educational opportunities to preserve rural character, farms, and the environment	**Action 1:** ★★★ Organize and participate in the Dunn Environmental Education Steering Committee (DEESC)	DEESC	Environmental Field Days, newsletter	Environmental Field Days, trailer with equipment & supplies, Dunn County website
	Action 2: ★★★ Continue and implement the civic governance approach to policy implementation, organizing, resource management, and building community capacity	LWCD TMLIA ICGOA	Efficient resource management and community engagement	Civic Governance Policy Document
	Action 3: ★★ Continue the Conservation Awareness Poster & Speaking Contests, Land Judging Contest, and other youth education activities	DEESC	5 Events annually	Teacher contacts, newsletter, letters, Dunn County website
	Action 4: ★★ Develop and Implement an NR 151 parcel tracking software system	IT Division LWCD	1 Tracking system developed	N/A
	Action 5: ★★ Assist landowners, towns and Dunn County in protecting the environmentally sensitive areas, conservation features, and environmental corridors	Planning & Land Use Control Division	Provide assistance as requested	Public meetings, Definitions are located in the Final Report
	Action 6: ★★★ Conservation practices installed to implement LWRM Plan priorities	LWCD	Install 30 practices per year	Dunn County Conservation Assistance Program Brochure
	Action 7: ★★★ Permits issued or obtained in connection with practices installed	LWCD	Issue 3 manure storage permits; Assist with 3 DNR permits	Dunn County Conservation Assistance Program Brochure
	Action 8: ★★ Annual review of the LWRM Plan implementation by the Land Conservation Committee	LCC	Annual review at the January LCC Meeting	Public notice
	Action 9: ★★ Complete an Annual Work Plan by April 15th each year and submit with annual DATCP/DNR annual grant application	LCC LWCD	One Annual Work Plan	N/A

Plan Partners

There are many groups and agencies that are involved with resource conservation in Dunn County. Carrying out the provisions of this LWRM Plan will require the cooperation of many individuals and organizations. The following is an overview of the organizations and agencies, many of which were represented on the Advisory Committee, that will work together with the Dunn County Land and Water Conservation Division and Committee to implement this plan.

Private Organizations

Ducks Unlimited

Ducks Unlimited (DU) conserves, restores, and manages wetlands and associated habitats for North America's waterfowl. These habitats also benefit other wildlife and people. Ducks Unlimited is the sponsor of a North American Waterfowl Conservation Act grant project that pays for acquisition and restoration of prairie potholes in Northwestern Wisconsin.

The Alliance of Dunn County Conservation and Sports Clubs

The Alliance is a non-profit 501(c)(3) dedicated to the education of all the major conservation and environmental organizations in the county. It represents over one thousand local sports men and women. It serves as a forum to share information and discuss subjects of county-wide interest. Its nonprofit tax status allows the organization to accept tax exempt donations unlike most other clubs. The Alliance recommends a County Conservation Aids project to the Planning, Resources and Development Committee each year. They also host an annual fishing event ("Sharing our Resources on the Water") for those with disabilities and seniors, and they apply for grants to purchase land for conservation purposes and public use.

Dunn County Farm Bureau

The Dunn County Farm Bureau is a grassroots non-profit, non-government organization financed with a total membership of over 750 with 448 of those being voting members.

They were formally organized in 1953 by a group of county farmers looking for a voice in agricultural policy on the local, state and national level. The Dunn County Farm Bureau is affiliated with the largest general farm organization in the state, the Wisconsin Farm Bureau, and the largest general farm organization in the nation, the American Farm Bureau.

With a mission to lead the farm and rural community through legislative representation, education, public relations and leadership development, the Farm Bureau's goal is to be a unified voice for agriculture. Through grassroots efforts, the Farm Bureau enhances and strengthens the lives of families and neighbors on the local, state, and national levels. Farm Bureau members also share concerns with urban neighbors and work with each other to find solutions to food safety and supply, animal welfare, and environmental concerns for the common good. The organization takes pride in developing future leaders.

Dunn County Farmers Union

The Dunn County Farmers Union is a membership organization committed to supporting family farms and rural communities. Their county chapter is affiliated with the statewide Wisconsin Farmers Union and the National Farmers Union. Their chapter works to educate their members and the general public on farm and rural issues. They advocate for policies at the local, state, and federal level that provide

positive economic impacts and fair prices for family farmers, maintain strong conservation and environmental practices, encourage renewable energy development, and promote sustainable and resilient rural communities. The Farmers Union has a long commitment to supporting cooperative economic development. They partner in providing educational opportunities to rural youth through both statewide leadership development programs and Summer Youth Camps held at their Kamp Kenwood location on Lake Wissota in Chippewa Falls. Their Dunn County chapter includes both farm and rural members.

Dunn County Fish and Game

The Dunn County Fish and Game is perhaps the largest and most active sports-person's club in the county. Because of its size and commitment to conservation, the group is involved in a variety of activities including purchasing land; operation and support of the Menomonie Public Shooting Range; Hunter Safety education; pheasant rearing and stocking; trout habitat restoration on Gilbert Creek; distribution of meat for the Dunn County Deer Donation Program; supporting veterans through outdoor sporting events; and, they are the home of Post #114 Conservation Career Explorers Post. The club also provides a scholarship for youth that are pursuing a secondary degree in a conservation-related career.

Dunn County Snowmobile Association

The Dunn County Snowmobile Association represents 14 different snowmobile clubs and coordinates the development, maintenance, and grooming of over 290 miles of snowmobile trails in Dunn County each year. The County Conservationist is the official Snowmobile Trail Coordinator for Dunn County and the LWCD has a great working relationship with the Association for distributing approximately $72,000 of trail maintenance funding annually.

Pheasants Forever – Red Cedar Chapter

Red Cedar Pheasants Forever organized in 1990 and has spent over $1,000,000 on habitat projects that benefit the Ring-necked Pheasant and other wildlife species in Dunn County. Projects include land acquisition, planting native grass cover, wildlife food plots, wetland restoration, and establishing pollinator habitat. These land management projects have complemented the successful Jilin and Iowa Wild Pheasant Restoration Projects that the Department of Natural Resources has completed within the county.

LWCD staff have assisted Pheasants Forever with grants from Wisconsin's Knowles-Nelson Stewardship Program, the North American Wetland Conservation Act, and the National Wild Turkey Federation Super Fund. These projects have provided an additional 450 acres of land added to the public land base in the county in an area that is presently under heavy development pressure from the population centers of Menomonie and Eau Claire.

Red Cedar Basin Monitoring Group

The Red Cedar Basin Monitoring Group officially organized in February of 2011 with the main objective being promotion of citizen involvement in anything that can be done to help the waters of the basin. They monitor water quality on many streams in the watershed and on Lakes Tainter and Menomin. Aquatic invasive species are being monitored on both lakes and streams and road salt runoff is monitored in the City of Menomonie. Data is entered into the Wisconsin Surface Water Database. In addition, they monitor bats in the county. Training and equipment is provided to those willing to commit to any of these efforts.

Red Cedar River Water Quality Partnership

The authors of the Red Cedar River Basin Total Maximum Daily Load (TMDL) Implementation Plan make up the Red Cedar River Water Quality Partnership. This diverse stakeholder group was formed in 2013 and is charged with overseeing the execution of the TMDL Implementation Plan and all education, outreach, engagement, and implementation activities. The group has developed a foundational document that describes how the Partnership functions and describes its identity and purpose. Members include UWEX, Wisconsin DNR, Dunn and Barron Counties, NRCS, City of Menomonie, town government and elected officials, citizens, local non-governmental organizations, lake associations, and corporate representatives.

Sustainable Dunn

Sustainable Dunn is a not-for-profit grassroots organization that was formed in 2006. It seeks to provide educational programs for the community about issues related to sustainability. Using the principles of sustainability, a community can create a prosperous and secure future by using its resources wisely now so that future generations will have them for their needs.

Sustainable Dunn has worked with the City of Menomonie and Dunn County to assist with creation of Sustainability Action Plans. Besides providing ongoing educational programs, Sustainable Dunn has bimonthly meetings with the City of Menomonie, Dunn County, UW-Stout, and other community groups that create a climate for sharing ideas and encouraging actions that promote efficient use of resources with minimal impact on the environment.

Tainter Menomin Lake Improvement Association

The Tainter Menomin Lake Improvement Association (TMLIA) is organized to address the following objectives:

1. To support the protection and improvement of Lakes Tainter and Menomin for the benefit of the general public
2. To provide educational information on water quality and environmental issues affecting our lakes and the watersheds that feed them
3. To collaborate with conservation and environmental organizations in making initiatives happen to protect and improve Wisconsin's inland lakes
4. To promote and advocate legislative action to improve water quality
5. To seek funding from local, state, and federal sources in the pursuit of their goals and objectives

The Association and the LWCD have a long history of working together. Since our 2007 plan update, the Association and the LWCD have worked together on several projects including the production of bathymetric maps for Tainter and Menomin Lakes, the EPA approved Red Cedar River Total Maximum Daily Load (TMDL) Plan, the 2016-18 Red Cedar Basin Assessment for Water Quality Project and completing a study of the sediment sources into each Lake. TMLIA partnered to offer public workshops on waterfront landscaping, projects related to restoring the Jarrett Creek watershed, infiltration gardens at Lakeside Park and projects related to civic governance. The Association leads and sponsors the annual Red Cedar Land, Water and People Coming Together Conference.

Trout Unlimited

The mission of Trout Unlimited (TU) is to conserve, protect, and restore America's coldwater fisheries and their watersheds. Dunn County works most closely with the Kiap TU Wish and Wisconsin Clear Waters Chapters of Trout Unlimited. Members of these TU chapters serve as partners and advocates for water quality and habitat improvement projects in Dunn County. Most recent, TU has served a valuable role in the restoration of segments of Gilbert and Wilson Creeks in the western part of the county. The vision of TU is "*By the next generation, Trout Unlimited will ensure that robust populations of native and wild coldwater fish once again thrive within their North American range, so that our children can enjoy healthy fisheries in their home waters*."

West Central Wisconsin Regional Planning Commission

The West Central Wisconsin Regional Planning Commission (WCWRPC) is statutorily charged with the responsibility of planning for the physical, social, and economic development of the region (West Central Wisconsin). To accomplish this mission, the Commission conducts area-wide planning and provides technical assistance to local governments. WCWRPC completed the "Dunn County Conditions and Trends Report" in 2009 and "The West Central Wisconsin Comprehensive Plan" in September of 2010. More recently, WCWRPC began working on identifying and defining environmentally sensitive areas and conservation features most valued by the county and its residents. In addition, WCWRPC completed grant applications and started grant administration for the Red Cedar Basin Assessment for Water Quality Improvement Project.

West Wisconsin Land Trust

West Wisconsin Land Trust (WWLT) is a private non-profit conservation organization based in Dunn County whose mission is focused on preserving the natural character of western Wisconsin. WWLT works with private landowners, municipalities, government agencies, and other conservation partners to protect important ecological and scenic land throughout western Wisconsin. Since 1998, WWLT has conserved over 25,000 acres in 18 counties.

Local

City of Menomonie

With a population of 16,000, the City of Menomonie is the largest municipality in Dunn County. The City has adopted a Stormwater Ordinance and taken several steps to meet its Municipal Separate Storm Sewer System MS4 requirements. This has resulted in a 33% reduction of total suspended solids entering Lake Menomin and the Red Cedar River. A 44% reduction in the phosphorus load is projected by 2025. The City of Menomonie is an active partner in the "Rain to Rivers--Wise Choices for Cleaner Water" education campaign sponsored by the Chippewa Valley Stormwater Forum.

Dunn County Health Department

The Dunn County Health Department's mission is to promote the health of all people in the community by working toward a safe and healthy environment, preventing disease and disability, and promoting positive health practices. The Health Department collects drinking water sample results for the county and administers the Private Water Systems Ordinance. The Department is also concerned with the toxic effects that blue-green algae can have on humans and pets. People can be exposed to these toxins through contact with the skin (e.g., when swimming), through inhalation (e.g., when motor boating or water skiing), or by swallowing contaminated water.

Dunn County Public Works Department - Highway Division

The Dunn County Highway Division builds and maintains Dunn County's highways. The Highway Department is required to complete wetland mitigation for some construction projects. They implement storm water and erosion control measures during highway construction and play a major role in protecting water quality.

Environmental Services Department

The Dunn County Environmental Services Department is responsible for collectively managing the natural resources of the county. The four divisions function as a self-directed management team without a department head.

The four divisions are:

- Land and Water Conservation
- Planning and Land Use Control
- Surveying
- Solid Waste and Recycling

Towns

Towns in Dunn County have taken the lead role in developing "smart growth" plans for their communities. The LWCD has worked with nearly all of the towns to identify important farmland and to complete the Agriculture and Natural Resource Elements of their plans. The Dunn County Towns Association meets quarterly and is an available and efficient avenue for distributing information to the towns. All LCC meeting agendas are e-mailed to the Town Chairmans and Clerks.

Statewide

University of Wisconsin Cooperative Extension Service

The University of Wisconsin Extension (UWEX) is responsible under state law for research and educational programs related to soil and water conservation. The LWCD works with the Katie Wantoch, Dunn County UWEX Agriculture Educator; Paul Kivlin, Nutrient and Pest Management Specialist; and Dan Zerr, the Natural Resources Educator on the Red Cedar Demonstration Farm, Farmer Led Watershed, the Tainter Menomin Implementation team and several other projects.

Wisconsin Department of Agriculture, Trade, & Consumer Protection

The WI Department of Agriculture, Trade, and Consumer Protection (DATCP) is responsible for serving as the central agency for setting up and implementing statewide soil and water conservation policies and administering the state's soil and water conservation programs. DATCP provides assistance and reviews county land and water resource management plans and has overall responsibility for the Wisconsin Farmland Preservation/Working Lands Initiative Program and the Conservation Reserve Enhancement Program. The Dunn County LWCD receives funding from the DATCP/DNR joint allocation each year for staff and to administer a cost-sharing program.

Wisconsin Department of Natural Resources

The Department of Natural Resources (DNR) manages nearly all state owned land and protects all public waters of the state. The DNR provides cost sharing and technical assistance to implement a variety of resource programs such as the Wildlife Damage Abatement and Claims Program, Animal Waste

Management Program (NR 243), County Conservation Aids Program, Fisheries Management Programs, Lake Management Programs, and Forestry Assistance Programs (such as the Wisconsin Managed Forest Law Program). The LWCD has historically maintained a good working relationship with the DNR.

Wisconsin Land and Water Conservation Association

The Wisconsin Land and Water Conservation Association (WI Land + Water) is a membership organization representing all of the state's 72 County Land Conservation Committees (LCCs). On behalf of county LCCs, WI Land + Water lobbies elected officials and government agencies to secure financial and program support for local conservation activities.

In addition, several state conservation education and recognition programs are sponsored by WI Land + Water. On a larger basis, the National Association of Conservation Districts (NACD), comprised of over 3,000 local conservation districts and departments throughout the nation, provides national support and lobbying efforts on behalf of local LCCs. Dunn County is a member of the Wisconsin Land and Water Conservation Association and the National Association of Conservation Districts.

Federal

Farm Service Agency

Also a part of the USDA, the Farm Service Agency (FSA) administers a variety of agricultural assistance programs including production controls, price supports, and conservation incentives. There is an FSA representative on the Dunn County LCC that serves as a regular voting member to encourage further coordination and cooperation between agencies. Specific conservation programs which FSA has partial or sole responsibility for administering include the Conservation Reserve Program and conservation loans.

Natural Resources Conservation Service

The Natural Resources Conservation Service (NRCS) is a sub-agency of the FSA. The NRCS and Dunn County LCC and LWCD have a long history of cooperatively assisting landowners in Dunn County. The LCC and NRCS have a Memorandum of Understanding that is reviewed every five years. This memorandum spells out the roles and responsibilities of each agency. Some of the existing conservation programs that NRCS has been given partial or sole responsibility for administering include: Conservation Reserve Program, Conservation Compliance, Conservation Stewardship Program, Farm and Ranchlands Protection Program, Sodbuster, Swampbuster, Wetland Reserve Program, Environmental Quality Incentives Program, and, soil survey development and updates.

USDA-Animal & Plant Health Inspection Service - Wildlife Services

In cooperation with the DNR, the Dunn County LCC contracts with USDA-Animal & Plant Health Inspection Service - Wildlife Services (APHIS-WS) to administer the Wildlife Damage Abatement and Claims Program in Dunn County. This program covers abatement measures and crop damage caused by wild white tailed deer, elk, black bear, Canada geese, and turkeys.

APPENDIX

Exhibit 1: Dunn County LWRM Plan Committee Meeting Schedule

Advisory Committee - Meeting #1

January 26, 2016, 1:00 p.m., Dunn County Community Services Building

Topics Covered:

- Planning Process and Timeline (Dan Prestebak)
- Dunn County's Directional Plan (Dolly Catlin)
- Community Capacity and Social Networks in Watershed Management (Dr. Nels Paulson)
- Breakout Sessions on Soils, Groundwater, and Surface Water Quality (Dunn County, NRCS, DNR and UWEX Staff)

Advisory Committee - Meeting #2

February 16, 2016, 1:00 p.m., Dunn County Community Services Building

Topics Covered:

- City of Menomonie MS-4 Stormwater Permit and Phosphorus Reduction (Randy Eide)
- Wisconsin's Runoff Rules for Farmers, NR 151 (Terry Kafka)
- Breakout Sessions on Red Cedar Demo Farm, TMDL Implementation Plan, Managing Non-Ag Resources (Dunn County LWCD, NRCS, DNR and UWEX Staff)

Advisory Committee - Meeting #3

March 22, 2016, 1:00 p.m., Dunn County Community Services Building

Topics Covered:

- Small Group Open Discussion (Dunn County Staff)
    - Surface and Groundwater
    - Implementation of "Runoff Rules for Farmers" in Dunn County
    - Soil Health, Big Picture Items
- Large Group Open discussion - What is Still on Your Mind?

Open House Plan Review

October 5, 2016, 1:00 p.m., Dunn County Government Center

Public Hearing

October 25, 2016, 8:30 a.m., Dunn County Government Center

Exhibit 2: Information & Education Methods

Table 4. Information and education methods to implement the LWRM Plan

Examples of Target Audiences (Who do we want to get our message to?)	**Examples of Messages** (What do we want to convey?)	**Delivery Methods Available** (How do we get our message to the target audience?)
• Farmers • City Residents • Students • General Public • Homebuilders • Public Officials • Developers • Lawn Care Companies • Companies • Crop Consultants • Fertilizer Dealers • Road Construction Companies	• Increase the appreciation of the natural resources of the county and how the quality of the resources leads to an improved quality of life • Describe the Agricultural Performance Standards • What's in it for me? • Conservation practices can assist you in meeting Performance Standards • You can develop your own Nutrient Management Plan • Residential fertilizers and pesticides are often over applied • This storm sewer drains to the lake • Use appropriate storm water management techniques • Infiltration reduces erosion • Increase the understanding of watersheds and the concept that "land use in a watershed has a direct effect on the quality of the surface and groundwater within the watershed"	• Newspapers • Newsletters • Fairs • Public Recognition • Presentations • Meetings • Workshops • Seminars • Farm Tours • Field Days • DVD's • Websites and Web Calendars • E-mail • E-Newsletters • Direct Mailing • Site Visits • Word of mouth (neighbors, community gatherings, etc.) • Articles and messages in newsletters of partner organizations

Exhibit 3: Endangered Species Listed in Dunn County by the Wisconsin Natural Heritage Inventory

Please see the Wisconsin Natural Heritage Inventory for more information and an explanation of the codes used in the table below

Scientific Name	Common Name	WI Status	Federal Status	Group
Acipenser fulvescens	Lake Sturgeon	SC/H		Rare Fishes
Aflexia rubranura	Red-tailed Prairie Leafhopper	END		Rare Leafhoppers and True Bugs
Alasmidonta marginata	Elktoe	SC/P		Rare Mussels and Clams
Alder thicket	Alder Thicket	NA		Shrub Communities
Allogona profunda	Broad-banded Forestsnail	SC/N		Rare Aquatic and Terrestrial Snails
Ammodramus henslowii	Henslow's Sparrow	THR	SOC	Rare Birds
Anemone caroliniana	Carolina Anemone	END		Rare Plants
Anguilla rostrata	American Eel	SC/N		Rare Fishes
Asclepias ovalifolia	Dwarf Milkweed	THR		Rare Plants
Aspidoscelis sexlineata	Six-lined Racerunner	SC/H		Rare Reptiles
Buteo lineatus	Red-shouldered Hawk	THR		Rare Birds
Canis lupus	Gray Wolf	SC/FL	LE	Rare Mammals
Chlidonias niger	Black Tern	END	SOC	Rare Birds
Chlosyne gorgone	Gorgone Checker Spot	SC/N		Rare Butterflies and Moths
Chondestes grammacus	Lark Sparrow	SC/M		Rare Birds
Cirsium hillii	Hill's Thistle	THR	SOC	Rare Plants
Colinus virginianus	Northern Bobwhite	SC/M		Rare Birds
Crotalaria sagittalis	Arrow-headed Rattle-box	SC		Rare Plants
Crystallaria asprella	Crystal Darter	END		Rare Fishes
Cycleptus elongatus	Blue Sucker	THR		Rare Fishes
Diarrhena obovata	Ovate Beak Grass	END		Rare Plants
Dry prairie	Dry Prairie	NA		Upland Herbaceous Communities

Scientific Name	Common Name	WI Status	Federal Status	Group
Dry-mesic prairie	Dry-mesic Prairie	NA		Upland Herbaceous Communities
Ellipsaria lineolata	Butterfly	END		Rare Mussels and Clams
Emergent marsh	Emergent Marsh	NA		Wetland Herbaceous Communities
Empidonax virescens	Acadian Flycatcher	THR		Rare Birds
Emydoidea blandingii	Blanding's Turtle	SC/P		Rare Reptiles
Floodplain forest	Floodplain Forest	NA		Wetland Forests
Glyphyalinia wheatleyi	Bright Glyph	SC/N		Rare Aquatic and Terrestrial Snails
Glyptemys insculpta	Wood Turtle	THR		Rare Reptiles
Guppya sterkii	Brilliant Granule	SC/N		Rare Aquatic and Terrestrial Snails
Hendersonia occulta	Cherrystone Drop	THR		Rare Aquatic and Terrestrial Snails
Homalosorus pycnocarpos	Glade Fern	SC		Rare Plants
Ictiobus niger	Black Buffalo	THR		Rare Fishes
Lanius ludovicianus	Loggerhead Shrike	END	SOC	Rare Birds
Lythrurus umbratilis	Redfin Shiner	THR		Rare Fishes
Macdunnoa persimplex	A Flat-headed Mayfly	SC/N		Rare Mayflies
Melanoplus flavidus	Blue-legged Grasshopper	SC/N		Rare Grasshoppers and Allies
Metretopus borealis	A Cleft-footed Minnow Mayfly	SC/N		Rare Mayflies
Moist cliff	Moist Cliff	NA		Geological Features/Primary Communities
Moxostoma carinatum	River Redhorse	THR		Rare Fishes
Northern dry-mesic forest	Northern Dry-mesic Forest	NA		Upland Forests
Northern wet forest	Northern Wet Forest	NA		Wetland Forests
Nycticorax	Black-crowned Night-Heron	SC/M		Rare Birds
Oak barrens	Oak Barrens	NA		Savannas/Woodlands
Oak opening	Oak Opening	NA		Savannas/Woodlands
Ophiogomphus smithi	Sioux (Sand) Snaketail	SC/N		Rare Dragonflies and Damselflies

Scientific Name	Common Name	WI Status	Federal Status	Group
Opuntia fragilis	Brittle Prickly-pear	THR		Rare Plants
Orphulella pelidna	Spotted-winged Grasshopper	SC/N		Rare Grasshoppers and Allies
Phemeranthus rugospermus	Prairie Fame-flower	SC		Rare Plants
Pine barrens	Pine Barrens	NA		Savannas/Woodlands
Pituophis catenifer	Gophersnake	SC/P		Rare Reptiles
Plauditus cestus	A Small Minnow Mayfly	SC/N		Rare Mayflies
Plethobasus cyphyus	Sheepnose	END	LE	Rare Mussels and Clams
Polyodon spathula	Paddlefish	THR		Rare Fishes
Prenanthes aspera	Rough Rattlesnake-root	END		Rare Plants
Quadrula metanevra	Monkeyface	THR		Rare Mussels and Clams
Quadrula nodulata	Wartyback	THR		Rare Mussels and Clams
Sand prairie	Sand Prairie	NA		Upland Herbaceous Communities
Scleria triglomerata	Whip Nutrush	SC		Rare Plants
Setophaga citrina	Hooded Warbler	THR		Rare Birds
Shrub-carr	Shrub-carr	NA		Shrub Communities
Simpsonaias ambigua	Salamander Mussel	THR	SOC	Rare Mussels and Clams
Southern dry forest	Southern Dry Forest	NA		Upland Forests
Southern dry-mesic forest	Southern Dry-mesic Forest	NA		Upland Forests
Southern mesic forest	Southern Mesic Forest	NA		Upland Forests
Southern sedge meadow	Southern Sedge Meadow	NA		Wetland Herbaceous Communities
Southern Tamarack Swamp	Southern Tamarack Swamp	NA		Wetland Forests
Striatura exigua	Ribbed Striate	SC/N		Rare Aquatic and Terrestrial Snails
Sturnella neglecta	Western Meadowlark	SC/M		Rare Birds
Trimerotropis maritima	Seaside Grasshopper	SC/N		Rare Grasshoppers and Allies
Tritogonia verrucosa	Buckhorn	THR		Rare Mussels and Clams
Truncilla donaciformis	Fawnsfoot	THR		Rare Mussels and Clams

Scientific Name	Common Name	WI Status	Federal Status	Group
Vallonia parvula	Trumpet Vallonia	SC/N		Rare Aquatic and Terrestrial Snails
Vertigo nylanderi	Deep-throated Vertigo	SC/N		Rare Aquatic and Terrestrial Snails
Vireo bellii	Bell's Vireo	THR		Rare Birds

Exhibit 4: Cost-Share Practice/Funding Source Table & Guidance for Completing NR 151 Codes

COST-SHARE FUNDING SOURCE TABLE
AND NR151 CODE GUIDANCE

The following will help you in signing cost-share contracts and completing reimbursement requests. It consists of two parts:

(1) A table listing all conservation practices cost-shareable under Ch. ATCP 50, the source of funds you must use for cost-sharing the specific practice, and the units of measurement to quantify each cost-shared practice, and

(2) Guidance for completing the column on the reimbursement form related to the NR 151 compliance.

PRACTICE or ACTIVITY	ATCP 50 Reference	Fund Source	Units of Measurement
Land taken out of agricultural production Cost-share contract must list the new or existing farm practice that takes land out of production	50.08(3)	Bond	Acres
Riparian land taken out of agricultural production (CREP Equivalent) (Cost-share contract must list the new or existing farm practice that takes land out of production)	50.08(4), 50.42(1)	Bond	Acres
Manure storage systems	50.62	Bond	Number
Manure storage closure	50.63	Bond	Number
Barnyard runoff control systems (specify components including heavy use area protection)	50.64	Bond	Number
Access road	50.65	Bond	Linear Ft.
Trails and walkways	50.66	Bond	Linear Ft.
Contour farming	50.67	SEG[1]	Acres
Cover and green manure crop	50.68	SEG[1]	Acres
Critical area stabilization	50.69	Bond	Number
Diversions	50.70	Bond	Linear Ft.
Field windbreaks	50.71	Bond	Linear Ft.
Filter strips	50.72	Bond	Acres
Feed storage runoff control systems	50.705	Bond	Number
Grade stabilization structures	50.73	Bond	Number
Livestock fencing	50.75	Bond	Linear Ft.
Livestock watering facilities	50.76	Bond	Number
Milking center waste control systems	50.77	Bond	Number
Nutrient management for cropland or pasture	50.78	SEG[1]	Acres

[1] While DATCP awards SEG funds primarily to cost-share nutrient management plans, a county may use a limited portion of the its award (cumulative expenditures may not exceed 25 percent of a county's annual cost-share allocation unless otherwise allowed in the allocation plan for that year) if the following conditions are met:

(1) The landowner agrees to remain in compliance with the soil erosion control standard (NR 151.02) and the nutrient management standard (NR 151.08) for as long as the land is farmed;

(2) The landowner submits a nutrient management plan checklist covering the cropland where the soft practice is installed; and

(3) The county documents that cover crop or other cost-shared "soft" practice is required to meet "T" or other requirement of the NRCS 590 standard, and is the most cost-effective approach to meeting the NRCS 590 requirement.

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PRACTICE or ACTIVITY	ATCP 50 Reference	Fund Source	Units of Measurement
Pesticide Management Plans	50.79		
1. Management Plans	50.79(1)	No Funds Available	Number
2. Structures (as described in the plan for structure's design)	50.79(2)	Bond	Number
Prescribed Grazing	50.80		
1. Management Plan	50.80(1)	No Funds Available	Number
2. Fencing (not permanent)	50.80(2)	No Funds Available	Linear Ft.
3. Fencing (permanent)	50.80(3)	Bond	Linear Ft.
4. Establish Permanent Pasture (seeding)	50.80(4)	Bond	Acres
Relocating or abandoning animal feeding operations	50.81	Bond	Number
Residue Management	50.82	SEG[1]	Acres
Riparian Buffers	50.83		
1. Installation (including land out of production and first 10 years of maintenance)	50.83(1)	Bond	Acres
2. Mowing and maintenance beyond initial 10 year period	50.83(2)	No Funds Available	Acres
Roofs	50.84	Bond	Number
Roof Runoff Systems	50.85	Bond	Number
Sediment Basins	50.86	Bond	Number
Sinkhole Treatment	50.87	Bond	Number
Stream Bank and Shoreline Protection	50.88	Bond	Linear Ft.
Stream Crossing	50.885	Bond	Linear Ft.
Strip-Cropping	50.89	SEG[1]	Acres
Subsurface Drains	50.90	Bond	Number
Terrace Systems	50.91	Bond	Linear Ft.
Underground Outlet	50.92	Bond	Number
Waste Transfer Systems	50.93	Bond	Number
Wastewater Treatment Strips	50.94	Bond	Linear Ft.
Water and Sediment Control Basins	50.95	Bond	Number
Waterway Systems	50.96	Bond	Acres
Well Decommissioning	50.97	Bond	Number
Wetland Restoration	50.98	Bond	Acres
Engineering services provided in connection with a completed cost-share practice for which bond revenue may be used (also refer to 50.40(7)).	50.34(4)	Bond	
Other practices with DATCP's written approval	50.40(3)(a)		

Guidance for Completing NR 151 Codes on DATCP Certification and Cost-share Reimbursement Request Form

A completed form must indicate whether the reimbursement request involves practices installed to achieve compliance with NR 151 performance standards and prohibitions. Not all practices are installed for the purpose of achieving compliance with NR 151 (see below for examples). If no compliance is achieved, the "00" code should be used on the form. Where compliance is achieved, staff completing the form should use their professional judgment to identify the specific NR 151 standard or prohibition that was met, and then insert the code number that corresponds to that NR 151 standard or prohibition (The code numbers in the form match the sections in NR 151 where the standard or prohibition are referenced). The following chart can help you complete this part of the form.

NR 151 Code	Compliance Achieved through Practice Installation
02	Control soil erosion (sheet, rill and wind) to meet tolerable soil loss (T) calculated by RUSLE 2 (now includes pastures)
03	Tillage setback of 5 to 20 feet
04	Phosphorous Index
05	Construct, maintain and close manure storage facilities to prevent manure overflows and leaks.
055	Process Wastewater discharge to waters of the State
06	Divert clean water from feedlots, manure storage areas and barnyard areas within a water quality management area.
07	Apply manure and fertilizer in conformance with a nutrient management plan to control nutrient runoff into water of the state.
08	No overflow from manure storage facilities.
08	No unconfined manure stacks within the Water Quality Management Area.
08	No direct runoff from feedlots and manure storage facilities.
08	No unlimited access of livestock to waters of the state that prevents maintenance of adequate sod or self-sustaining cover.

Guidance on Compliance Determinations involving Specific Practices

To receive 70% cost-sharing, the practices listed below must be associated with a NR 151 performance standard. If a NR 151 performance standard code is not assigned to the practice, then the project will only receive funding at a 50% cost-share rate. This table lists possible codes that might be associated with a particular practice to receive the higher cost-share rate.

Practice	NR 151 Code Options
Access Roads (50.65)	05, 08
Roof Runoff Systems (50.85)	05, 055, 06, 08
Stream Bank and Shoreline Protection (50.88)	03, 08
Stream Crossing (50.885)	02, 03, 08
Wetland Restoration (50.98)	02, 07

Exhibit 5: Components of NR 151

FARMLAND PRESERVATION PROGRAM - CONSERVATION PERFORMANCE PRACTICE REQUIREMENTS[1]

1) **Landowners with Cropland or Pasture:**

- **Cropland and Pasture Soil Erosion Control**
  - Maintain soil erosion rates at or below Tolerable level, "T"
    - Control gully erosion

- **Cropland and *Pasture Nutrient Management**
  - Annually develop and follow a Nutrient Management plan that meets Natural Resources Conservation Service (NRCS) Standard 590 on cropland.
  - *On pasture land if:
    - Receives mechanical applications of nutrients, and/or
    - Is stocked at >1 animal unit per acre during the grazing season
  - Average rotational phosphorus index (PI) of 6 or less, and annual PI of 12 or less, on all cropland, pasture land, and winter grazing areas

- **Tillage Setback**
  - No tillage within 5' (up to 20') from surface water

2) **Landowners with Livestock, Livestock Facilities, or Manure:**

- **Manure Storage Facilities**
  - New Construction and Alterations must meet NRCS Standard 313.
  - Manure storage facilities must be closed within 2 years of abandonment according to NRCS Standard 360.
  - Manure storage facilities that are failing or leaking must be upgraded, replaced, or closed.

    (Note: These activities all require an Animal Waste & Manure Management Ordinance Permit from Dunn County L&W Division prior to beginning work.)

- **Clean Water Diversion**
  - Divert runoff away from feedlots, manure storage, and barnyards. Applies to:
    - Livestock Producers within Water Quality Management Areas (WQMAs). (**WQMAs** are areas within 300' of river or stream; areas within 1000' of lake, flowage or pond; and sites susceptible to groundwater contamination or potential direct conduit to groundwater.)

- **Process Wastewater Management**
  - No significant discharge to waters of the State. Applies to: feed leachate, milking center waste, wash water, watering system spillage or overflow, etc.

- **Manure Management Prohibitions**
  - All Livestock Producers
    - No overflow of manure storage facilities
    - No unconfined manure piles in WQMAs (see above for definition)
    - No direct runoff from feedlots, stored manure, and barnyards to waters of the State
    - No unlimited livestock access to waters of the State where sod or vegetative cover cannot be maintained

Footnotes: [1] Informational Summary Only. See WI Administrative Codes ATCP 50 and NR 151 for complete codes and details.

(● = **new** "2012" standards)

(Produced 9/06, rev. 9/08, 1/11, 3/11, 7/13, 7/14, 9/14, 11/14, 11/15)

Exhibit 6: Estimated Funding Available to Implement Planned Activities

The following table contains what is believed to be a reasonable estimate of the funding available from Dunn County and the State of Wisconsin based on past revenue and expenses to implement the planned activities identified in the Work Plan

	2014	2015	2016	2017
County Revenue for Staffing	$360,995 *	$430,318 *	$549,867 ■	$547,739 ■■
State Revenue for Staffing	$149,267 **	$155,047 **	$152,127	$155,232 ***
Hours Available	12,000	12,000	14,000	14,000
State Cost Share	$59,333 **	$27,246 **	$104,050 ■■■	$69,500 ***

**2014 and 2015 Figures represent county-source funding as reported on the financial report to DATCP*

***2014 and 2015 Figures are actual amounts received/expended from DATCP. State cost-share amounts include both bond and SEG funds*

****2017 Figures are from the Preliminary DATCP/DNR Joint Allocation Plan*

■ *2016 Adopted Dunn County Budget*

■■ *2017 Proposed Dunn County Budget*

■■■*2016 SWRM bond and SEG fund allocation ($80,800) + 2015 Cost-share conservation plan extension into 2016 ($23,250)*

Exhibit 7: Public Hearing Notice

PUBLIC HEARING NOTICE

2017-2026 Dunn County Land and Water Resource Management Plan

The Dunn County Land Conservation Committee will hold a public hearing to accept comments regarding the 2017-2026 Dunn County Land and Water Resource Management Plan. The public hearing will be held on Tuesday, October 25th, 2016, at 8:30 a.m. in Room 058, Dunn County Government Center, 800 Wilson Avenue, Menomonie, WI.

A copy of the draft plan is on file and available for review at the Environmental Services Department, Land and Water Conservation Division, 800 Wilson Avenue, Room 330, Menomonie, Wisconsin, and on the front page of Dunn County's web site at http://co.dunn.wi.us

All interested persons are invited to present comments at the hearing. Written comments will be accepted by the Land and Water Conservation Division until 4:30 p.m. on October 24th, 2016.

Daniel Prestebak, County Conservationist
Dunn County, Wisconsin
715-232-1496

The Dunn County News
Wednesday, October 12th, 2016
Wednesday, October 19th, 2016

Exhibit 8: Acronyms

AEA	Agricultural Enterprise Area
APHIS-WS	USDA-Animal & Plant Health Inspection Service-Wildlife Services
BMPs	Best management practices
CAFO	Confined Animal Feeding Operation
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CVTC	Chippewa Valley Technical College
CWA	Clean Water Act
DATCP	Department of Agriculture, Trade and Consumer Protection
DCSA	Dunn County Snowmobile Association
DEESC	Dunn Environmental Education Steering Committee
DNR	Department of Natural Resources
DU	Ducks Unlimited
ENS	Environmental Services Department
EPA	Environmental Protection Agency
ERW	Exceptional Resource Waters
EQIP	Environmental Quality Incentives Program
EVAAL	Erosion Vulnerability Assessment for Agricultural Lands
Facilities	Dunn County Facilities and Parks Division
FIA	Federal Inventory and Analysis
Fish & Game	Dunn County Fish & Game Association
FLW	Farmer-Led Watershed
FPP	Farmland Preservation Program
FSA	Farm Service Agency
GWA	Groundwater attenuation
ICGOA	Interstate Civic Governance Organizing Agency
IT	Dunn County Information Technology
LA	Load Allocation (Nonpoint Sources)
LAKES-REU	Linking Applied Knowledge in Environmental Sustainability Research Experience for Undergraduates
LCC	Land Conservation Committee
LCIP	Lower Chippewa Invasives Partnership
LWCD	Land and Water Conservation Division
LWRM	Land & Water Resource Management
NACD	National Association of Conservation Districts
NGOs	Non-Government Organizations
No3-N	Nitrite-Nitrogen
NRCS	Natural Resources Conservation Service
ORW	Outstanding Resource Waters
P	Phosphorus
Partnership	Red Cedar River Water Quality Partnership
PCBs	Polychlorinated biphenyls
PI	Phosphorus Index

PF	Pheasants Forever
PPM	Parts Per Million
RCBMG	Red Cedar Basin Monitoring Group
RC&D	River Country Resource Conservation & Development
RUSLE2	Revised Universal Soil Loss Equation 2
SARE	Sustainable Agriculture Research and Education
SCI	Soil Conditioning Index
SEG	Segregated
SNAP-Plus	Nutrient Management Planning Software Program
STIR	Soil Tillage Intensity Rating
SWRB	Simulator for Water Resources in Rural Basins
SWRM	Soil & Water Resource Management
The Alliance	Dunn County Alliance of Conservation and Sports Clubs
"T"	Tolerable Soil Loss
TMDL	Total Maximum Daily Load
TMLIA	Tainter Menomin Lake Improvement Association
TP	Total Phosphorus
TROUT	Trout Regulations and Opportunities User Tool
TU	Trout Unlimited
USACOE	U.S. Army Corp of Engineers
USDA	United States Department of Agriculture
USDA-APHIS-WS	United States Department of Agriculture-Animal & Plant Health Inspection Service-Wildlife Services
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
UWEX	University of Wisconsin Cooperative Extension Service
WAV	Water Action Volunteers
WCWIPMA	West Central Wisconsin Invasive Plant Management Area
WCWRPC	West Central Wisconsin Regional Planning Commission
WDNR	Wisconsin Department of Natural Resources
WI Land + Water	Wisconsin Land + Water Conservation Association
WLA	Waste Load Allocation (Point Source)
WLWCA	Wisconsin Land + Water Conservation Association
WWLT	West Wisconsin Land Trust
WPDES	Wisconsin Pollutant Discharge Elimination System