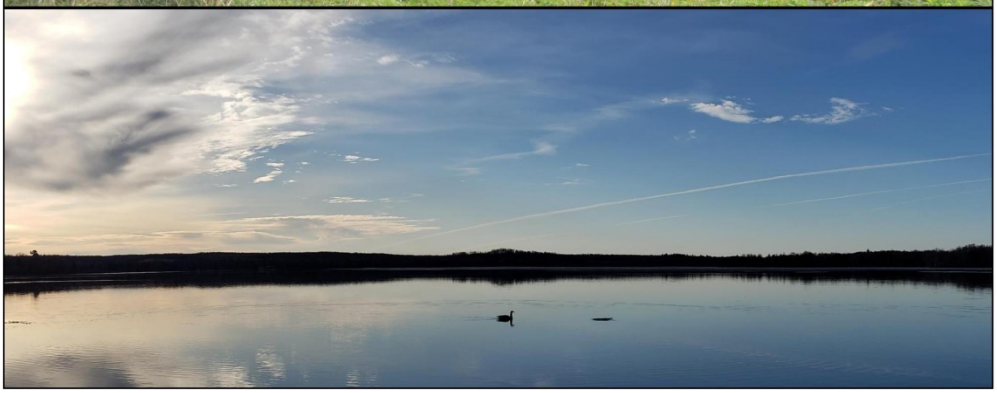
Langlade County
Land and Water Resource Management Plan
2020 – 2029



August 2019

Langlade County

NCWRPC

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Langlade County's Land and Water Resource Management Plan was developed with the following residents and staff. Special thanks are extended to the following people:

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August 2019

This plan was prepared under the direction of the Langlade County Land Conservation/Solid Waste Committee by the North Central Wisconsin Regional Planning Commission.

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PLAN SUMMARY
Chapter 1

Introduction

The Langlade County Land and Water Resource Management Plan was developed to assist the County's citizens and natural resource agencies with managing and protecting the land and water resources throughout Langlade County.

The goals and objectives in this plan will help resolve local natural resource problems as identified by the Resource Advisory Group. These goals and objectives will also provide the basis for various local, state, and federal agencies to coordinate implementation of their programs of land and water management.

Public Participation

The Resource Advisory Group was assembled in December 2018 with the Langlade County LC/SW Committee's appointment of a diverse group of individuals to the group. Resource professionals and citizens participated in group discussions to provide feedback on priority issues for the Plan. All Resource Advisory Group members are listed with their representation on the back of this plan's cover.

In early November 2018, the Regional DNR Office was contacted, and the Water Basin Leader was officially invited to participate in the Resource Advisory Group.

The first Resource Advisory Group meeting on January 22, 2019 began with resource professionals presenting resource assessments of Langlade County. Out of three sub-groups at the meeting came a variety of issues that the Resource Advisory Group wanted goals and objectives to be created for the next meeting.

The second Resource Advisory Group meeting on March 11, 2019 began with a review of the presented goals to verify that all of the big topics were covered and appropriately articulated.

Here are the prioritized goals:
(#) is the new goal number, and "Goal #" was how it was provided on the sheet at the December 18th meeting:

(1) Goal 1: **Protect and improve surface and groundwater.**

(2) Goal 3: **Mitigate invasive species impacts.**

(3) Goal 2: **Promote working forests and farms.**

(4) Goal 5: **Promote stewardship of the land and water through public education.**

(5) Goal 4: **Protect public health from unwanted chemical waste.**

(6) Goal 6: **Improve forest silviculture for multiple uses.**

(7) Goal 7: **Manage wildlife conflicts.** Now with the approved goals from the LC/SW Committee in hand, staff from the LCD and NCWRPC continued reviewing and revising the remainder of the Plan's chapter text.

The LC/SW Committee approved the draft LWRM Plan for public review at their June 3, 2019 meeting.

Public Hearing
The Public Hearing was held at 9.00 a.m. on Monday, July 1, 2019, and a quorum of the LC/SW Committee was present to receive the comments. One person spoke at the public hearing. The public hearing was recessed until 9:00 a.m. on July 8, 2019, where the public hearing was opened again and additional public comment was received and acted upon. Public comment is documented in Attachment F. Also see Attachment B for the public hearing notice.

July 8, 2019 – The LC/SW Committee approved the LWRM Plan for submission to the Wisconsin Land and Water Board (LWCB), and for approval by resolution of the County Board.

July 2019 – LWRM Plan adopted by the Langlade County Board of Supervisors.

October 1, 2019 – LWRM Plan presented to the LWCB.

December 2019 – DATCP sends letter adopting the LWRM Plan following LWCB recommendations.

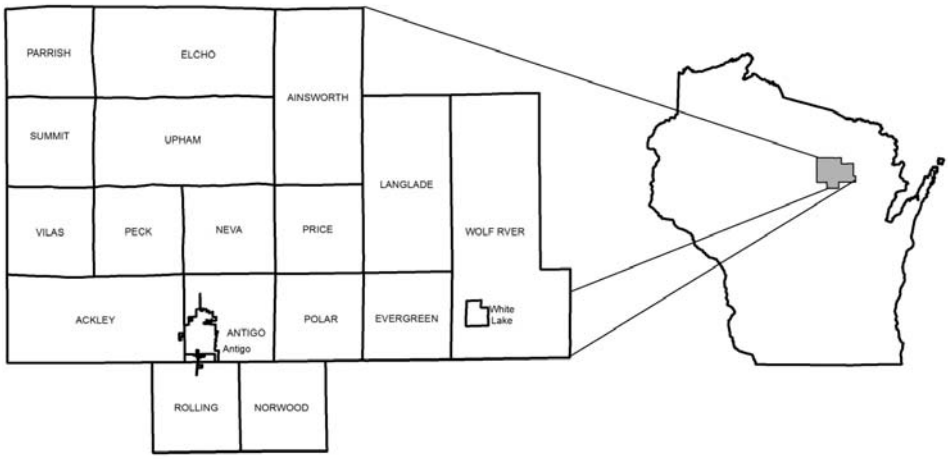
Resource Assessment

Brief summaries of the land and water resources in Langlade County are described in this chapter.

Special Resource Concerns
This section was created to identify important emerging issues (Climate Change, Metallic Mining, Insect Decline, and Fertilizer and Manure Storage and Application) that the LC/SW Committee wished to include in this 10-yr LWRM plan.

Location/Geography
Langlade County is located in northern Wisconsin. The City of Antigo and the Village of White Lake are the only incorporated communities in the county, with Antigo as the county seat.

Figure 1 Langlade County



General Land Use
Langlade County is nearly 77 percent covered with woodlands, mainly in the northern half of the county and eastern third where the Wolf River runs. Agriculture lies mainly within the Antigo Flats, which are centered around Antigo.

Forestry
Large blocks of public and private forests exist in Langlade County. Many types of public entities own forests. School districts have school forests, the federal government manages the Chequamegon-Nicolet National Forest, and the vast majority of public forest are Langlade County's county forest blocks. DNR manages two private property programs that allow public access on private lands, while also providing timber management on those lands – Managed Forest Law, and Forest Legacy Area. In 2018 there were 121,165 total acres enrolled in both FCL and MFL. In 2013 there were 119,536 total acres enrolled in both FCL and MFL.

Agriculture

Dairy and vegetable industries in Langlade County stand on equal footing. Long the main farming enterprise of Langlade County, dairy is the largest part of Langlade County's agriculture in terms of combined on-farm value and processing value. Langlade County farm production and milk sales account for $38.6 million, while processing milk into dairy products generate another $87.5 million. There is one plant that processes dairy products in Langlade County. Much of the corn and forage crops grown in the County remain in the County for livestock feed.

Potatoes are by far the most important cash crop in the County. In 2012, the market value of vegetable crops was $45.9 million, or 44 percent of the total market value of all agricultural products sold in the County. The production of certified seed potatoes for domestic and international markets has added value to the commodity over the last decades.

Other vegetables grown in the County on contract with canning companies include: snap beans, peas, and sweet corn. Acreage of these crops can swing year to year. Acreage has increased recently as canning contracts have shifted northward out of the Central Sands region of Wisconsin due to the increased demand for field corn acreage there. Soybeans are also extensively grown for use both on local dairy farms and as a commodity sold outside of the County.

Soils

Langlade County covers a total acreage of 568,333; of which 116,386 acres (according to 2017 Ag Census) in 2017 are in farmland. Antigo Silt Loam, Kennan Loam, and Pence Sandy Loam make up the majority of Langlade County's cropland acres. These soils are nearly level to moderately sloping and are well suited for farming.

Langlade County is the home to the Antigo Silt Loam – Wisconsin's state soil.

Surface Water

Langlade County is rich in water resources. The county has hundreds of miles of cold water streams, 843 lakes covering about 8,000 acres and about 108,800 acres of wetland greater than five acres in size based on Wisconsin Wetland Inventory data. The largest natural lake in Langlade County is Rolling Stone Lake with 671.9 acres and the largest impoundment is Upper Post Lake at 756.7 acres. The deepest lake is Jack Lake at 85 feet deep and the largest body of water in the county is the Wolf River at 983.7 acres. There are 391 miles of trout streams (DNR 2002) in Langlade County.

Impaired Waters – 303(d) Waters

In 2018 there were 18 waterbodies, up from 7 in 2014, in Langlade County on the 303(d) list. The additional listed waterbodies are impaired due to a variety

of causes beyond atmospheric deposition of mercury and unspecified urban runoff metals.

Total Maximum Daily Loads (TMDLs)
Two TMDLs cover almost all of Langlade County – the Wisconsin River TMDL and the Upper Fox and Wolf River TMDL. The Wisconsin River TMDL was approved in April of 2019 and the Upper Fox and Wolf River TMDL approval is expected later in 2019.

Outstanding/Exceptional Resource Waters
Outstanding Resource Waters in Langlade County include 2 lakes, 4 rivers, and 6 creeks. Exceptional Resource Waters in Langlade County include 7 rivers, 2 flowages, 95 creeks, and 1 spring.

Invasive Species Management
Langlade County is a partner in the Timberland Invasive Partnership (TIP), a cooperative endeavor with the Lumberjack RC&D and USDA Forest Service. This Cooperative Invasive Species Management Area (CISMA) is a partnership between Menominee, Shawano, Oconto and Langlade Counties; and the Menominee Indian Tribe of Wisconsin and Stockbridge-Munsee Community. TIP employs a full-time Coordinator and seasonal Invasive Species Technicians to work with partners, citizens, and professionals within the region to provide invasive species services, including education and control.

Groundwater
Groundwater supplies nearly all of the water for residential, commercial, and industrial uses in Langlade County. In general, groundwater use has increased in the county as urban areas continue to grow and agricultural users install more high capacity wells. The increase in rural housing developments and a water bottling facility, each with their own private well, also places demands on groundwater.

The quality of the ground water is generally very good. Many soils however have very porous layers that are poor filters for domestic waste and agricultural chemicals. The impact of development and agriculture may cause deterioration of the ground water.

In general, the infiltration and recharge rates in Langlade County are relatively high due to the coarse texture of surficial materials. The average recharge from precipitation on 1 square mile of the Antigo Flats is about 256,000 gallons per day.

Performance Standards and Prohibitions

Agricultural Performance Standards will continue to be achieved through a voluntary educational approach along with one-on-one contacts with landowners who request technical assistance.

Priority farms will be ranked highest if (1) a citizen complaint is filed against them; followed by (2) Farmland Preservation Program participants that come out of compliance with pollution controls; and finally (3) farms not enrolled in Farmland Preservation Programs found to be not in compliance.

Non-agricultural Performance Standards are regulated by the County Land Records and Regulations department through a variety of ordinances.

2015-2019 Work Plan Accomplishments

Accomplishments and activities completed from the 2015-2019 Langlade County Work Plan are summarized in Chapter 5. Knowing what has been completed or needs more attention helps us to determine which actions to continue when creating annual Work Plans. Land Conservation Department and Land Conservation Committee accomplishments are described under each goal in Chapter 5.

Goals and Objectives

Based upon the resource concerns identified by the Resource Advisory Group, the goals and objectives were created. Goals & objectives are listed in priority order.

The LCD along with agency partners will implement the action items listed in the Work Plan as staff and funding become available.

The goals are listed below in priority order as determined by the Langlade County Land Conservation/Solid Waste Committee in association with recommendations from the Resource Advisory Group:

Goal 1: Protect and improve surface and groundwater.

Goal 2: Mitigate invasive species impacts.

Goal 3: Promote working forests and farms.

Goal 4: Promote stewardship of the land and water through public education.

Goal 5: Protect public health from unwanted chemical waste.

Goal 6: Improve forest silviculture for multiple uses.

Goal 7: Manage wildlife conflicts.

Monitoring and Evaluation

Performance Standards – Spot checks are the main tool used to monitor the erosion of croplands within the county. LCD staff spot check each farm in the Farmland Preservation Program every four years.

Langlade County LCD relies on NRCS to develop conservation plans on the cropland acres of the County. A 2014 database estimates the weighted average tolerable soil loss (T) for Langlade County is 4.1 tons per acre per year.

Phosphorus Loading – The Wastewater Treatment Strip and BARNY spreadsheets will be used to determine compliance with the standard. In addition, the citizen based water quality monitoring conducted on county lakes will be used to monitor whether improvements are being made in water quality.

Information and Education

Information and education strategies are an integral part of this plan and Langlade County's conservation programs. Educational opportunities for youth and property owners are necessary to heighten awareness about protecting and enhancing the land and water resources they enjoy daily.

Possible educational strategies include posting information on the county website, creating new brochures, holding workshops, writing newspaper articles, participating in radio broadcasts and continuing school group and other public presentations. Examples of current educational strategies being employed include: nutrient management farmer training, tax preparer training, and collaboration with UW-Extension to host "Getting Started in Grazing" courses and a farm transition workshop.

PLAN DEVELOPMENT AND PUBLIC PARTICIPATION
Chapter 2

Introduction

Locally led natural resource management is an important concept in Wisconsin land and water conservation. State and federal agencies support the idea that local residents are best suited to identify and provide solutions for natural resource problems within a county. At the root of the county Land and Water Resource Management (LWRM) plan is the concept of cooperation among local residents and all natural resource agencies operating within the county. The Department of Agriculture, Trade, and Consumer Protection (DATPC) requires that each county Land Conservation Department (LCD) locally create a Land and Water Resource Management (LWRM) plan (Chapter 92, WI Statutes) to coordinate LCD activities. The Langlade County Land Conservation Committee (LCC) contracted with North Central Wisconsin Regional Planning Commission (NCWRPC) to assist with facilitating the LWRM planning process.

Chapter 92 has clearly defined roles and responsibilities for DATCP and LCCs. The Department of Agriculture, Trade and Consumer Protection (DATCP) has the primary responsibility to set state conservation program policy. County land conservation committees (LCC's), through their respective land conservation departments, have primary responsibility for implementation of conservation programs within their jurisdiction. Both DATCP and county land conservation committees have joint responsibility to develop and administer the conservation programs. Chapter ATCP 50 (the Soil and Water Resource Management Administrative Rule) further articulates land and water resources management planning program roles and responsibilities.

The development of this document provides Langlade County with guidance to address the natural resource needs of the county over the next 10 years. It also provides an opportunity for Langlade County to further develop and expand coordination with other partners and agencies involved in resource management to accomplish the goals and objectives identified in the plan.

Plan Development with Public Participation

The focus of this plan's development process was to identify and prioritize land and water resource issues to develop a Work Plan that addresses those issues. The Work Plan coordinates various agency's efforts to conserve the land and water resources in the County.

A good start to any planning process is finding out what currently exists. NCWRPC staff collected land and water resource inventories from a variety of sources, including the County's Comprehensive Plan.

In early November of 2018, the Regional DNR Office was contacted (Ruth King in Spooner), and the Water Basin Leader was officially invited to participate in the Resource Advisory Group (email on file with LCD).

The citizens on the Resource Advisory Group were a diverse group who were appointed by the Langlade County Conservation/Solid Waste Committee to provide priority issue feedback for this plan. Resource professionals from a variety of departments and agencies were asked to present information and participate in group discussion. All Resource Advisory Group members are listed with their representation on the back of this plan's cover.

Meeting #1 of the Resource Advisory Group was held on January 22, 2019 and began with resource professionals presenting resource assessments (forestry, agriculture, water, & land development) of Langlade County. The Resource Advisory Group then broke into three sub-groups based upon where they sat in the room to discuss the presentations and identify natural resource issues that would drive new goal and objective development for the Plan. Each group provided a summary of their discussion. LCD and NCWRPC staff assimilated all the discussion notes and developed seven goals with objectives to present at the next meeting.

Meeting #1 notes from the three sub-groups of Resource Advisory Group members are in **Attachment A**.

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Meeting #2 of the Resource Advisory Group occurred on March 11, 2019. LCD and NCWRPC staff presented revised goals and potential objectives for everyone to critique and revise. Goals were then prioritized from 1 to 7, with "1" being the top priority, and tallied in front of everyone at the meeting.

Here are the prioritized goals:
(#) is the new goal number, and "Goal #" was how it was provided on the sheet at the December 18th meeting:

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(7) Goal 7: **Manage wildlife conflicts.**

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On April 8, 2019, the Langlade County Land Conservation/Solid Waste (LC/SW) Committee received the prioritized list of goals, and staff generated objectives under each goal. The LC/SW Committee was tasked with 1) reviewing if they agreed with how the goals were prioritized, and 2) considering if the Resource Advisory Group's goals captured the overall issues that the County tackles on an annual basis. The LC/SW Committee approved the Resource Advisory Group's list.

****

Now with the approved goals from the LC/SW Committee in hand, staff from the LCD and NCWRPC continued reviewing and revising the remainder of the Plan's chapter text.

The LC/SW Committee approved the draft LWRM Plan for public review at their June 3, 2019 meeting.

Public Hearing

The Public Hearing was held at 9.00 a.m. on Monday, July 1, 2019, and a quorum of the LC/SW Committee was present to receive the comments. One person spoke at the public hearing. The public hearing was recessed until 9:00 a.m. on July 8, 2019, where the public hearing was opened again and additional public comment was received and acted upon. Public comment is documented in Attachment F. Also see Attachment B for the public hearing notice.

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July 2019 – LWRM Plan adopted by the Langlade County Board of Supervisors.

October 1, 2019 – LWRM Plan presented to the LWCB.

December 2019 – DATCP sends letter adopting the LWRM Plan following LWCB recommendations.

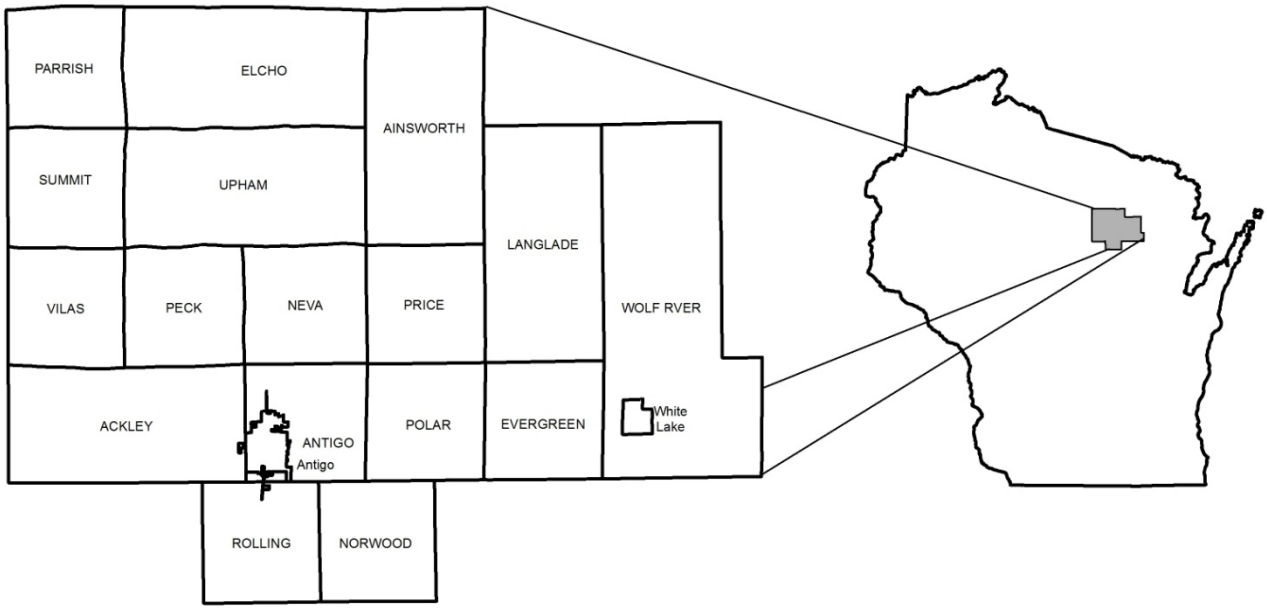
RESOURCE ASSESSMENT
Chapter 3

This chapter briefly summarizes the land and water resources within Langlade County. This information provides a general background of how trends may impact the land and water resources in the county. Developing an understanding of these characteristics and their changes will help direct future planning efforts in the appropriate directions. This chapter is not intended to contain an exhaustive inventory of land and water resources within Langlade County; instead it draws upon existing inventories and information from previously prepared reports.

Location/Geography

Langlade County is located in northern Wisconsin. The City of Antigo and the Village of White Lake are the only incorporated communities in the county, with Antigo as the county seat. The County is bounded by Oneida and Forest County to the north, on the east by Oconto County, to the south by Menominee, Shawano and Marathon County, and on the west by Lincoln County. See Figure 1.

Figure 1 Langlade County



Special Resource Concerns

Climate Change

Wisconsin's climate is changing. A wealth of temperature and precipitation data gathered over more than half a century along with records from a variety of other periods and sources, paint a consistent picture of our state becoming generally warmer and wetter. The decades ahead are likely to bring changes much more profound than those seen so far, according to climate models.

Climate models currently predict many impacts that will directly affect the land and water resources of Langlade County. These models show annual average temperature increases and precipitation patterns shifting with high volume precipitation events occurring more frequently. As a result, water temperatures will increase on our lakes and rivers and nutrient runoff will increase. These higher temperatures combined with increased nutrients will put our waters at risk of harmful algal blooms and changes to our fisheries. As the climate changes our forest resources will be impacted while suitable habitat for many tree species is reduced and forests experience increase stress from invasive species, pests, and wildfires.

Significant adaptations will be necessary to deal with the changes as they occur. Greater protections of our resources will provide resistance to some effects. Preserving healthy ecosystems will create resiliency to the stressors and minimize the vulnerability. Strong partnerships and collaboration will be even more necessary for response to the oncoming threats of climate change to be effective.

Source: Wisconsin's Changing Climate: Impacts and Adaptation. 2011. Wisconsin Initiative on Climate Change Impacts. Nelson Institute for Environmental Studies, University of Wisconsin-Madison and the Wisconsin Department of Natural Resources, Madison, Wisconsin. Climate Wisconsin 2050: Lakes (PDF) | April 2019. Climate Wisconsin 2050: Forestry (PDF) | November 2016

Metallic Mining

Activities and processes that occur at metallic mining sites have the potential to affect the quantity and quality of groundwater surrounding the project area. At most surface or underground mines, groundwater will flow into excavated areas and must then be pumped out in order to dewater places where mining activities are intended to take place. Depending on the site's local hydrology, mining activities may affect groundwater quantity by lowering the water table elevation, which in turn may impact nearby lake levels and base flow in streams. Additionally, groundwater quality may be affected by the handling, storage, and disposal of mining wastes; the mine excavation itself; the water-table drawdown; the wastewater discharge; and the storage and handling of chemicals, reagents, and fuels at the mine site. (WDNR)

As explicitly stated in Wisconsin's mining laws and regulations, the contamination of groundwater quality must be prevented through compliance with strict performance based standards. (WDNR)

While there have been improvements to mining practices, significant environmental risks remain. Water pollution from mine waste rock (tailings) may need to be managed for decades after closure. These impacts depend on a variety of factors, such as the susceptibility to groundwater contamination, the composition of bedrock being mined, the type of technology employed; the skill, knowledge and environmental commitment of the company; and our ability to monitor and enforce compliance with environmental regulations.

One of the problems is that high-grade ore has decreased, so low-grade ore is being mined. With the mining of low-grade ore comes a much greater tonnage of waste rock, and much smaller pieces that provide a higher surface area to potentially come in contact with water.

Sources: (WDNR) – Department of Natural Resources. "Protecting Groundwater at Metallic Mining Sites." Mining Information Sheet. Revised: February 2003. Accessed online: June 6, 2019.

Minnesota Department of Natural Resources. "Taconite – Digging into Minnesota Minerals." Accessed online: June 13, 2019.

American Geosciences Institute. "How can metal mining impact the environment?" Accessed online: June 13, 2019.

Insect Decline

The biodiversity of insects on planet Earth is staggering, as many as 30 million species. Insects pollinate our food, recycle dead things, supply fibers and raw materials to humans, provide food for birds, mammals, and fish, and help to reduce each other. Insects make up the base of our food chain and are critical to ecosystems and the health of our planet. In 2012 the USDA estimated gross revenue from pollination services at $655.6 million. Only a small fraction of insects are not beneficial to humans. Alarmingly, insect populations have been plummeting. Lepidoptera (moths and butterflies) have declined by 53%. The iconic Monarch butterfly is threatened by habitat loss, pesticides, and climate change. In the last 22 years, their numbers have decreased by 68%, with the Western population especially at risk of extinction. Native bee populations have also declined dramatically. Historically, the Rusty-patched bumble bee was found throughout Wisconsin. In 2017, it became the first federally listed endangered bumble bee species and is now known to exist only in small pockets in western and southern Wisconsin.

The reasons behind insect population declines are both varied and complex. Habitat loss, climate change, pesticides, and pathogens top the list. As varied as the reasons are behind the widespread declines, the methods needed to halt

and reverse declines are as complex. It is easy to say, restore habitat, but as we experience a changing climate, what is the best way? It is easy to say, use less pesticides, but how do we 'redesign' our agricultural fields to be productive and insect-friendly? What is known is that changes, both small and large, must occur. In order to help reverse the current loss of insect biodiversity, how we grow our food, build our homes, and live our lives, will need to be examined. Small changes that take place in our backyards, along lake shores, in the city, and in our farm fields, can benefit insects. Activities such as reducing light pollution, installing buffer strips, minimizing pesticide use, planting a pollinator garden, and letting our properties be a little more wild, all start at the local level, but have a much larger landscape-level effect.

Source: Francisco Sanchez-Bayo, Kris A.G. Wyckhuys. "Worldwide decline of the entomofauna: A review of its drivers." Biological Conservation, Vol. 232, April 2019, pp. 8-27. "Saving the Monarch Butterfly", Center for Biological Diversity, www.biologicaldiversity.org/species/invertebrates/monarch_butterfly/

Fertilizer and Manure Storage and Application

To produce good yields, farmers need to apply nitrogen, phosphorus and other nutrients to their crops. If farmers don't account for the nutrients contained in the manure they spread on their fields, crops may be over-fertilized. Excess nitrate plants can't use will leach into the groundwater and excess phosphorus will runoff into lakes, streams and wetlands. Proper measuring of nitrogen and phosphorus in manure saves farmers the cost of purchasing extra commercial fertilizer – and also protects groundwater. Protecting water quality and farm profits is a balancing act that Extension's Nutrient and Pest Management Program and Langlade County's Land Conservation Department work with farmers to perfect.

Farmers also must be careful about where and when they spread manure. Spring snowmelt or excessive rainfall can lead to fish kills and contamination of drinking water wells due to bacteria in manure that has run off from farm fields. Large scale animal operations, including CAFOs that produce large quantities of animal manure may pose a greater risk to water quality in the absence of careful management and regulation. CAFOs are regulated by the Department of Natural Resources under NR 243. Collaborative monitoring efforts and communication between the LCD and the DNR strengthen resource protections.

Source: Department of Natural Resources. "Threats to groundwater." Wisconsin Natural Resources magazine. April 2006. Accessed online: July 1, 2019.

Climate

Langlade County has a continental climate characterized by cold, snowy winters, warm summer days and cool summer nights. The short frost-free period during the summer restricts suitable crops mainly to forage, small grain, and vegetables. Precipitation is fairly well distributed throughout the year, reaching a peak in summer. Snow covers the ground much of the time from late fall until early spring, and has an annual range from 20 to 90+ inches and an annual mean of 51.9 inches in the period of 1971-2000. June is generally the wettest month and February is the driest. Precipitation averages 30.6 inches annually. The sun shines 65 percent of the time in summer, and shines 45 percent in the winter. The prevailing wind is from the southwest. Average wind speed is highest in spring at 12 miles per hour.

Surface Topography

The topography of Langlade County is of glacial origin. Moraines, outwash plains, drumlins, eskers, kames, lake plains, bogs and other depressional areas where organic soils have formed and alluvial deposits in drainage ways characterize the landscape. The moraines of the older drift area found in southwestern part of the county and the outwash plains of the Antigo Flats form a triangular region that is some of the smoothest land in the county. These areas were not covered by glacial ice during the most recent glaciations. The end moraines are the roughest terrain. Elevations range from about 1,070 feet where the Wolf River leaves the county to about 1,903 feet above sea level in the Township of Langlade. Antigo is about 1,498 feet above sea level. The eastern part of the county drains to Lake Michigan and the western part of the county drains to the Mississippi River.

Glacial Geology

The unconsolidated deposits overlying the Precambrian bedrock are predominantly Quaternary glacial sediments. Holocene or recent marsh deposits and alluvium occur in low lying wetlands and in areas adjacent to lakes and streams. The distribution and texture of these deposits and associated landforms affect the movement, availability, and chemical characteristics of surface water and groundwater in the county. (WGNHS)

General Land Use

In the early 1870's the first European traders established posts in the Northwoods. Soon after the areas vast forests provided lumber for the developing cities of the Midwest. Farming began as an auxiliary use to forestry, but with the arrival of rail in the 1880's new markets for commodities opened. Oats, potatoes, and wheat were and remain important commodities for the County along with forestry. (Soil Survey)

Langlade County is nearly 77 percent covered with woodlands, mainly in the northern half of the county and eastern third where the Wolf River runs. Agriculture lies mainly within the Antigo Flats, which are centered around Antigo.

The Langlade County Future Land Use Map (within the Comprehensive Plan) reflects no major changes in land use over the plan period 2020-2029. Forestry will continue to be the major land use in the county followed by agriculture.

See Map 1: Generalized Existing Land Use

The following is a brief description of the major land uses and their trends in Langlade County.

Forestry

Large blocks of public and private forests exist in Langlade County. Many types of public entities own forests. School districts have school forests, local governments own forests for various outdoor recreational pursuits, Board of Commissioners of Public Lands maintains land granted by the federal government to begin UW-Madison, the federal government manages the Chequamegon-Nicolet National Forest, and the vast majority of public forest are Langlade County's county forest blocks.

See Map 4 – Public Forests

Forested lands that may be open to the public but are not part of a public forest are privately held lands that are enrolled in the Forest Crop Law (FCL) or Managed Forest Law (MFL).

In 2006 there were 114,682 total acres enrolled in both FCL and MFL.
In 2013 there were 119,536 total acres enrolled in both FCL and MFL.
In 2018 there were 121,165 total acres enrolled in both FCL and MFL.

More land continues to remain in FCL and be enrolled in MFL in Langlade County.

Forest Legacy Area (FLA) – The WDNR purchased the development rights for two industrial forests in the towns of Langlade and Wolf River (see Map 4). No additional land in the county is targeted for FLA creation at this time, but all land in Langlade County is within the Northern Forest FLA, which makes it eligible for this program.

Agriculture

Dairy and vegetable industries in Langlade County stand on equal footing. Long the main farming enterprise of Langlade County, dairy is the largest part of Langlade County's agriculture in terms of combined on-farm value and processing value. Langlade County farm production and milk sales account for $38.6 million, while processing milk into dairy products generate another $87.5 million. There is one plant that processes dairy products in Langlade County. Much of the corn and forage crops grown in the County remain in the County for livestock feed.

Potatoes are by far the most important cash crop in the County. In 2012, the market value of vegetable crops was $45.9 million, or 44 percent of the total market value of all agricultural products sold in the County. The production of certified seed potatoes for domestic and international markets has added value to the commodity over the last decades.

Other vegetables grown in the County on contract with canning companies include: snap beans, peas, and sweet corn. Acreage of these crops can swing year to year. Acreage has increased recently as canning contracts have shifted northward out of the Central Sands region of Wisconsin due to the increased demand for field corn acreage there. Soybeans are also extensively grown for use both on local dairy farms and as a commodity sold outside of the County.

Several factors make Langlade County an excellent location for seed production: skilled management, cool climate, silt loam soils, packaging equipment, and management of crop protectants. In addition to the certified seed potato producers, the County is the home of two seed cleaning and packaging companies that market corn, soybean, and small grain seeds.

The sales of Christmas trees, fruits and vegetables, greenhouse, nursery and floriculture products total $47.4 million.

Table 1 provides census data regarding the total amount of farmland and the size of farms in Langlade County. Between 2007 and 2012, the amount of land in farms increased by 45.5% most likely due to canning contracts that have shifted northward out of the Central Sands region of Wisconsin.

Table 1 Agricultural Trends in Langlade County				
	2002	2007	2012	2017
Farmland (acres)	87,558	78,258	113,881	116,386
Average Farm Size (acres)	260	252	288	269
Irrigated land (farms) (acres)	50 15,244	54 17,465	44 19,717	51 18,278
Wheat for grain (farms) (acres)	20 2,582	16 2,017	22 3,077	18 1,485
Corn for grain (farms) (acres)	102 5,897	94 7,483	103 7,933	64 7,588
Corn for silage (farms) (acres)	91 4,522	87 5,463	82 5,939	70 6,840

Source: Census of Agriculture, 2002, 2007, 2012, & 2017.

Soils

Langlade County covers a total acreage of 568,333; of which 116,386 acres (according to 2017 Ag Census) in 2017 are in farmland. Antigo Silt Loam, Kennan Loam, and Pence Sandy Loam make up the majority of Langlade County's cropland acres. These soils are nearly level to moderately sloping and are well suited for farming.

Langlade County is the home to the Antigo Silt Loam – Wisconsin's state soil.

Antigo silt loam was selected to represent the more than 550 different soils in Wisconsin. It is a productive, well-drained soil with a light-colored surface layer developed under northern hardwood forests. Antigo soils are formed in silty material underlain by sand and gravel on glacial outwash plains.

See Map 1 for the general agricultural land uses, and Map 2 for soil map units.

There are 6 major soil associations covering Langlade County. Each soil association has distinct soil patterns, relief, and drainage features. The Langlade County Soil Survey contains detailed descriptions of each soil type, and includes tables to determine suitability and limitations.

General Soil Map Unit Descriptions

Antigo-Langlade
Well drained, nearly level and gently sloping, silty soils on outwash plains. These soils make a roughly triangular outwash plain called the Antigo Flats. The State soil (Antigo Silt Loam) is named for this soil unit.

Antigo-Pence
Well drained, nearly level to very steep, silty and loamy soils on outwash plains, kames, and eskers.

Kennan-Keweenaw
Well drained, undulating to very steep, stony, loamy and silty soils on moraines and drumlins.

Magnor-Cable
Somewhat poorly drained and very poorly drained, nearly level and gently sloping, silty and mucky soils on moraines.

Milladore-Sherry-Mylrea
Somewhat poorly drained and very poorly drained, nearly level and gently sloping, silty and mucky soils on moraines. Granite bedrock is close to the surface.

Oesterle-Minocqua-Scott Lake
Somewhat poorly drained, very poorly drained, and moderately well drained, nearly level, silty and mucky soils on outwash plains.

Soil Erosion From Cropland

Cropland soil erosion data is available on a countywide basis. A 2014 database estimates the weighted average tolerable soil loss (T) for Langlade County is 4.1 tons per acre per year.

T-by-2000, a DATCP report published in 2001 showed that about 96% of farm fields sampled in Langlade County were being farmed to T, the tolerable soil level. This is higher than the state average identified in the report of 82%

Wind erosion is a concern throughout the Antigo Flats. Another concern is soil erosion caused by runoff mainly in potato fields northeast of Antigo along Spring Brook. Potatoes are a relatively shallow rooted crop that requires intensive management to promote growth and yield. In fall, there is not adequate time to harvest crops and then establish a cover crop.

Surface Water

Langlade County is rich in water resources. The county has hundreds of miles of cold water streams, 843 lakes covering about 8,000 acres and about 108,800 acres of wetland greater than five acres in size based on Wisconsin Wetland Inventory data. The largest natural lake in Langlade County is Rolling Stone Lake with 671.9 acres and the largest impoundment is Upper Post Lake at 756.7 acres. The deepest lake is Jack Lake at 85 feet deep and the largest body of water in the county is the Wolf River at 983.7 acres. There are 391 miles of trout streams (DNR 2002) in Langlade County.

Langlade County's 843 lakes are placed into four basic classifications: seepage, drained, drainage, and spring. The majority of these lakes, 552 (65 percent) are classified as seepage having no inlet or outlet. Sixty-six of the County's lakes are classified as drainage and only eighteen of our lakes are classified as drained. Spring lakes make up 207 of the lakes in the County. While spring lakes are abundant, many are small in size and known as spring ponds. The majority of spring ponds are about one acre and have depths of one to five feet. Fed by groundwater, these spring ponds typically have clear and cold water that support trout populations, usually brook trout. A marked characteristic of spring ponds is an outlet that serves as headwaters, feeding the trout streams of Langlade County. Prized by many, these ponds draw trout fisherman to the region and fill a unique ecological niche.

Wisconsin trout streams are ranked based on their ability to sustain reproducing trout. Class I trout streams are high quality waters able to support a reproducing trout population without need of any fish stocking. Class II trout streams have some natural reproduction, but not enough to sustain a sport fishery. Some fish stocking is necessary to maintain the fishery. Class III trout streams have no reproduction and have marginal trout habitat. Fish stocking is required to support the fishery in these streams.

There are 142 miles of Class I trout water, 246 miles of Class II trout stream and 6 miles of Class III trout streams in Langlade County. The Wolf River, Eau Claire River, Evergreen River and Spring Brook constitute highly regarded Class I trout fishing resources in the County.

The Wisconsin State Legislature created the Wisconsin Nonpoint Source Water Pollution Abatement Program (NPS) in 1978 (§281.66, Wis. Stats.). The goal of the NPS Program is to improve and protect the water quality of streams, lakes, wetlands, and groundwater by reducing pollutants from agricultural and residential non-point sources. The WDNR and DATCP administer the program, which focuses on critical hydrologic units called priority watersheds. The program is implemented through the Targeted Runoff Management Program and Urban Non-point Source Water Pollution Abatement and Storm Water

Management Grant Program, led by local units of government. Landowners, land renters, counties, cities, villages, towns, sewer districts, sanitary districts, lake districts and regional planning commissions are eligible to participate.

Basin & Watersheds

Langlade County is in portions of 16 watersheds and 4 drainage basins (Table 2). The subcontinental divide separates the Mississippi River drainage basin from the Lake Michigan drainage basin. See Map 5. On the eastern side of the divide, water flows into the Wolf River, which leads to Lake Michigan. On the western side of the divide, the water flows into the Wisconsin River on its way to the Mississippi River.

A watershed ranking process (Table 2) was developed by DNR to rank watersheds based on the extent of nonpoint source pollution, the effect on water quality and the ability to manage the pollution sources. Watersheds that did not have a ranking (NR = no ranking) were noted as generally free from excessive point or non-point pollution.

Table 2 Non-point Source Pollution DNR Watershed Rank

Watershed	Ranking
Pelican River	Medium
Noisy and Pine Creeks	High
Prairie River	Medium
Upper Eau Claire River	High
Pine Creek	Low
Wolf River – Langlade and Evergreen River	NR
Trappe River	Low
Red River	NR
Middle and South Branches Embarrass River	Medium
Springbrook Creek	High
Plover and Little Plover Rivers	Medium
Lower North Branch Oconto River	NR
South Branch Oconto River	Low
West Branch Wolf River	NR
Lily River	NR
Upper Wolf River and Post Lake	NR

Source: WDNR, Wisconsin watershed search, https://dnr.wi.gov/water/watershedSearch.aspx

The rankings are used by DNR as a basis to award nonpoint source pollution grants to local units of government for nonpoint source pollution planning and/or cost sharing of best management practices for agricultural and urban land use.

One watershed plan has been updated in the Upper Wisconsin Basin. This basin plan update synopsis is provided below:

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Watershed – Spring Brook Creek (CW21), updated in 2010.

Spring Brook Creek is the main source of surface water throughout the watershed and almost 50 percent of this creek is classified as ERW trout waters, maintaining a high water quality is very important to this valuable resource.

Between Skinner Dam and the City of Antigo, in-stream habitat is severely impacted due to heavy runoff deposits of silt due primarily to agricultural practices. In some cases in this area, Spring Brook has been altered to the point that it no longer flows in its original channel. The fairground's racetrack discharges fine clay sediment to the stream during spring runoff and summer rain events. *(NCWRPC Note: Several years ago, there was a retention pond build at the fairground to collect the runoff from the racetrack.)* Below the WWTP in Antigo, Spring Brook has exhibited higher phosphorus levels than immediately above the treatment plant. Further below the City of Antigo, Spring Brook is wide and shallow in areas due to historic and the present day practice of allowing livestock free access to the stream.

Prior to building the city of Antigo's Waste Water Treatment Plant (WWTP), Spring Brook was classified as a non-trout water below the city. Since that time, water quality in Spring Brook has improved dramatically, allowing for the reestablishment of trout in the 12 mile reach below Antigo (Class I).

However, a 2.5-mile stretch of the creek near Antigo is still non-trout water. Warmer waters due to Antigo Lake and urban runoff prevent establishment of trout in this stretch. Biotic index sampling conducted in 1987 showed very poor and good water quality conditions in Spring Brook. Spring Brook also experiences excessive growths of filamentous algae and aquatic plants downstream of Antigo WWTP, indicating nutrient problems. Monitoring in 2009 and 2010 indicated nutrient levels are elevated below the WWTP when compared to background levels upstream. This is believed to accentuate the excessive algae and macrophyte growth found downstream of the discharge. Extreme diurnal dissolved oxygen swings have been recorded downstream, all the way to the Eau Claire River. In the 1990s, the Spring Brook Priority Watershed Project led to the successful installation of numerous conservation practices throughout the watershed including: cover crops, manure storage facilities, barnyard, and grazing systems. Regardless of this work, several stretches of Spring Brook remain impaired and the watershed remains a priority for conservation work.

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Impaired Waters – 303(d) Waters

The DNR maintains a list of surface waters that do not meet specific water quality standards outlined by section 303(d) of the Clean Water Act. The DNR is required to update the list every two years. A current list of impaired waters exists on the DNR's website. The 2018 Impaired Waters in Langlade County are shown on Map 3 and in Table 3.

In 2018 there were 18 waterbodies, up from 7 in 2014, in Langlade County on the 303(d) list. The additional listed waterbodies are impaired due to a variety of causes beyond atmospheric deposition of mercury and unspecified urban runoff metals. See Table 3.

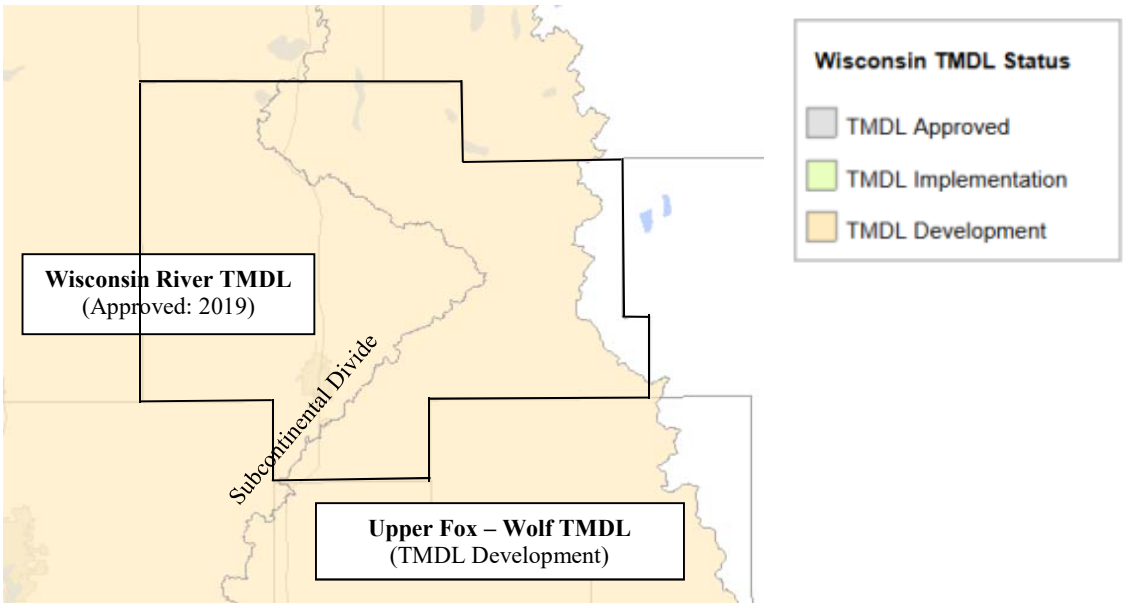
Table 3	**Impaired Waterbodies in Langlade County, 2018**		
Name	Pollutant	Impairment Indicator	Priority
Spring Brook	Unspecified metals	Chronic Aquatic Toxicity	Low
	Unknown pollutant	Degraded Biological Community	Low
	Total phosphorus	Low Dissolved Oxygen	High
	Total phosphorus	Degraded Biological Community	High
Lily River	Unknown pollutant	Elevated Water Temperature	Low
Ninemile Creek	Unknown pollutant	Elevated Water Temperature	Low
Enterprise Lake	Unknown pollutant	Excess Algal Growth	Low
Rolling Stone Lake	Unknown pollutant	Excess Algal Growth	Low
Upper Post Lake	Total phosphorus	Excess Algal Growth	Low
W. Branch Eau Claire River	Total phosphorus	Degraded Biological Community	High
Little Sand Lake	Mercury	Contaminated Fish Tissue	Low
Lower Bass Lake	Mercury	Contaminated Fish Tissue	Low
Summit Lake	Mercury	Contaminated Fish Tissue	Low
Deep Wood Lake	Mercury	Contaminated Fish Tissue	Low
Clear Lake	Mercury	Contaminated Fish Tissue	Low
Greater Bass Lake	Mercury	Contaminated Fish Tissue	Low

Source: WDNR, 2018 List.

Pollutant Sources for Table 3:
Mercury pollutant is from atmospheric deposition of mercury from coal fired power plants. The closest plant is in Rothschild.

The segment of Spring Brook that runs southwest through the City of Antigo has been on the State's 303(d) impaired waters list since 1998 for Total Phosphorus and unspecified metals. In 2014 Total Phosphorus was removed as a pollutant. Starting in 2016, and continuing in 2018, this segment was observed to have a biological impairment, in addition to unspecified metals.

Figure 2 TMDLs under development that cover Langlade County



Two TMDLs will cover most of Langlade County when their developments are completed by DNR and approved by U.S. EPA per the Clean Water Act. The Wisconsin River TMDL for phosphorus covers about the western half of Langlade County. The Upper Fox – Wolf TMDL for phosphorus and total suspended solids covers the County east of the Subcontinental Divide. Both TMDLs were initiated to limit phosphorus accumulation within the whole watersheds that are causing annual downstream algae blooms. The impaired waterbodies addressed by these TMDLs include Wisconsin's two largest inland lakes: Winnebago and Petenwell. While water quality in Langlade County is generally good, waterbodies in the county do contribute phosphorus to these downstream impaired waters. Reducing phosphorus loading to local surface waters acts not only to protect local water quality and local economies which rely on clean water, it also benefits these downstream impaired waters. See the specific pollutant load reductions for each watershed in Attachment E.

Outstanding/Exceptional Resource Waters

Wisconsin has designated many of the state's highest quality waters as Outstanding Resource Waters (ORWs) or Exceptional Resource Waters (ERWs). Waters designated as ORW or ERW are surface waters which provide outstanding recreational opportunities, support valuable fisheries and wildlife habitat, have good water quality, and are not significantly impacted by human activities. ORW and ERW status identifies waters that the State of Wisconsin has determined warrant additional protection from the effects of pollution. These designations are intended to meet federal Clean Water Act obligations requiring Wisconsin to adopt an "antidegradation" policy that is designed to prevent any lowering of water quality – especially in those waters having significant ecological or cultural value.

> Outstanding Resource Waters (ORWs) typically do not have any point sources discharging pollutants directly to the water (for instance, no industrial sources or municipal sewage treatment plants), though they may receive runoff from nonpoint sources. New discharges may be permitted only if their effluent quality is equal to or better than the background water quality of that waterway at all times—no increases of pollutant levels are allowed.
>
> Exceptional Resource Waters (ERWs) are more likely designated if a waterbody has existing point sources at the time of designation. Like ORWs, dischargers to ERW waters are required to maintain background water quality levels.

Outstanding Resource Waters in Langlade County include 2 lakes, 4 rivers and 6 creeks.

Exceptional Resource Waters in Langlade County include 7 rivers, 2 flowages, 95 creeks and 1 spring.

ORWs & ERWs are in Attachment C and on Map 3.

Invasive Species Management

Terrestrial Invasive Species

Langlade County is a partner in the Timberland Invasive Partnership (TIP), a cooperative endeavor with the Lumberjack RC&D and USDA Forest Service. This Cooperative Invasive Species Management Area (CISMA) is a partnership between Menominee, Shawano, Oconto and Langlade Counties; and the Menominee Indian Tribe of Wisconsin and Stockbridge-Munsee Community.

Aquatic Invasive Species

One threat to lake health is invasive species. Wisconsin Statute Section 23.22(1)(c) officially defines invasive species as "nonindigenous species whose introduction causes or is likely to cause economic or environmental harm or harm to human health."

In the past, Langlade, Lincoln, and Forest Counties, and Lumberjack Resource Conservation and Development have joined together to fight aquatic invasive species in this tri-county area by jointly hiring an aquatic invasive species (AIS) coordinator. It was the responsibility of the AIS coordinator to work with citizens, volunteers, county staff, DNR staff, and other AIS professionals to educate the public and control aquatic invasive species in the Tri-County area. This DNR grant funded position was not approved in the past two application cycles but the partners continue to seek sources to refill the position.

Langlade, Lincoln, and Forest Counties each have a strong volunteer citizen base that is concerned about their lakes and what aquatic invasive species can do to them. The tri-county AIS partnership can build on volunteer efforts that are already in place.

The LCD and area volunteers work together on a variety of programs, including:

- Clean Boats Clean Waters program.
  (Volunteers organize and conduct a boater education program in their community.)
- Citizen Lake Monitoring Network program.
  (Volunteers collect scientific data on a lake for the DNR.)

51 lakes and rivers in Langlade County have aquatic invasive species in them as of 2019.

Groundwater

Groundwater supplies nearly all of the water for residential, commercial, and industrial uses in Langlade County. In general, groundwater use has increased in the county as urban areas continue to grow and agricultural users install more high capacity wells. The increase in rural housing developments and a water bottling facility, each with their own private well, also places demands on groundwater.

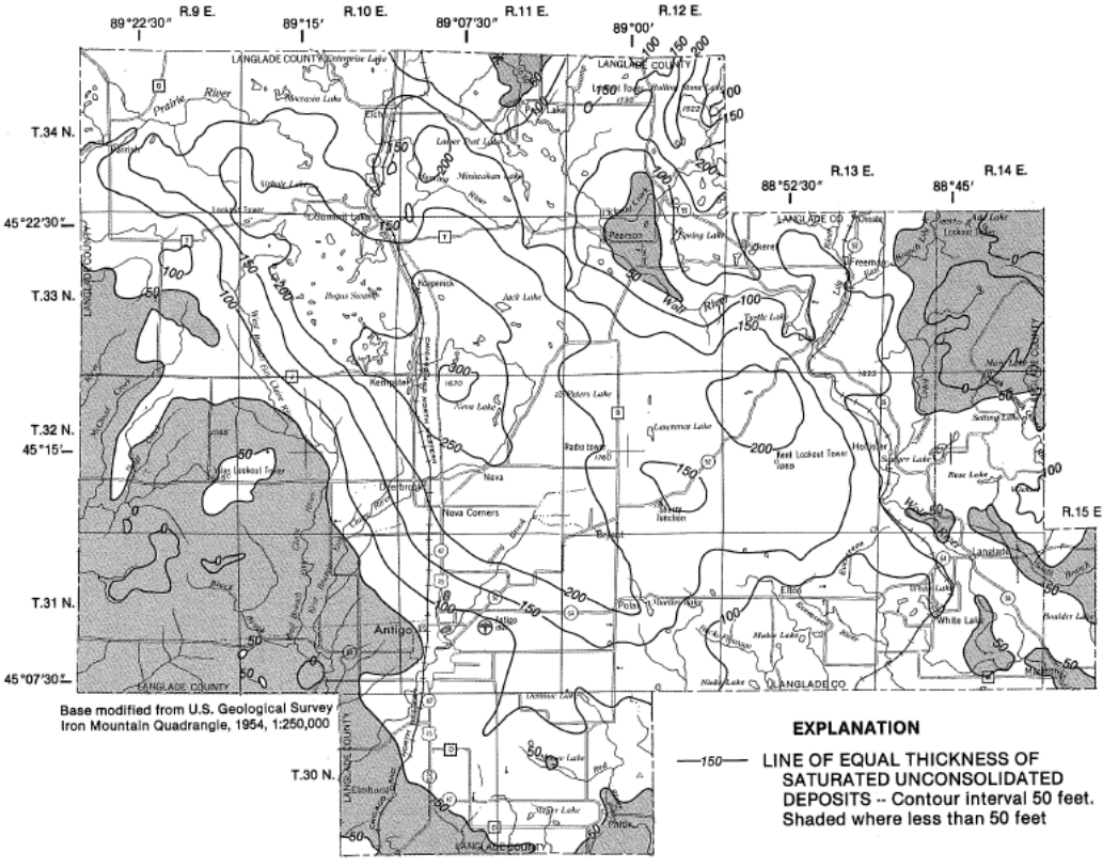
Groundwater is comprised of the portion of rainfall that does not run off to streams or rivers and that does not evaporate or transpire from plants. This water percolates down through the soil until it reaches the saturated zone of an

aquifer. The average recharge from precipitation on 1 square mile of the Antigo Flats is about 256,000 gallons per day. The groundwater generally moves southward, and the level generally rises in spring, declines in summer, rises slightly in fall, and declines in winter. Use of groundwater for irrigation has caused a measurable decline in the water level only in the immediate vicinity of the withdrawal. The depth to groundwater ranges to as much as 138 feet beneath the hills on the moraines. On the Antigo Flats, the depth to groundwater averages about 25 feet. Groundwater yields from the glacial deposits vary. Generally, the outwash yields more than the glacial till. The underlying crystalline bedrock yields little or no water. (Soil Survey)

In general, the infiltration and recharge rates in Langlade County are relatively high due to the coarse texture of surficial materials. Calculated groundwater recharge rates for the Eau Claire River basin in southwestern Langlade County and the Wolf River basin in eastern Langlade County were 6.1 inch/year and 10.8 inch/year, respectively. The lower recharge rate for the Eau Claire River basin is probably due to lower permeability and infiltration rates of the tight, finer grained Wausau and Merrill tills that cover the western part of the basin. (WGNHS)

Natural groundwater generally discharges at streams, marshes, lakes and springs or as underflow. The continued flow of perennial streams during long dry periods is caused by the natural discharge of the groundwater reservoir. Langlade County uses approximately 1.4 billion gallons of groundwater for irrigation, bottling and mining operations each year. Urban groundwater uses in the County are approaching 400 million gallons annually from the three municipal water systems combined (Antigo, White Lake and Elcho). Ensuring an adequate supply of usable groundwater is an important issue in Langlade County since water could become more difficult to obtain for everyone when the resource is more heavily used.

Figure 3 Saturated thickness of glacial deposits in Langlade County.

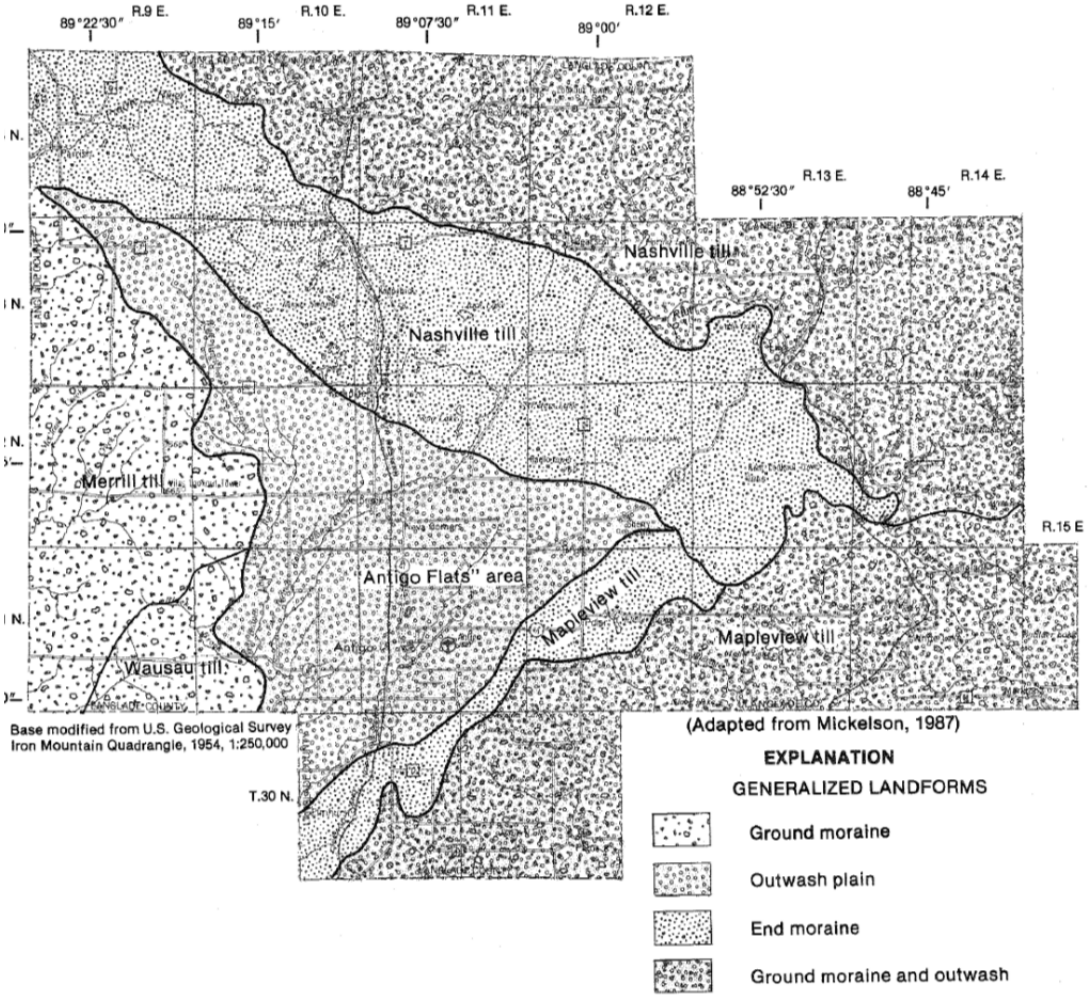


Source: WGNHS, Water Resources of Langlade County

The sand and gravel aquifer consists of saturated glacial sand and gravel. The thickness of saturated glacial deposits of sand and gravel generally ranges from 50-250 feet (see Figure 3). Areas where the saturated thickness is less than 50 feet are shaded in Figure 3. Saturated sand and gravel deposits suitable for well development are present at depths less than 150 feet throughout much of the county.

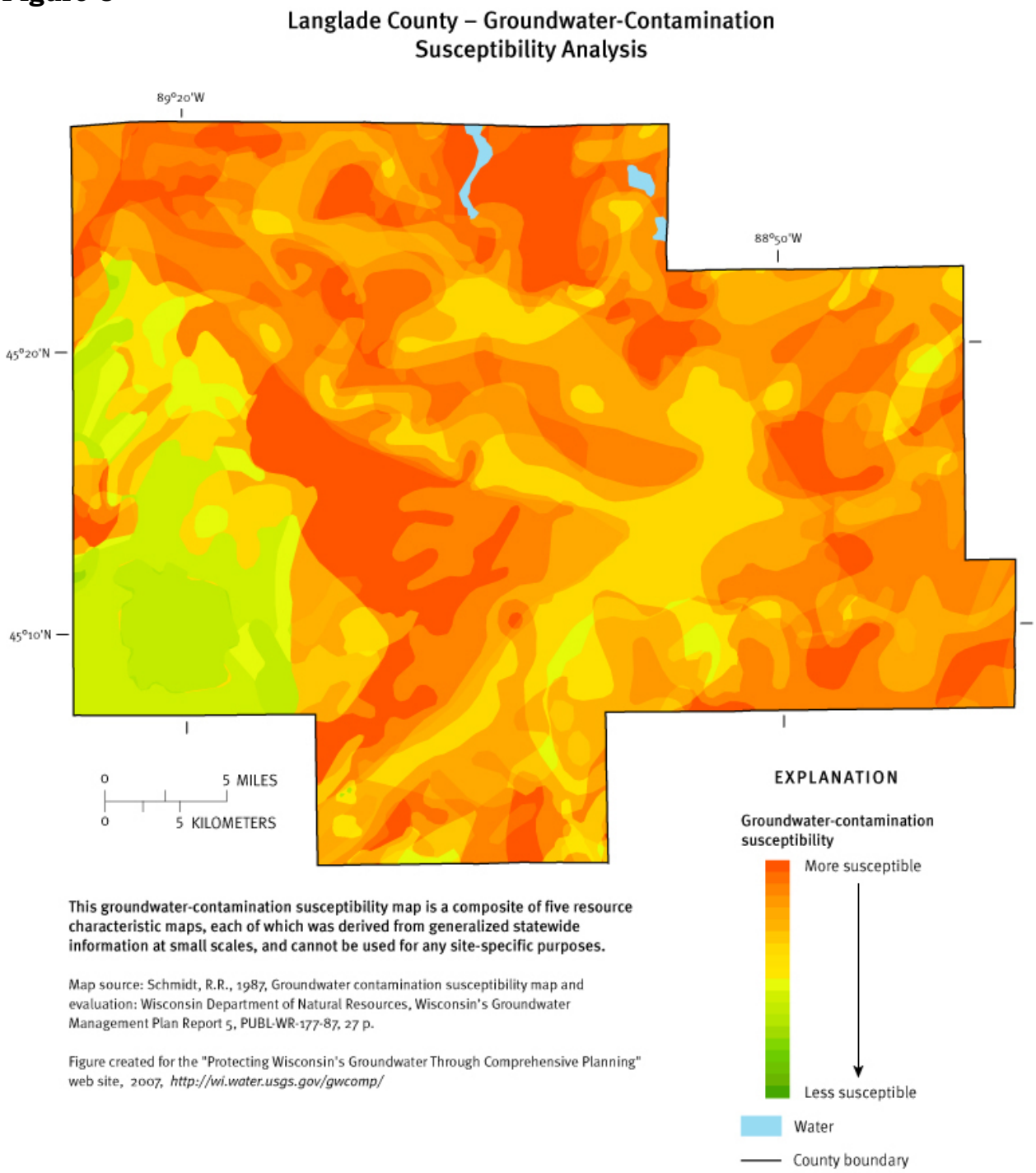
Outwash deposits are present at land surface in much of Langlade County and often extend to considerable depths. For example, in the Antigo Flats area (see Figure 4) saturated outwash deposits are more than 100 feet thick. Most land surfaces with a gentle slope and significant areal extent are underlain by such deposits. These deposits are commonly capable of sustained well yields of 400 gallons/minute or more.

Figure 4
Generalized landforms and associated glacial units in Langlade County.



Source: WGNHS, Water Resources of Langlade County

Figure 5



Source: USGS Groundwater contamination susceptibility map,
Accessed via website: Protecting WI's Groundwater Through Comprehensive Planning.

The quality of the ground water is generally very good. Many soils however have very porous layers that are poor filters for domestic waste and agricultural chemicals. See Figure 5. The impact of development and agriculture may cause deterioration of the ground water. Generally, the content of dissolved solids in the ground water is relatively low in the western half of Langlade County and relatively high in the eastern half. The higher content in the eastern part probably results from a higher content of limestone in the glacial deposits.

Groundwater quality can be impaired by a variety of pollutants including leaking underground storage tanks (LUSTs), landfills, septic tanks, over-application of pesticides and fertilizers and spills of hazardous chemicals. The most common contaminants found in Wisconsin's groundwater are pesticides, nitrates, nitrogen and volatile organic compounds (VOCs). These contaminants come from a multitude of sources including nitrogen-based fertilizers, septic systems, animal waste storage, feedlots, municipal and industrial wastewater discharges and sludge disposal. Nitrates are an issue in the southern part of the county in vegetable and potato production areas. Groundwater contaminants can affect the health of humans, livestock and wildlife. Because groundwater seeps more slowly than surface runoff, pollution that occurs today may not become evident for several years. Once polluted, the groundwater is very difficult to purify and may take many years to clean itself by the dilution process.

<u>Potential sources of groundwater contamination summary:</u>

- There are no atrazine prohibition areas in Langlade County.
- There are 10 open-status sites in Langlade County that have contaminated groundwater and/or soil. These sites consist of 2 Leaking Underground Storage Tank (LUST) sites, and 8 Environmental Repair (ERP) sites.
- There are 2 concentrated animal feeding operations in Langlade County.
- There are no open sanitary landfills in Langlade County.
- There are no Superfund sites in Langlade County.

Previous Reports Summarized

Plans that were used to make this LWRM Plan are summarized below:

Langlade County Comprehensive Plan, 2020
The comprehensive plan is a combination of nine chapters—Issues & Opportunities; Natural, Cultural, & Agricultural Resources; Housing; Transportation; Economic Development; Land Use; Utilities & Community Facilities; Intergovernmental Cooperation; and Implementation. Zoning and subdivision ordinances must be consistent with the comprehensive plan.

An extensive inventory of natural and agricultural resources exists in this plan for use in the LWRMP.

2010 Water Quality Management Plan Update for Spring Brook Watershed
This report was created by the DNR and lists priorities, goals, and the overall watershed condition for Spring Brook Creek.

Protecting Wisconsin's Groundwater Through Comprehensive Planning
USGS, UW Extension, and WDNR developed this website as an inventory of groundwater data from a variety of public sources.

NRCS Soil Survey for Langlade County, 1986
The Natural Resource Conservation Service (NRCS) is a federal agency that prepared the Langlade County, Wisconsin Soil Survey. The survey contains predictions of soil behavior for selected land uses and also highlights the limitations and hazards inherent in the county's soil. A series of detailed maps identifying the location of soil types in Langlade County accompanies the survey.

Water Resources of Langlade County, Wisconsin, 1987
The USGS in cooperation with UW Extension, WI Geological and Natural History Survey (WGNHS), and Langlade County prepared this report in 1987 just after the Soil Survey was completed.

Surface Water Resources of Langlade County, 1977
Created by the Department of Natural Resources, this report provides an inventory of our surface water resources. This inventory is an extensive survey designed to provide a summarization of the quality, quantity, and character of the surface water resources of Langlade County.

Tri County Aquatic Invasive Species Strategic Plan, 2013-2015
Langlade, Lincoln, and Forest Counties, and Lumberjack Resource Conservation and Development have joined together to fight invasive species in this tri-county area by jointly hiring an aquatic invasive species (AIS)

coordinator. It is the responsibility of the AIS coordinator to work with citizens, volunteers, county staff, DNR staff, and other AIS professionals to educate the public and control aquatic invasive species in the Tri-County area.

This plan was created by the AIS coordinator to guide proactive AIS management within the tri-county area.

PERFORMANCE STANDARDS AND PROHIBITIONS
Chapter 4

County land and water resource management plans are the local mechanism to implement performance standards and prohibitions. Through Wisconsin Act 27, the Wisconsin Legislature amended State statues to allow LCCs to develop implementation strategies for addressing local water quality priorities related to controlling erosion, sedimentation, and nonpoint source water pollution.

Agricultural Performance Standards

The Langlade County Land Conservation Department (LCD)'s inventorying of compliance with NR 151 performance standards and prohibitions will be completed as limited time and funding allow.

A voluntary educational approach will continue to be the primary method used to achieve erosion control standards in Langlade County. One-on-one contacts with landowners and operators who request technical assistance is the most common method used to promote soil conservation in Langlade County. A list of landowners willing to resolve water quality issues with cost-share projects will be maintained. The projects on the list will be evaluated on-site and ranked to determine which project has the most significant negative water quality or soil erosion impacts. High ranking projects are then the priority projects to be selected for technical assistance and cost sharing during the calendar year.

County Cost Share Program
The Langlade County Land Conservation Department (LCD) offers a cost share program for county landowners through ATCP 50 grant funding (see Attachment D). This program is used to address soil erosion or other water quality problems, but is not always sufficient to address all the needs in the county. The LCD seeks out additional funding to meet these needs on an as needed basis.

Identification of Priority Farms
ATCP 50.12(2)(f) requires Langlade County to identify farms located in the county requiring priority assistance, so Langlade County has established the following guidelines:

A ***priority farm*** is a farm that is found to be non-compliant with the state's NR 151 performance standards and prohibitions. Langlade County prioritizes these farms as follows with the highest priority listed first:

1. Farms with valid citizen complaints filed against them;

2. Farms enrolled in the Farmland Preservation Program spot checked and found to be not in compliance;
3. Farms not enrolled in Farmland Preservation Program found to be not in compliance.
4. Farms located within areas identified as high priority for DNR Non-Point Source Pollution Abatement Program (i.e., Spring Brook Watershed).

Non-Agricultural Performance Standards

Langlade County finds that construction site erosion and uncontrolled stormwater runoff from land disturbing and land development activities can have significant adverse impacts upon local water resources and the health, safety and general welfare of the community, and can diminish the public enjoyment and use of natural resources.

Non-agricultural land disturbance activities in Langlade County are regulated by the following ordinances:

- Zoning Code (Langlade County Code of Ordinances – Chapter 17)
  Administered by: Langlade County Land Records and Regulations.
  The general zoning ordinance, shoreland/wetland ordinance, floodplain ordinance and farmland preservation make up these regulations.
- Land Division Ordinance (Langlade County Code of Ordinances – Chapter 18)
  Administered by: Langlade County Land Records and Regulations.
  It regulates the creation of parcels and the division of land.
- Private Onsite Wastewater Treatment System (POWTS) (Langlade County Code of Ordinances – Chapter 15)
  Administered by: Langlade County Land Records and Regulations.
  It regulates the installation and maintenance of private onsite waste treatment systems.
- Nonmetallic Mining Reclamation Ordinance (Langlade County Code of Ordinances – Chapter 20)
  Administered by: Langlade County Land Records and Regulations.
  It regulates new and existing non-metallic mines and reclamation of mine sites.

MAJOR 2015-2019 WORK PLAN ACCOMPLISHMENTS
Chapter 5

Activities performed are listed under the following goals.

2015-2019 Work Plan Goals:

Goal 1: Protect and improve surface and groundwater quality.

- Provided cost-share dollars and technical assistance each year for installation of erosion control practices, manure storage, well decommissioning, nutrient management planning and other conservation practices.
- Promoted ground cover through implementation of cover crops while working with Antigo Flats producer group.
- Formed Grazing Network to promote managed grazing to local farmers
- Provided grazing plans for farmers to set up managed grazing operations.
- Partnered with NRCS on EQIP projects to increase effectiveness.
- Provided free, annual nutrient management training for farmers and landowners to develop their own nutrient management plans.
- Provided cost sharing for nutrient management plans.
- Revised Manure Storage Ordinance.
- Continued administration and enforcement of Manure Storage Ordinance.
- Provided lists of native plants to landowners.
- Worked with area waterway protection groups to promote shoreland buffers.
- Obtained DNR Lake Protection Grants to fund shoreland work throughout the county.
- Monitored properties with past shoreland restorations for completion.
- Created shoreland restoration plans for waterfront property owners.
- Provided technical assistance for shoreland restoration projects.
- Assisted with maintenance of shoreland restoration demonstration sites.

Goal 2: Promote Working Forests and Farms

- Promoted the Farmland Preservation Tax Credit Program.
- Assisted with the establishment of a new Agricultural Enterprise Area in Langlade County, the Evergreen/Wolf River Agricultural Enterprise Area.
- Signed new farmer agreements in the Antigo Flats and Evergreen/Wolf River Agricultural Enterprise Area.
- Added new Farmland Preservation Overlay zoning district to make 1,000s of acres of new farmland and forestland available for the Farmland Preservation Tax Credit.
- Engaged landowners in farmland preservation compliance monitoring

through annual self certifications.

- Modified Antigo Flats Agricultural Enterprise Area to include more landowners.
- Spot checked active participants in the Farmland Preservation Program.
- Developed and distributed unique identification numbers for the tracking of Farmland Preservation program participants.
- Updated the Langlade County Farmland Preservation Plan.
- Assisted landowners in applications to enter into Farmland Preservation agreements with the state.
- Held public meetings to engage the public in the Farmland Preservation program.
- Promoted Managed Forest Law programs to owners of forested lands within Langlade County.

Goal 3: Control Invasive Species

- Pursued and received grant funding to support the establishment of a full time Timberland Invasives Partnership Coordinator.
- Pursued DNR funding to support Tri-County Aquatic Invasive Species Coordinator.
- Inventoried roadways for invasive species populations.
- Co-hosted invasive species workshops for private forest landowners along with DNR, Langlade County Forestry and Kretz Lumber.
- Installed boot brushes and wader cleaners at water body access points.
- Participated in Cooperative Invasive Species Management Area steering committee.
- Employed seasonal staff to work on invasive species work.
- Hosted Clean Boats, Clean Waters workshops for area lake associations.
- Raised and released *Galerucella* beetles for purple loosestrife control.
- Attended local lakes groups and countywide waterways association meetings.
- Educated lakes groups on invasive species monitoring protocols.
- Assisted in manual removal of invasive species populations.
- Provided letters of support to local groups seeking funding to conduct their own invasive species projects.
- Held invasive species identification events.

Goal 4: Protect public health from unwanted chemical waste

- Hosted Clean Sweep Hazardous Household Waste Collection event.
- Partnered with the Health Department to hold prescription drug collection event.
- Provided information on website about proper disposal of unwanted chemical waste.

- Maintained a list of methods and locations for chemical waste and other hazardous waste disposal.

Goal 5: Develop online presence for public education

- Established new Land Conservation Department website with ability to update to reflect current information.
- Provided information regarding the Land & Water Resource Management Plan's goals and related activities.
- Provided new, useful links to land conservation related resources.

Goal 6: Improve forest silviculture for multiple uses

- Promoted forest best management practices to reduce erosion and improve habitat.
- Provided technical assistance and cost sharing for installation of forest best management practices.
- Worked with DNR to make county owned tree planter available to landowners.
- Encouraged participation in EQIP and CSP programs through NRCS.
- Offered invasive species resources for forestry to the general public.

Goal 7: Manage wildlife conflicts

- Participated in County Deer Advisory Committee to provide input on deer harvest objectives.
- Provided assistance on wildlife damage issues to agricultural producers.
- Partnered with APHIS and DNR to implement wildlife damage and abatement program.
- Promoted participation in Venison Donation Program.

Goals, Objectives, and Budget
Chapter 6

Based upon the resource concerns identified by the Resource Advisory Group, the goals and objectives were created. Goals & objectives are listed in priority order.

The LCD along with agency partners will implement the action items listed in the Work Plan as staff and funding become available.

The goals are listed below in order of priority as determined by the Langlade County Land Conservation/Solid Waste Committee in association with recommendations from the Resource Advisory Group. Goal 1 and Objective A are the highest priority, and then the next highest priorities follow down the line.

2020-2029 Goals and Objectives:

1. Protect and improve surface and groundwater.

Objectives:

A. Promote nutrient management plan development.
B. Promote rotational grazing to protect surface and ground water.
C. Increase compliance with ordinances through increased education.
D. Implement agricultural performance standards.
    - Properly manage animal waste.
    - Control soil erosion and runoff on agricultural lands.
E. Implement construction site performance standards.
    - Inform contractors, developers, and citizens about construction site erosion control.
F. Establish and protect vegetated shoreland buffers.
G. Reduce erosion caused by road stream crossings.
H. Reduce pollution from stormwater runoff in developed areas.
    - Educate the public on sources of urban pollution.
    - Establish and protect vegetated shoreland buffers.
I. Protect groundwater from contamination.

2. Mitigate invasive species impacts.

Objectives:

A. Mitigate terrestrial invasive species impacts.
B. Mitigate aquatic invasive species impacts.

3. Promote working forests and farms.

Objectives:

A. Maintain economically viable forests.
   - Promote managed forest plans.

B. Preserve productive farmland.
   - Maintain Farmland Preservation Plan (FPP).
   - Develop a plan to improve pollinator health countywide.

4. Promote stewardship of the land and water through public education.

Objectives:

A. Maintain LCD website as a one stop source of information linking to various sources.

B. Provide targeted education to school groups, farmers, landowners, and lake association/districts.

5. Protect public health from unwanted chemical waste.

Objective:

- Provide convenient ways to dispose of hazardous waste for households, businesses, farms, farm-related businesses, schools, and municipalities.

6. Improve forest silviculture for multiple uses.

Objectives:

A. Improve forest management to control sediment, erosion and protect habitat cover types.

B. Control illegal garbage dumping on commercial, county, state, and federal forestlands.

C. Reduce erosion and habitat degradation caused by trail use.

D. Control the spread of terrestrial invasive species.

7. Manage wildlife conflicts.

Objective:

A. Reduce wildlife damage to crops and livestock.

B. Provide input to DNR about hunting and harvesting goals for large game.

BUDGET ESTIMATE: An annual estimated budget for the 2020-2029 time frame is outlined here. In estimating the budget, it is presumed that the county will continue to staff the Land Conservation Department at its current level of 3 persons. It is further presumed that DATCP and WDNR will meet their financial obligations for staffing of local conservation personnel and projects.

YEAR	COUNTY	DATCP	WDNR	COST SHARE	TOTAL ESTIMATE
2020	$60,008	$90,476	$0	$87,900	$238,384
2021	$60,000	$90,000	$0	$90,000	$240,000
2022	$60,000	$90,000	$0	$90,000	$240,000
2023	$60,000	$90,000	$0	$90,000	$240,000
2024	$70,000	$100,000	$0	$95,000	$265,000
2025	$70,000	$100,000	$0	$95,000	$265,000
2026	$70,000	$100,000	$0	$95,000	$265,000
2027	$70,000	$100,000	$0	$95,000	$265,000
2028	$70,000	$100,000	$0	$95,000	$265,000
2029	$70,000	$100,000	$0	$95,000	$265,000

REGULATIONS
Chapter 7

Regulation Types

Langlade County has relied on the following State regulations for the protection of natural resources:

- Department of Natural Resources – Chapter 30, Wisconsin Statutes – Navigable Waters
- Department of Natural Resources – Wisconsin Pollution Discharge Elimination System Permits
- Department of Natural Resources – Performance Standards - Administrative Code NR 151
- Department of Natural Resources – NR 216, Stormwater Discharge Permits and Construction Site Erosion Control
- Department of Natural Resources – Chapter 29.601, Wisconsin Statutes – Noxious Substances
- Department of Agriculture, Trade, & Consumer Protection – ATCP 50, Soil and Water Resource Management Program
- Department of Natural Resource – NR115
- Wisconsin Department of Commerce- Chapter SPS 383

Local regulations used to protect natural resources in Langlade County are:

- Zoning Code (Langlade County Code of Ordinances – Chapter 17)
- Land Division Ordinance (Langlade County Code of Ordinances – Chapter 18)
- Private Onsite Wastewater Treatment System (POWTS) (Langlade County Code of Ordinances – Chapter 15)
- Nonmetallic Mining Reclamation Ordinance (Langlade County Code of Ordinances – Chapter 20)
- Manure Storage Ordinance (Langlade County Code of Ordinances – Chapter 24)
- Soil and Water Conservation Standard for the Farmland Preservation Program (Langlade County Code of Ordinances – Chapter 19)

Enforcement Process

A landowner who is out of compliance with State performance standards and prohibitions and refuses technical and financial assistance from the LCD will be notified by mail that they are subject to enforcement actions. They will receive a multi-agency communication from the LCD and DNR. A copy of the enforcement letter will be sent to DATCP. Landowners who are in violation of the Langlade County Zoning Ordinance will be referred to the Langlade County Corporation Counsel. Landowners who are in violation of the soil erosion control standards will be referred to the Department of Natural Resources.

MONITORING AND EVALUATION
Chapter 8

Introduction

This chapter addresses both water quality monitoring and briefly summarizes the plan for progress and evaluating the effectiveness of the LWRM plan.

The Langlade County LWRM plan is intended to be a working document that will be reviewed annually by the LCC and LCD to track progress in accomplishing the goals and actions of the Work Plan. Monitoring and evaluation of specific resource issues can be accomplished in many different ways. Some of the methods to track the progress of the LWRM plan are:

1. Performance Standards and Prohibitions Monitoring and Evaluation

GIS technology will be used in the future as a tool to track and monitor landowner compliance with the performance standards and prohibitions. In addition, all data regarding landowner compliance with the performance standards and prohibitions will be kept in hard copy format in the landowner file.

Spot checks are the main tool used to monitor the erosion of croplands within the county. LCD staff spot check each farm in the Farmland Preservation Program every four years.

Langlade County LCD relies on NRCS to develop conservation plans on the cropland acres of the county. A 2014 database estimates the weighted average tolerable soil loss (T) for Langlade County is 4.1 tons per acre per year.

2. Water Quality Monitoring

Currently 13 lakes are being monitored for water quality under the Citizen Lake Monitoring Network (CLMN). Volunteers are actively monitoring water clarity, phosphorus, chlorophyll, and aquatic invasive species in the Langlade County lakes. Langlade County will continue to encourage the 6 lake districts and 3 lake associations to continue participating in the CLMN program. Data from citizen water quality monitoring is housed in the DNR's Surface Water Integrated Monitoring System (SWIMS) program.

3. Phosphorus Loading

Nutrient loading can adversely affect water quality by promoting excessive plant growth. In order to reduce nutrient loading by animal waste, all projects involving newly installed barnyard systems will be evaluated to ensure compliance with the Wastewater Treatment Strip Standard, which requires phosphorus reduction. The Wastewater Treatment Strip and BARNY spreadsheets will be used to determine compliance with the standard. In addition, the citizen based water quality monitoring conducted on county lakes will be used to monitor whether improvements are being made in water quality.

4. Nutrient Management

In cooperation with DATCP, Langlade County LCD will monitor and measure nutrient management progress by tracking Nutrient Management Plan checklists for the acreage and with the planner, and by performing periodic plan review to monitor compliance with soil test levels. Farms regulated under the Langlade County Animal Waste Storage ordinance will have nutrient management spot-checks conducted to ensure their nutrient management plan is up to date and actively being used.

5. Annual Reporting/Spot checks

Langlade County LCD provides annual reports to the Langlade County Board to keep them informed about LCD soil and water resource activities. In addition, LCD also annually reports to DATCP and DNR on progress toward implementation of the performance standards and prohibitions as well as other soil and water resource activities. DATCP and NRCS also conduct annual engineering and conservation planning spot checks to ensure compliance with all applicable technical standards.

INFORMATION AND EDUCATION STRATEGY
Chapter 9

Information and education strategies are an integral part of this plan and Langlade County's conservation programs. Educational opportunities for youth and property owners are necessary to heighten awareness about protecting and enhancing the land and water resources they enjoy daily.

Many of the concerns and objectives in the Work Plan emphasize information and educational strategies needed to address resource issues. Possible educational strategies include posting information on the county website, creating new brochures, holding workshops, writing newspaper articles, participating in radio broadcasts and continuing school group and other public presentations. Examples of current educational strategies being employed include: nutrient management farmer training, tax preparer training, and collaboration with UW-Extension to host "Getting Started in Grazing" courses and a farm transition workshop. As plan implementation proceeds and as Work Plan delineated groups meet to determine how to solve a resource concern, then the LCD will further define how to create additional information and education strategies.

There are other general activities that are not listed in this Work Plan, but are regularly performed by LCD staff such as: work with area and State conservation associations to coordinate a multi-county and/or state approach to conservation programming; plan and coordinate the public information and educational programs of the LCC, such as Soil and Water Stewardship week, and recognition of outstanding conservation land managers and educators; attend and participate in Lumberjack Resource Conservation and Development (RC&D) council meetings; support and attend Timberland Invasive Partnership (TIP) meetings and participate in projects; attend and participate in North Central Land and Water Conservation Association (NCLWCA) area meetings; support and attend Langlade County Waterways Association (LCWA) meetings; attend Wisconsin Association of Lakes (WAL) State convention; and attend Wisconsin Land+Water Conservation Association (WI Land+Water) annual conference.

Technical assistance requested by local organizations, towns, other municipalities, and lake associations/districts is also provided based on staff availability.

COORDINATION
Chapter 10

Coordination

LCD staff seeks input from and works closely with a diverse group of agencies, associations, and organizations involved in resource management and protection. These agencies and groups include: United States Department of Agriculture {Farm Service Agency (FSA), Natural Resource Conservation Service (NRCS), Animal and Plant Health Inspection Service – Wildlife Services (APHIS-WS), and United States Forest Service (USFS)}, Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP), Wisconsin Department of Natural Resources (DNR) staff {such as Water Resources Management Specialists, Fisheries Biologists, Water Regulations and Zoning Specialists, Water Program Management staff, Watershed Management staff and Forestry staff}, Army Corps of Engineers, University of Wisconsin–Extension; Langlade County Forestry, Land Records & Regulations, Highway Department and Public Health.

Other organizations involved include Lumberjack Resource Conservation & Development Council (RC&D), Langlade County Lake Associations/Districts, the Langlade County Waterways Association (LCWA), Timberland Invasive Partnership (TIP), and multiple Northern Wisconsin Land and Water Departments. In addition, LCD works actively with many regional organizations promoting resource conservation at a landscape level.

Each agency, organization, association, and individual has its individual resource issues, programs, and plans; but cooperatively we can work together for the greater good of Langlade County's land and water resources.

GLOSSARY
Chapter 11

303(d) Waters – Also called **List of Impaired Waters**. This list identifies waters that are not meeting water quality standards, including both water quality criteria for specific substances or their designated uses. It is used as the basis for development of Total Maximum Daily Loads (TMDLs) under the provisions of section 303(d)(1)(C) of the Clean Water Act, U.S. Environmental Protection Agency (EPA). The EPA requires that the DNR update its list every 2 years.

Antigo Flats Agricultural Enterprise Area (AEA) – The Antigo AEA allows eligible landowners to enter into voluntary farmland preservation agreements to collect the farmland preservation tax credits. Through this designation, the community can encourage continued agricultural production and investment in the agricultural economy.

Animal Waste Management Program – This regulatory program, administered by the DNR via NR 243, seeks to identify and correct animal waste-related water quality problems.

Animal and Plant Health Inspection Service – Wildlife Services (APHIS) – Part of USDA, APHIS-WS provides assistance to manage animal damage.

Aquatic Invasive Species (AIS) – Aquatic organisms that invade ecosystems beyond their natural, historic range. Their presence may harm native ecosystems or commercial, agricultural, or recreational activities dependent on these ecosystems.

ATCP 50 – The chapter of Wisconsin's Administrative Code that implements the Land and Water Resource Management Program as described in Chapter 92 of the WI Statutes. It identifies those conservation practices that may be used to meet performance standards.

AVAIL – AVAIL is the local domestic abuse shelter that uses the electronics recycling event for revenue.

Best Management Practices (BMPs) – The most effective conservation practice or combination of conservation practices for reducing nonpoint source pollution to acceptable levels.

CAFO – A Concentrated Animal Feeding Operation (CAFO) is an animal feeding operation with 1,000 animal units or more. The DNR may designate a smaller-scale animal feeding operation (fewer than 1,000 animal units) as a CAFO if it has pollutant discharges to navigable waters or contaminates a well.

Chapter 92 – Portion of Wisconsin Statutes outlining the soil and water conservation, agricultural shoreland management, and animal waste management laws and policies of the State.

Conservation Plan – A record of decisions and intentions made by land users regarding the conservation of the soil, water and related natural resources of a particular unit of land.

Conservation Reserve Enhancement Program (CREP) – An add-on to the CRP program, which expands and builds on CRP's success in certain areas of the State.

Conservation Reserve Program (CRP) – A provision of the federal Farm Bill that takes eligible cropland out of production and puts it into grass or tree cover for 10-15 years.

Cooperator – A landowner or operator who is working with, or has signed a cooperative agreement with, a County LCC.

Co-op – This term refers to the local farm cooperatives.

County Conservationist – County Land and Water Conservation Department head, responsible for implementing programs assigned to the LCD and for supervising LCD staff.

Critical Sites – Those sites that are significant sources of nonpoint source pollution upon which best management practices shall be implemented as described in § 281.65(4)(g)8.am., WI Stats.

Crop Consultants – Independent Crop Consultants provide services to growers in integrated crop and farm management programs, working directly with farmers, and advising them in areas such as watershed management, integrated nutrient and pest management, and animal waste management. Their primary purpose is implementing scientific and technological advances to enhance environmental sustainability and profitability on clients' farms.

Department of Administration (DOA) – The State agency responsible for establishing the comprehensive planning grant program.

Department of Agriculture, Trade, and Consumer Protection (DATCP) – The State agency responsible for establishing Statewide soil and water conservation policies and administering the State's soil and water conservation programs. The DATCP administers State cost-sharing funds for a variety of LCD operations, including support for staff, materials and conservation practices. Referred to in the LWRM plan guidelines as the "department."

Department of Natural Resources (DNR) – The State agency responsible for managing State owned lands and protecting public waters. DNR also administers programs to regulate, guide and assist LCCs, LCDs and individual land users in managing land, water, fish and wildlife. The DNR administers

State cost-sharing funds for priority watershed projects, Targeted Runoff Management (TRM) grants, and Urban Nonpoint Source Construction and Planning grants.

District Conservationist (DC) – NRCS employee responsible for administering federal conservation programs at the local level.

Environmental Protection Agency (EPA) – The agency of the federal government responsible for carrying out the nation's pollution control laws. It provides technical and financial assistance to reduce and control air, water, and land pollution.

Environmental Quality Incentives Program (EQIP) – Federal program to provide technical and cost-sharing assistance to landowners for conservation practices that provide water quality protection.

Farm Service Agency (FSA) – USDA agency that administers agricultural assistance programs including price supports, production controls, and conservation cost sharing.

Farmland Preservation Program (FPP) – A DATCP land-use program under Chapter 91, Wisconsin Statutes, that helps preserve farmland through local planning and zoning, promotes soil and water conservation, and provides State tax relief to participating landowners.

Forest Industry Safety and Training Alliance Inc. (FISTA) – This group creates training opportunities for loggers.

Forestry – The Forestry, Recreation, and Parks Department of Langlade County.

Geographic Information System (GIS) – A computerized system of maps and layers of data about land including soils, land cover, topography, field boundaries, roads and streams. Such geographically based data layers improve the ability to analyze complex data for decision making.

Health – The Health Department of Langlade County.

Highway – The Highway Department of Langlade County.

HUC12 – Hydrologic unit code (HUC) consisting of several numbered digits based on the classification in the hydrologic unit system. HUC 12 is a more local sub-watershed level that captures tributary systems. This term is used in Attachment E.

Impaired Waters List – Same as the 303(d) list.

IS – Information Services Department in Langlade County.

Land and Water Conservation Board (LWCB) – This statewide board is composed of three local elected officials, four appointed by the Governor (one shall be a resident of a city with a population of 50,000 or more, one shall represent a governmental unit involved in river management, one shall be a

farmer, and one shall be a member of a charitable corporation, charitable association or charitable trust) and leaders from DNR, DATCP, and DOA. The LWCB oversees the approval of county land and water management plans (s.92.04, stats.).

Land and Water Resource Management Plan (LWRM plan) – A locally developed and implemented multi-year strategic plan with an emphasis on partnerships and program integration. The plan includes a resource assessment, identifies the applicable performance standards and related control of pollution from nonpoint sources, identifies a multi-year description of planned activities, establishes a progress tracking system, and describes an approach for coordinating information and implementation programs with other local, State and federal agencies, communities and organization (s. ATCP 50.12).

LCC (Land Conservation Committee) – The Land Conservation Committee of Langlade County is the unit of county government empowered by Chapter 92 of the Wisconsin Statutes to conserve and protect the County's soil, water and related natural resources. Referred to in the LWRM guidelines as the "committee." In Langlade County this committee is called: the **Land Conservation/Solid Waste (LC/SW) Committee**.

Land Conservation Department (LCD) – The department of Langlade County responsible for administering the conservation programs and policies of the Langlade County LC/SW Committee.

Lake Organizations (Lake) – There are two main types of lake organizations, **lake associations and lake districts**. Lake associations are voluntary groups. Lake districts are special purpose units of government. The same lake may have both a voluntary association and a public management district.

Land Records & Regulations (LRR) – The Land Records and Regulations Department of Langlade County provides zoning, sanitary, land division, and real property listing information.

List of Impaired Waters – Also called **303(d) Waters.** This list identifies waters that are not meeting water quality standards, including both water quality criteria for specific substances or the designated uses. It is used as the basis for development of Total Maximum Daily Loads (TMDLs) under the provisions of section 303(d)(1)(C) of the Clean Water Act, U.S. Environmental Protection Agency (EPA). The EPA requires that the DNR update its list every 2 years.

Natural Resources Conservation Service (NRCS) – Part of USDA, NRCS provides soil survey, conservation planning and technical assistance to local land users.

North Central Wisconsin Regional Planning Commission (NCWRPC) – A voluntary association of governments established in 1973 under Wisconsin

Statute §66.0309, to provide: economic development, geographic information systems (GIS), intergovernmental cooperation, land use, and transportation services to member communities.

Nonpoint Source Pollution (NPS) – Pollution from many small or diffuse urban and rural sources. Livestock waste finding its way into a stream and causing water pollution is an example of non-point source pollution.

Nonpoint Source Pollution Abatement Program – A DNR water quality program under Chapters 120 and 281, Wisconsin Statutes, that provides technical assistance and cost-sharing to landowners to develop and maintain management practices to prevent or reduce nonpoint source water pollution in designated watersheds.

NR 115 – DNR's administrative code that requires counties to adopt DNR's minimum shoreland zoning standards to limit the direct and cumulative impacts of shoreland development on water quality; near-shore aquatic, wetland and upland wildlife habitat; and natural scenic beauty.

NR 151 – DNR's administrative code that establishes runoff pollution performance standards for non-agricultural facilities and transportation facilities and performance standards and prohibitions for agricultural facilities and practices designed to meet water quality standards.

NR 216 – DNR's administrative code to minimize the discharge of pollutants carried by storm water runoff from certain industrial facilities, construction sites and municipal separate storm sewer systems (MS4s).

Nutrient Management Plan – The Nutrient Management Plan means any of the following: (a) A plan required under s. ATCP 50.04 (3) or 50.62 (5) (f). (b) A farm nutrient plan prepared or approved, for a landowner, by a qualified nutrient management planner.

ORW/ERW – DNR classifies streams as Outstanding Resource Waters (ORW) and Exceptional Resource Waters (ERW) as listed in NR 102.10 and NR102.11. ORW waters have excellent water quality and high-quality fisheries and do not receive wastewater discharges. ERW waters have excellent water quality and valued fisheries but may already receive wastewater discharges.

Priority Farms – Farms identified by the County for having excessive runoff from soil erosion and/or manure resulting in existing or potential water quality problems.

Resource Conservation & Development (RC&D) – Langlade County is one of 10 counties in the Lumberjack Resource Conservation & Development Council, Inc.

Revised Universal Soil Loss Equation 2 (RUSLE2) – RUSLE2 is used to evaluate potential erosion rates at specific sites as well as guide conservation and erosion control planning by USDA's NRCS.

Shall – The term "shall" in the guideline represents components of a LWRM plan that are required in law and rule.

Soil and Water Resource Management Program (SWRM) – DATCP program that provides counties with funds to hire and support Land and Water Conservation Department staff and to assist land users in implementing DATCP conservation programs (ATCP 50).

Soil Loss Tolerance ("T") – Erosion rate in tons per acre per year of soil that a field could lose and still maintain productivity.

Soil Survey – NRCS conducts the National Cooperative Soil Survey and publishes soil survey reports. Soils data is designed to evaluate the potential of the soil and management needed for maximum food and fiber production.

SSC – Site specific criteria, or site-specific water quality criteria. Water quality-based effluent limitations are routinely derived from national ambient water quality criteria for the protection of aquatic life (ALC). U.S. EPA allows ALC to be adjusted to local water conditions through site-specific water quality criteria, which are often less costly to meet than federal or state water quality standards. This term is used in Attachment E.

Spreadsheet Tool for Eliminating Pollutant Load (STEPL) – A U.S. Environmental Protection Agency tool of algorithms to calculate nutrient and sediment loads from different land uses and the load reductions that would result from the implementation of various best management practices (BMPs).

Timberland Invasive Partnership (TIP) – TIP exists to establish, promote, and implement best management practices (BMP) for invasive species management in the TIP management area. TIP is a partnership that includes Langlade, Menominee, Oconto, and Shawano Counties; and the Menominee and Stockbridge-Munsee Tribes.

Terrestrial Invasive Species (TIS) – Plants that have been moved from their native habitat to an introduced area where they are able to reproduce quickly and crowd out native species.

Total Maximum Daily Load (TMDL) – A Total Maximum Daily Load is a regulatory term in the U.S. Clean Water Act, describing a plan for restoring impaired waters that identifies the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards.

TP – Total phosphorus (TP) is a way to measure phosphorus in lakes, because it includes both ortho-phosphate and the phosphorus in plant and animal fragments suspended in lake water. This term is used in Attachment E.

Targeted Runoff Management (TRM) – The Targeted Runoff Management (TRM) Grant Program offers competitive grants for local governments for the control of pollution that comes from diffuse sources, also called "nonpoint source (NPS)" pollution.

United States Department of Agriculture (USDA) – Branch of federal government with responsibilities in the areas of food production, inspection, and storage. Agencies with resource conservation programs and responsibilities, such as FSA, NRCS, APHIS-WS, and Forest Service and others are agencies of the USDA.

Division of Extension, University of Wisconsin-Madison (Extension, or Ext) – This entity was formerly called "UW Extension." The outreach department of the University of Wisconsin–Madison responsible for formal and informal educational programs throughout the State.

Water Quality Management Area (WQMA) – The area within 1,000 feet from the ordinary high water mark of navigable waters that consist of a lake, pond or flowage, except that, for a navigable water that is a glacial pothole lake, the term means the area within 1,000 feet from the high water mark of the lake; the area within 300 feet from the ordinary high water mark of navigable waters that consist of a river or stream; and a site that is susceptible to groundwater contamination, or that has the potential to be a direct conduit for contamination to reach groundwater.

Waterways (Langlade County Waterways Association) – Langlade County Waterways Association is a volunteer group.

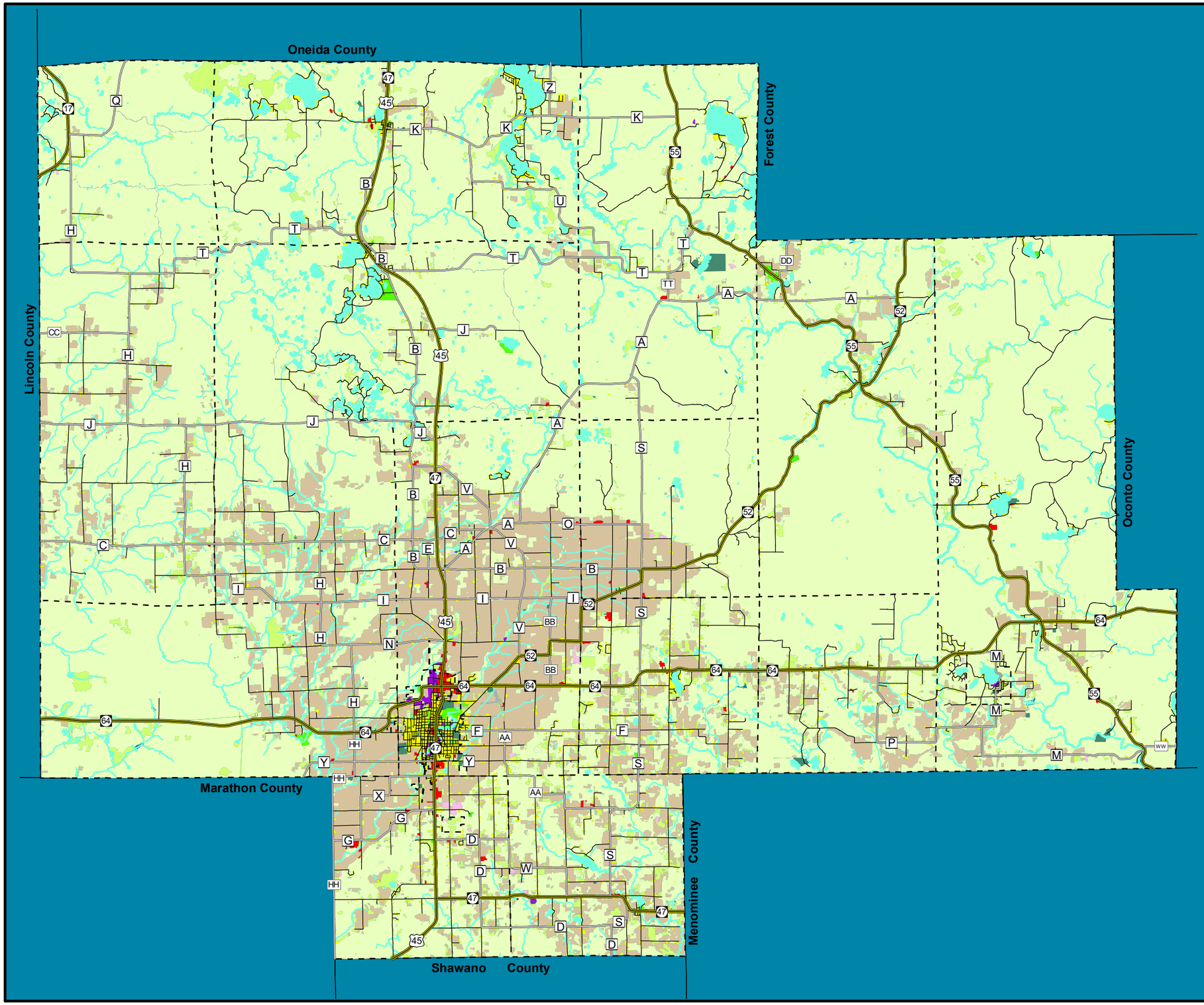
Watershed – The geographic area that drains to a particular river, stream, or water body providing its water supply.

Wetlands Reserve Program (WRP) – A provision of the federal Farm Bill that compensates landowners for voluntarily restoring and protecting wetlands on their property.

Wildlife Habitat Incentives Program (WHIP) – Federal program to help improve wildlife habitat on private lands.

Wisconsin Land+Water Conservation Association (WI Land+Water) – Membership organization that represents the State's 72 County Land and Water Conservation Committees and Departments.

Work Plan – Either an annual plan or a 5-year plan of federal/State/local agency activities based upon Advisory Group developed goals, and objectives.



Map 1

Generalized Existing Land Use

Langlade County, Wisconsin

Legend

- US & State Highways
- County Highways
- Town Boundary
- Agriculture
- Commercial
- Governmental / Institutional / Utility
- Industrial
- Residential
- Open Lands
- Outdoor Recreation
- Quarry
- Transportation
- Woodlands
- Water

SOURCE: NCWRPC, WiDNR, Langlade County

This map is neither a legally recorded map nor a survey of the actual boundary of any property depicted. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.

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North Central Wisconsin Regional Planning Commission

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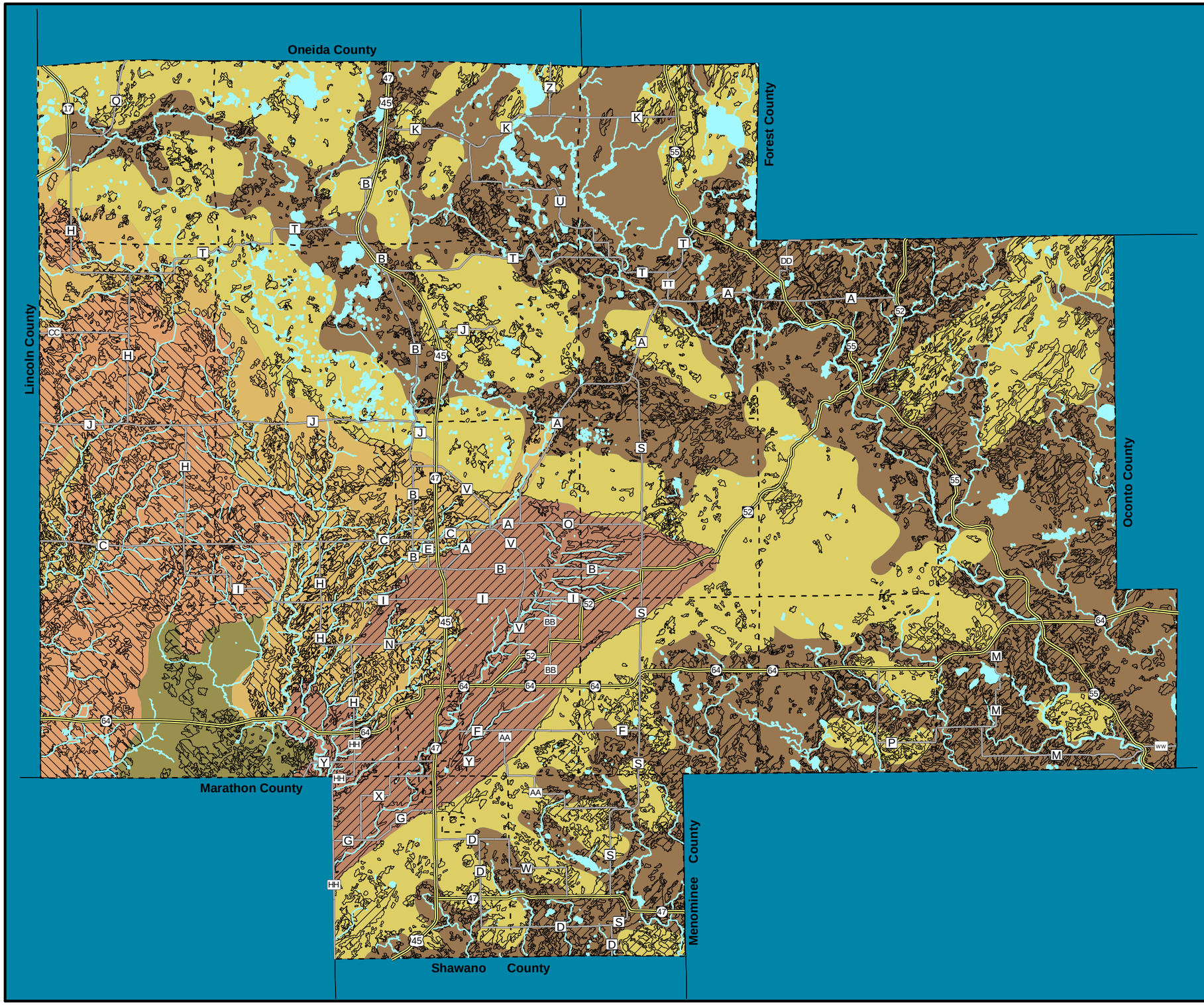
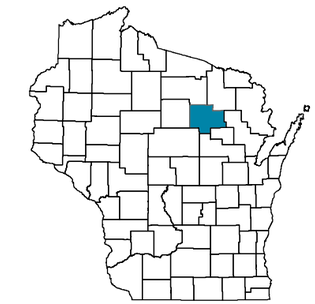


Map 2

Generalized Soils

Langlade County, Wisconsin



Legend

- US & State Highways
- County Highways
- Town Boundary
- Water
- Prime farmland > 40 acres
- Prime if drained > 40 acres
- Antigo-Langlade
- Antigo-Pence
- Kennan-Keweenaw
- Magor-Cable
- Milladore-Sherry-Mylrea
- Oesterle-Minocqua-Scott Lake

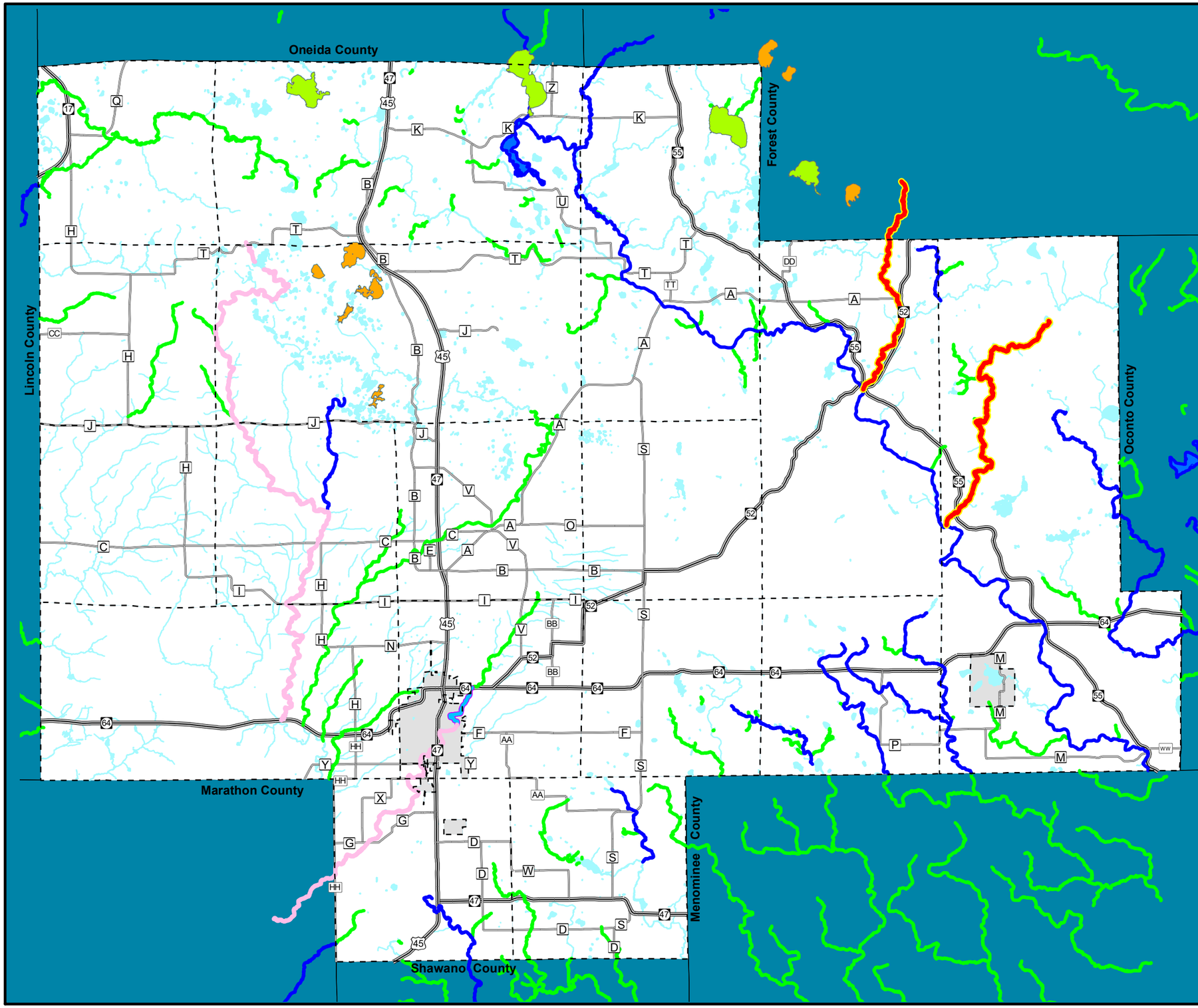
SOURCE: NCWRPC, WiDNR, Langlade County, NRCS

This map is neither a legally recorded map nor a survey of the actual boundary of any property depicted. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.

N W E S

0 2 4 6 Miles

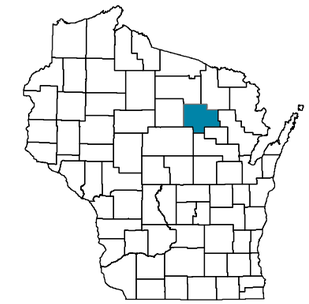
North Central Wisconsin Regional Planning Commission
NCWRPC
210 McClellan St., Suite 210, Wausau, WI 54403
715-849-5510 - staff@ncwrpc.org - www.ncwrpc.org



Map 3

Designated Waters

Langlade County, Wisconsin



Legend

- Town Boundary
- US & State Highways
- County Highways
- Water
- Outstanding Streams
- Outstanding Lakes
- Exceptional Streams
- Phosphorus Impairment
- Tempture Impairment
- Aquatic Toxicity Impairment
- Mercury Impairment
- Algal Growth Impairment

SOURCE: NCWRPC, WiDNR, Langlade County

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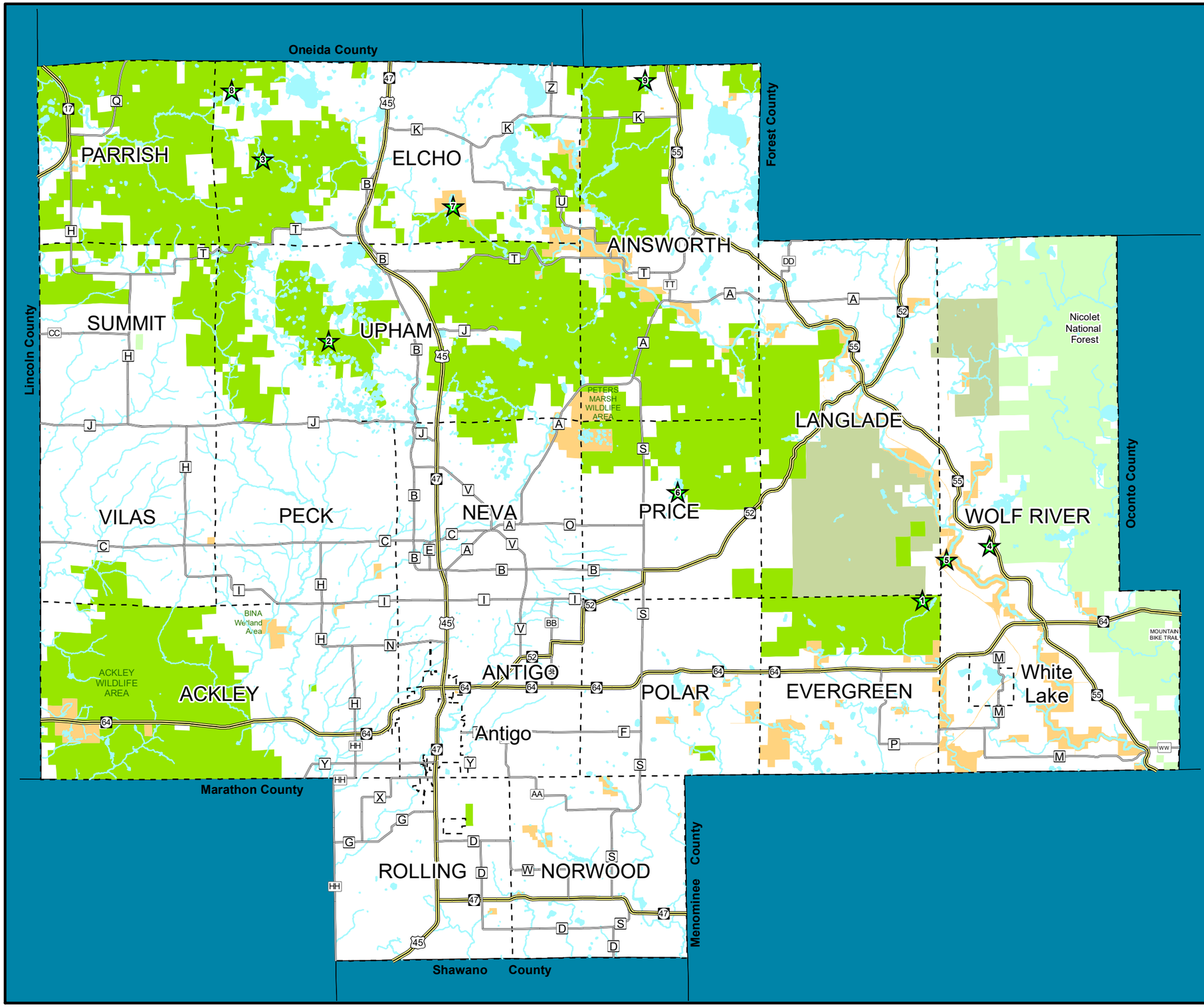
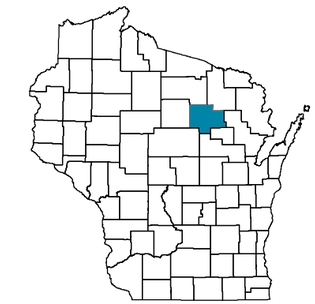


Map 4

Public Forests

Langlade County, Wisconsin



Legend

- US & State Highways
- County Highways
- Town Boundary
- Water
- County Lands
- Nicolet National Forest
- State Lands
- Forest Legacy Program
- State Natural Areas

SOURCE: NCWRPC, WiDNR, Langlade County

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0 2 4 6 Miles

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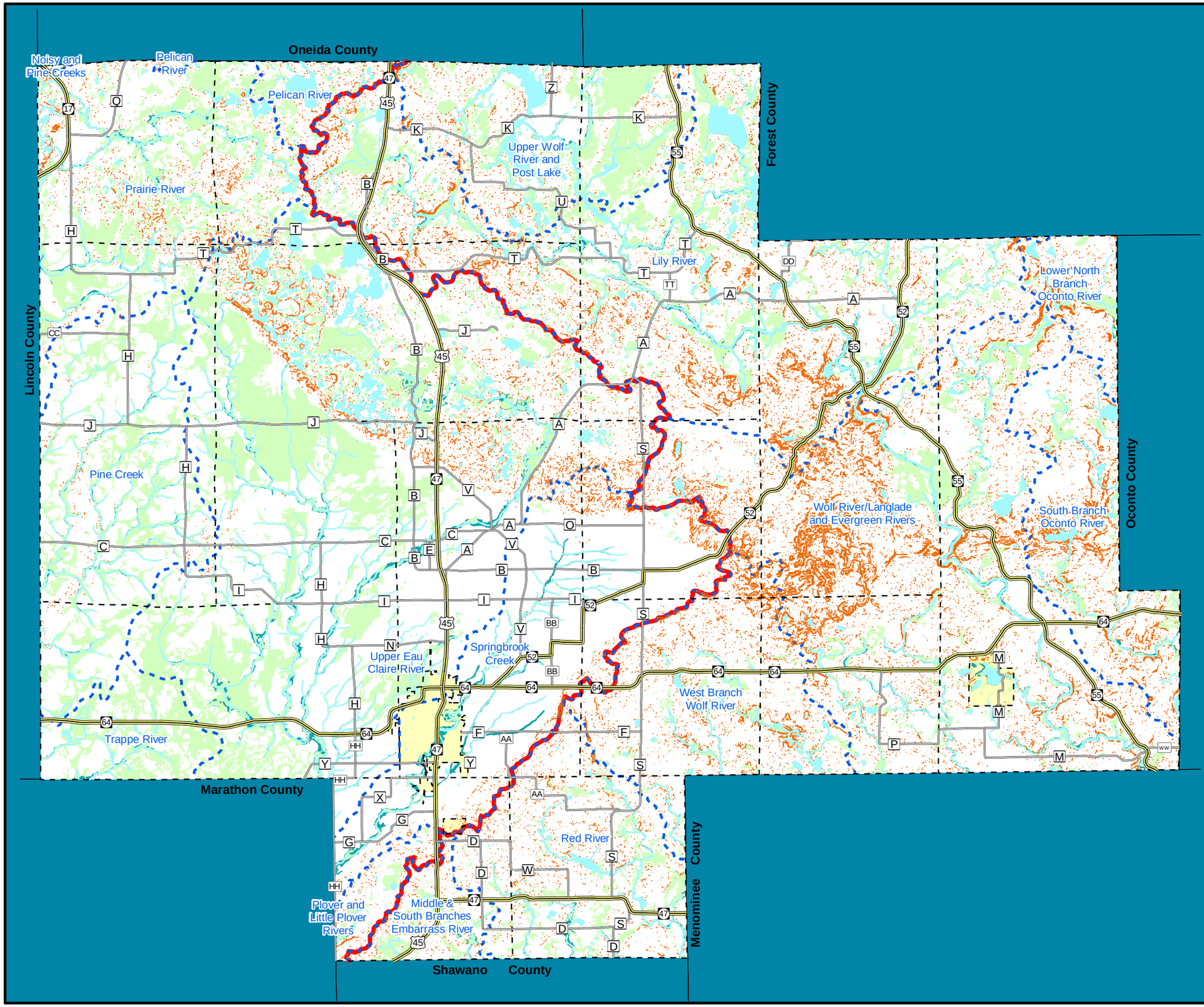
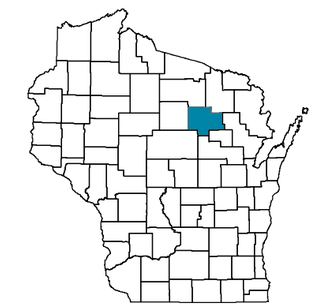
Map 5

Natural Resources

Langlade County, Wisconsin





Legend

- US & State Highways
- County Highways
- Town Boundary
- Water
- Steep Slopes
- Watersheds
- Subcontinental Divide
- Wetlands
- Flood Plain

SOURCE: NCWRPC, WiDNR, Langlade County FEMA

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0 2 4 6 Miles

North Central Wisconsin Regional Planning Commission

NCWRPC

210 McClellan St., Suite 210, Wausau, WI 54403

715-849-5510 - staff@ncwrpc.org - www.ncwrpc.org

ATTACHMENT A

Advisory Group Meeting #1
Collaboration Notes

Compiled by: Langlade County Land Conservation, and NCWRPC

RESOURCE ADVISORY GROUP MEETING
January 22, 2019 - 10:00 a.m. to Noon
MEETING #1 - WORKING GROUPS
TOTAL IN ATTENDANCE – 20 Members

Members broke into groups to begin work toward developing new or updating current goals and objectives for the New Land and Water Resource Management Plan.

Fred Heider (Observer/timekeeper)	North Central WI Regional Planning Commission

Group McKay

Molly McKay, Note taker	Langlade Co. Conservation Dept.
Joe Novak	Land Conservation Committee
JD Schroeder	Potato Farmer
Jerry Burns	Post Lake
Alan Wirt	Department of Natural Resources
Jim Klosiewski	Department of Natural Resources

Group Rantala

Erik Rantala, Note taker	Langlade Co. Forestry Recreation Parks Dept.
Alix Bjorklund	Timberland Invasives Partnership
Jamee Peters	Realtor
Joe Martell	Land Records & Regulations Dept.
Keith Lindner	Retired Forester – Interested Citizen
Dan Marzu	University of Wisconsin Extension

Group Rettinger

Lisa Rettinger, Note taker	Orchard Owner
Ron Kaas	Community Representative
Roy Gallenberg	Potato Farmer
Brian Braun	Highway Dept.
Celie Borndal	Natural Resources Conservation Service
Dave Kautza	Construction
Ron Barger	Langlade County Health Dept.

Molly McKay's Table Notes
Langlade County Land & Water Plan – Jan. 22, 2019

Issues & Concerns:

Forestry –

- Regeneration issues from high deer populations
- Using sound forestry practices (BMPs) can be used to limit water quality issues
- Invasive species control is a primary concern for forestry

Agricultural –

- Good land practices will help deal with water quality issues
- No-till practices should be promoted
- Farmer Led watershed group needs support and has the potential to be a big help
- Controlling soil erosion is the primary issue

Water –

- All of the issues we are assessing are tied to water
- Keeping nutrients out of lakes
- Groundwater issues have not been studied extensively – study is needed

Land Development –

- Limited land use regulations are making land development issues even more challenging

****

Goal 1: Protect and improve surface and groundwater.

Yes A. Control soil erosion on agricultural lands

Yes B. Promote nutrient management

Yes C. Protect groundwater from contamination

Yes D. Properly manage animal waste.

Yes E. Implement agricultural performance standards.

Yes F. Implement non-agricultural performance standards.

Yes G. Establish and protect vegetated shoreland buffers.

Yes H. Increase compliance with and education of ordinances ~~and waterway classifications.~~

Yes I. Inform contractors, developers, and citizens about construction site erosion control.

Yes J. Assist agricultural producers on proper nutrient management, conservation plan development, and agricultural best management practices (BMP's)

Yes K. Promote rotational grazing to protect surface and ground water.

Yes L. Reduce pollution from stormwater runoff in developed areas.

Yes M. Educate the public on sources of urban pollution.

\+ ADD an objective about promoting fish passage work

Goal 2: Promote Working Forests and Farms.

Yes A. Maintain economically viable forests.

Yes B. Preserve productive farmland.

Yes C. Maintain Farmland Preservation Plan (FPP).

+ADD objective related to pollinator health to maintain working farmlands here

Goal 3: Control Invasive Species.

Yes A. Control Terrestrial Invasive Species

Yes B. Control Aquatic Invasive Species

Goal 4: Protect public health from unwanted chemical waste.

Yes • Provide convenient ways to dispose of hazardous waste.

Goal 5: Develop online presence for public education. ← Make this into a more general goal re: education

- ~~Establish~~ Maintain LCD website with forms and plans on it.

\+ ADD some sort of objective related to reaching specific audiences

Goal 6: Improve forest silviculture for multiple uses.

Yes A. Improve forest management to control sediment, erosion and protect habitat cover types.

Yes B. Control illegal garbage dumping on commercial, county, state, and federal forestlands.

Yes C. Reduce erosion and habitat degradation caused by trail use.

+ ADD objective related to terrestrial invasive species

Goal 7: Manage wildlife conflicts.

Yes A. Reduce wildlife damage to crops and animals.

Yes B. Provide input to DNR & Conservation Congress about hunting and harvesting goals for large game.

+ADD objective related to participating in the County Deer Advisory Committee to set deer management goals.

****

Erik Rantala's Table Notes
Langlade County Land & Water Plan – Jan. 22, 2019

Issues & Concerns:

Forestry – Invasive species limiting regeneration of tree species.
- Deer herd also limiting regeneration of tree species.
- Funds to educate public and private land owners on invasives & deer herd.
- Langlade, being County of Trails, invasives spread on trails and roadways.

Agricultural – High capacity wells
- Nutrient runoff, till – no-till drill
- Sediment runoff
- Soil compaction

Water – Higher beaver populations, warmer water temp
(landowner engagement)
- Recreation or overuse on certain lakes
- Limiting impaired lakes
- High capacity wells
- Invasive species aquatic & terrestrial

Land Development – Political influence
- Zoning for all towns, inconsistent zoning practice
- County position on sulfide/metallic mining

****

Goal 1: Protect and improve surface and groundwater.

Yes A. Control soil erosion on agricultural lands

Yes B. Promote nutrient management

Yes C. Protect groundwater from contamination

Yes D. Properly manage animal waste.

Yes E. Implement agricultural performance standards.

Yes F. Implement non-agricultural performance standards.

Yes G. Establish and protect vegetated shoreland buffers.

Yes H. Increase compliance with and education of ordinances and waterway classifications.

Yes I. Inform contractors, developers, and citizens about construction site erosion control.

Yes J. Assist agricultural producers on proper nutrient management, conservation plan development, and agricultural best management practices (BMP's)

Yes K. Promote rotational grazing to protect surface and ground water.

Yes L. Reduce pollution from stormwater runoff in developed areas.

Yes M. Educate the public on sources of urban pollution.

Goal 2: Promote Working Forests and Farms.

All viable/healthy

A. Maintain ~~economically viable~~ forests.

B. Preserve productive farmland.

C. Maintain Farmland Preservation Plan (FPP).

Promote managed forest plans.

Goal 3: Control Invasive Species.

Yes A. Control Terrestrial Invasive Species

Yes B. Control Aquatic Invasive Species

Ran out of time. **********

Goal 4: Protect public health from unwanted chemical waste.

- Provide convenient ways to dispose of hazardous waste.

Goal 5: Develop online presence for public education.

- Establish LCD website with forms and plans on it.

Goal 6: Improve forest silviculture for multiple uses.

A. Improve forest management to control sediment, erosion and protect habitat cover types.

B. Control illegal garbage dumping on commercial, county, state, and federal forestlands.

C. Reduce erosion and habitat degradation caused by trail use.

Goal 7: Manage wildlife conflicts.

A. Reduce wildlife damage to crops and animals.

B Provide input to DNR & Conservation Congress about hunting and harvesting goals for large game.

****

Lisa Rettinger's Table Notes
Langlade County Land & Water Plan – Jan. 22, 2019

Issues & Concerns:

Forestry – Invasive species: - affecting timber sales & recreational opportunities
- includes animals, earthworm, browsing, reducing regrowth
- spreading through manure

Ag – CAFOs

Water – Sulfide mining concern that is not on the radar.
Water flowing south from Oneida & Forest counties, land values, safe drinking water, infrastructure, treatment plant updates.

Land Development – Sulfide mining.
Preservation of farmland: use marginal ag land for residential development as opposed to good tillable land (conservation subdivisions).

Trends:

Forestry – Increasing invasives, county always looking for timber or rec land to purchase, more private land owners getting out of MFL.

Ag – diversification, cover crops, grazing of small producers

Water – greater increase in irrigation

Land Development – seeing more retirement homes and lake development

****

ATTACHMENT B

Public Hearing Notice

From: Langlade County Land & Water Conservation

LANGLADE COUNTY LAND CONSERVATION DEPARTMENT
837 Clermont Street, Antigo WI 54409-1948
(715)627-6292 Fax (715)627-6281

Langlade County
Land Conservation Committee
Public Hearing Notice

NOTICE IS HEREBY GIVEN that the Langlade County Land Conservation Committee will hold a public hearing on July 1, 2019 beginning at 9:00 AM. in the Wolf River Room, Langlade County Resource Center, 837 Clermont Street, Antigo Wisconsin. The hearing concerns the Langlade County Land and Water Resource Management Plan 2020-2029. This plan is a guide for the integration of land and water resource management programs in Langlade County. Written and oral comments on the draft plan will be taken at that time.

Langlade County supports a locally led process that enhances decision-making during their current revision of the 2020-2029 Land and Water Resource Management Plan. Copies of the draft plan are available upon request at the Langlade County Land Conservation Department, 837 Clermont Street, Antigo during regular business hours. The plan is available online at: http://www.ncwrpc.org/langlade/lwrmp/.

All interested persons are invited to attend said hearing and be heard. Written comments may be sent to: Molly McKay, Conservationist, 837 Clermont Street, Antigo, WI, 54409.

For additional information regarding this public hearing, please contact Molly McKay at the Langlade County Land Conservation Department (715)627-6292. All interested parties will be heard.

David Solin, Chair
Land Conservation Committee

Dated this 13th day of June, 2019 at Antigo, Wisconsin

ATTACHMENT C

Outstanding and Exceptional Resource Waters

From: WDNR

LANGLADE COUNTY

Waterbody Name	Portion Within ORW/ERW Classification	Status
Clearwater Creek	All	ORW
Drew Creek	All	ORW
Elton Creek	All	ORW
Evergreen River	All	ORW
Little Evergreen Creek	All	ORW
Lower Post Lake	All	ORW
Mayking Creek	All	ORW
Michelson Creek	All	ORW
Mid Branch Embarrass River	All	ORW
Upper Post Lake	All	ORW
S Branch Oconto River	All	ORW
Wolf River	Upstream of the northern Menominee County line	ORW
Creek 1-7 T33N R11E	All	ERW
Creek 1-7b T32N R11E	All	ERW
Creek 1-7c T32N R11E	All	ERW
Creek 11-15 T31N R13E	All	ERW
Creek 11-2a T32N R11E	All	ERW
Creek 11-2b T32N R11E	All	ERW
Creek 11-2c T32N R11E	All	ERW
Creek 11-4 T34N R12E	All	ERW
Creek 11-8 T34N R12E	All	ERW
Creek 11-9 T30N R12E	All	ERW
Creek 12-1 T30N R12E	All	ERW
Creek 12-13 T32N R14E	All	ERW
Creek 12-16 T32N R13E	All	ERW
Creek 12-9 T34N R12E	All	ERW
Creek 13-16 T33N R12E	All	ERW
Creek 13-6 T31N R13E	All	ERW
Creek 14-2 T34N R10E	All	ERW
Creek 15-16b T33N R12E	All	ERW
Creek 15-16d T33N R12E	All	ERW
Creek 16-10 T30N R12E	All	ERW
Creek 16-12 T30N R12E	All	ERW
Creek 16-3 T34N R9E	All	ERW
Creek 16-7 T34N R11E	All	ERW
Creek 16-9b T30N R12E	All	ERW
Creek 16-9c T30N R12E	All	ERW
Creek 16-9d T30N R12E	All	ERW
Creek 18-11 T33N R13E	All	ERW
Creek 18-9 T33N R12E	All	ERW
Creek 19-11 T34N R9E	All	ERW
Creek 2-16a T32N R11E	All	ERW
Creek 2-16c T32N R11E	All	ERW
Creek 20-5 T34N R10E	All	ERW
Creek 21-16 T31N R13E	All	ERW
Creek 21-8 T34N R11E	All	ERW

LANGLADE COUNTY cont'd

Waterbody Name	Portion Within ORW/ERW Classification	Status
Creek 22-13 T31N R12E	All	ERW
Creek 22-8 T34N R11E	All	ERW
Creek 23-11 T30N R12E	All	ERW
Creek 23-7 T34N R10E	All	ERW
Creek 24-1 T33N R9E	All	ERW
Creek 24-1a T33N R12E	All	ERW
Creek 24-7 T34N R10E	All	ERW
Creek 25-1 T31N R12E	All	ERW
Creek 25-2 T31N R12E	All	ERW
Creek 26-10 T34N R11E	All	ERW
Creek 26-8 T31N R12E	All	ERW
Creek 26-9 T34N R11E	All	ERW
Creek 27-16 T31N R12E	All	ERW
Creek 27-9 T31N R10E	All	ERW
Creek 28-12 T31N R14E	All	ERW
Creek 28-9 T31N R13E	All	ERW
Creek 29-10 T31N R13E	All	ERW
Creek 29-11 T31N R13E	All	ERW
Creek 29-16 T34N R11E	All	ERW
Creek 29-9 T31N R13E	All	ERW
Creek 29-9 T33N R14E	All	ERW
Creek 3-6 T33N R11E	All	ERW
Creek 30-13 T33N R14E	All	ERW
Creek 30-16 T33N R14E	All	ERW
Creek 30-5 T31N R14E	All	ERW
Creek 30-6 T34N R11E	All	ERW
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Creek 31-2 T34N R12E	All	ERW
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Creek 31-4ad T34N R11E	All	ERW
Creek 32-6 T31N R13E	All	ERW
Creek 32-6 T34N R11E	All	ERW
Creek 33-7 T30N R11E	All	ERW
Creek 34-15 T30N R12E	All	ERW
Creek 35-2 T30N R11E	All	ERW
Creek 35-4 T32N R10E	All	ERW
Creek 5-6 T32N R14E	All	ERW
Creek 5-7 T32N R14E	All	ERW
Creek 6-10 T31N R15E	All	ERW
Creek 6-8 T34N R11E	All	ERW
Creek 7-6 T33N R14E	All	ERW
Creek 8-1 T31N R15E	All	ERW
Creek 9-10 T34N R11E	All	ERW
Creek 9-11 T34N R11E	All	ERW
Dalton Creek	All	ERW
Demlow Springs	All	ERW
Demster Creek	All	ERW
E Branch Eau Claire River	From STH 64 upstream to firelane crossing in T33N R11E S35 SW 1/4	ERW

LANGLADE COUNTY cont'd

Waterbody Name	Portion Within ORW/ERW Classification	Status
Garski Flowage	All	ERW
Getchell Creek	All	ERW
Hansen Creek	All	ERW
Hunting River	From Fitzgerald Dam Road downstream to T33N R11E S1	ERW
Little West Branch Wolf River	All	ERW
Markgraf Creek	All	ERW
McCloud Creek	Above Hwy H	ERW
McGee Creek	All	ERW
Mondl Creek	All	ERW
Oldens Creek	All	ERW
Plover River	All	ERW
Prairie River	All	ERW
Rabes Creek	All	ERW
Rasmussen Creek	All	ERW
Silver Creek	All	ERW
Spring Brook	Above Antigo	ERW
Spring Brook	Downstream from CTH Y south of Antigo to the Marathon County line	ERW
Spring Creek	All	ERW
Squaw Creek	All	ERW
Stevens Creek (S16 T34N R9E)	All	ERW
Stevens Creek (S8 T33N R12E)	All	ERW
Thompson Creek	All	ERW
W Branch Red River	All	ERW
Woods Flowage	All	ERW

ATTACHMENT D

Conservation Practices

Compiled by: Langlade County Land & Water Conservation

SECTION 2.2

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.

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)		

ATTACHMENT E

Pollutant Load Reduction Tables

Compiled by: WDNR

Wisconsin River TMDL		Row Crop Acres	Translated TMDL Allocations				
				Current Criteria		Recommended SSC	
HUC12	HUC12 Name		TP Baseline (lb/ac/yr)	Reduction Needed	TP Target (lb/ac/yr)	Reduction Needed	TP Target (lb/ac/yr)
070700010702	Upper Pelican River	0	-	-	-	-	-
070700011301	Noisy Creek	0	-	-	-	-	-
070700011304	Big Pine Creek	0	-	-	-	-	-
070700020301	Upper Prairie River	0	-	-	-	-	-
070700020303	Big Hay Meadow Creek	300	3	79%	0.6	63%	1.1
070700020304	Middle Prairie River	2	2.8	79%	0.6	63%	1.0
070700020501	Upper Pine River	1,707	2.7	79%	0.5	63%	1.0
070700020502	North Branch of the Pine River	455	3.5	79%	0.7	63%	1.3
070700020503	Middle Pine River	38	3.5	79%	0.7	63%	1.3
070700020601	Prospect Creek-Trappe River	10	2.8	79%	0.6	63%	1.0
070700021101	Peters and Lawrence Lakes-Non-Contributing-Spring	200	2.9	79%	0.6	63%	1.1
070700021102	City of Antigo-Spring Brook	14,819	2.4	79%	0.5	63%	0.9
070700021103	Elmwood Cemetary-Spring Brook	9,671	2.3	79%	0.5	63%	0.9
070700021201	Bogus Swamp-East Fork of the Eau Claire River	418	5	79%	1.0	63%	1.8
070700021202	Black Brook	2,217	2.9	79%	0.6	63%	1.1
070700021203	Antigo Flats-East Branch of the Eau Claire Rivers	6,664	2.5	79%	0.5	63%	0.9
070700021204	West Branch of the Eau Claire River	4,418	2.8	79%	0.6	63%	1.0
070700021205	Oldens Creek-Eau Claire River	11,629	2.4	79%	0.5	63%	0.9
070700030101	Headwaters of the Plover River	531	2.1	79%	0.4	63%	0.8

Upper Fox - Wolf TMDL			Translated TMDL Allocations					
			TP (Total Phosphorus)			TSS (Total Suspended Solids)		
HUC12	HUC12 Name	Row Crop Acres	TP Baseline (lb/ac/yr)	Reduction Needed	TP Target (lb/ac/yr)	TP Baseline (tons/ac/yr)	Reduction Needed	TP Target (tons/ac/yr)
040302020103	Upper Post Lake-Wolf River	331	3.18	34%	2.09	2.00	35%	1.30
040302020105	Squaw Creek-Swamp Creek	83	1.90	83%	0.33	1.45	35%	0.94
040302020106	Spider Creek-Wolf River	558	1.66	83%	0.29	1.71	35%	1.10
040302020201	Pickerel Creek	127	1.74	83%	0.30	1.18	35%	0.76
040302020202	Hunting River	698	4.20	83%	0.73	2.21	35%	1.43
040302020204	Bog Brook-Lily River	-	-	-	-	-	-	-
040302020205	East Branch of the Lily River	471	3.06	83%	0.52	2.15	35%	1.39
040302020206	Squaw Creek-Wolf River	1,016	3.04	83%	0.52	1.60	35%	1.03
040302020301	Ninemile Creek	175	2.20	83%	0.37	1.44	35%	0.93
040302020302	Slough Gundy Rapids-Wolf River	746	3.32	83%	0.56	1.87	35%	1.21
040302020303	Elton Creek- Evergreen River	2,732	4.58	83%	0.78	2.72	35%	1.76
040302020304	McCall Creek-Evergreen River	69	2.47	83%	0.42	1.94	35%	1.25
040302020305	White Lake Creek-Wolf River	1,877	6.32	83%	1.07	3.93	35%	2.53
040302020401	Little West Branch of the Wolf River	3,681	5.61	83%	0.95	3.43	35%	2.21
040302020402	Elma Creek- West Branch of the Wolf River	1,393	5.89	83%	1.00	3.49	35%	2.25
040302020501	Mattoon Creek-West Branch of the Red River	2,993	4.91	83%	0.83	3.25	35%	2.10
040302020503	Moose Lake-Red River	3,944	5.32	83%	0.90	3.21	35%	2.07
040302021004	Elmhurst-Middle Branch of the Embarrass Rive	593	2.42	83%	0.41	1.66	35%	1.07

ATTACHMENT F

Public Hearing Comments

Compiled by: Langlade County Conservation Department

Langlade County Land Conservation & Solid Waste Committee

Members: David Solin (Chair), Reinhardt Balcerzak, Roger Buck, Carol Feller-Gottard, Joseph Novak III

Public Hearing: July 1, 2019 @ 9:00 AM

Subject: Langlade County Land and Water Resource Management Plan 2020-2029 (LWRM draft)

Written & Oral Comments Submitted by: Ron Kaas of 634 School Street, White Lake, WI 54491
(16 pages total)

Thank you for welcoming comments on the LWRM today. As a resident of Langlade County I wish to submit the following written comments to supplement the oral comments I am presenting today.

I participated in both of the Resource Advisory Group meetings: January 22, 2019 & March 11, 2019. At these meetings the topics I am discussing today were highlighted by me and other member participants. I provided written documents that were distributed to Resource Advisory Group members, including Supervisor Novak. The topics of Metallic Sulfide Mining, CAFO's, and Liquid Manure Transport and Application by Truck were prioritized by me and other participants.

The accompanying pages are organized by topic with supporting documentation. My suggestion is that these topics be included in the LWRM plan. Currently they are not a part of what is intended to be a comprehensive ten-year plan to manage and protect the land and water resources of Langlade County.

In addition to the following suggestions, I also request that the Langlade County Board create a Local Mining Oversight & Impact Committee (LMOIC) in accordance with WI Stats. SS 293.33. The LMOIC membership should include County Board Members and at least eight (8) members from the community. The creation of this committee would proactively serve Langlade County. The timeline for permit approval of mining projects is very short (only 30 to 45 days). In the event a mining applicant was to make a permit request, there would not be realistic time to establish an oversight and impact committee in such an expedited time frame. This would serve to help protect the economical and environmental interests of County Residents.
(*This same request was made in June & July of 2018 to members of the County Board. See related minutes.*)

Suggested topics for inclusion in the Langlade County LWRM 2020-2029 Plan

Metallic Mining: Currently the LWRM plan does not mention Metallic Mining. The current Langlade County Zoning Ordinance on Metallic Mining does not address or protect the environmental impacts within the county. This topic has major consequences should such operations occur within Langlade County or in one of our neighboring counties.

These additions are important because there is a belief by many that modern technology has made metallic mining safe for the environment. This is not accurate. Modern mining technology is instead making it easier to mine lower-grade ores, which results in larger amounts of reactive wastes requiring permanent safe disposal.

The Ladysmith mine is often showcased as a successful metallic mine that did not harm the nearby groundwater. This is not accurate. The Ladysmith mine continues to leak reactive sulfuric acid which is detected at nearby monitoring sites. The Ladysmith mine was an extremely small mine site, and therefore the copper-sulfide ore was hauled off-site for processing. There was no on-site storage of the mine tailings. Therefore this is not a representative example.

The Eagle Mine in the UP is also showcased as an example of a model metallic mine without a single environmental mishap. Also not accurate. The State of Michigan advises that the mine has exceeded wastewater chronic toxicity limits multiple times since 2017. The mine recently caused a chemical spill of sulfuric acid at the processing plant.

There has never been a successful, environmentally safe metallic sulfide mine operation in the US. Metallic sulfide mining represents a clear and present danger to our wetlands and surface water, and because of this it deserves adequate description in this LWRM plan.

Watersheds and Waterbodies &

CAFOs – Confined Animal Feeding Operations & Liquid Manure Transportation/Application: All County Residents are aware of the impact this has made in recent years. The County is experiencing a 200% increase in impaired waters in just a few years time. The heavy truck traffic is causing premature road damage that the County Taxpayers are financially responsible for. Currently there is no mention of these topics in the LWRM. The topic deserves adequate recognition.

Climate Change, Invasive Species, Insect Decline, Sensitive and Rare Natural Communities, State Natural Areas, Wildlife, Forestry, and Terrestrial Invasive Species: Many of these topics are not mentioned in the LWRM plan. The 113 page Oneida County 2020-2029 LWRM prepared by North Central Wisconsin Regional Planning Commission does a more comprehensive job of detailing the concerns and assets related to these topics. The attached pages demonstrate suggested additions to the Langlade County LWRM.

Special Resource Concerns: The last page of these suggested additions includes an example from the Oneida County LWRM. The major goals for the county are supported by further detailed bullet points. It would serve the Langlade County LWRM plan well to include the topics of Metallic Mining, CAFO's, Manure Transport and Application, and Climate Change, etc. and follow this format.

Thank you for allowing me to make these suggestions.

Metallic Mining

(pages 3 to 5 with two maps and one list attached)

Special Concerns to Langlade County

With regard to Metallic Sulfide Mining in Langlade County, the Department of Agriculture, Trade and Consumer Protection (DATPC) has the primary responsibility to set state conservation policy. The Wisconsin Land and Water Board (LWCD) establishes and oversee goals and objectives that protect water, land, air, and quality of life for Langlade County to the fullest extent provided under law.

Metallic Mining

Langlade County is located in the Penokean Volcanic Belt and surrounded by a multitude of Metallic Sulfide Deposits. Just as Langlade County shares impaired 303d listed waters with Oneida, Forest and Marathon Counties that flow through our neighbor to neighbor boundaries, we also share known Metallic Sulfide Deposits with our neighbors. Numerous sources and websites detail the location of these deposits such as: www.us-mining.com , www.thediggings.com , the Wisconsin DNR, and the Wisconsin Geological and Natural History Survey.

Langlade County and Oneida County share the Pelican River deposit, the Wolf River deposit, and the Stockley Creek deposit. These deposits are known to contain Copper, Zinc, Silver and Nickel. Of special concern is the Wolf River deposit that straddles the Wolf River in Oneida County Forest land. The Wolf River does not have Outstanding or Exceptional Resource Water designation where the deposit is located. In 2018 Oneida County approved mining on county forest land. Since the deposit is located on county forest land, and the Wolf River does not have protected designation, which means that the Wolf River everywhere downstream is highly vulnerable to the devastating effects of metallic sulfide mining.

Just to the southeast of Antigo is the Reef gold deposit in Marathon County. This deposit is located on the bank of the Eau Claire River. The mineral rights for this deposit are owned by the same company that is developing the Back-Forty Project near Menominee Michigan. If that project gets started, the companies own literature states that they will develop the Reef location and transport pulverized metallic sulfides to the Michigan site. That means transporting talcum powder like dry sulfuric acid across the entire length of Langlade County. 2017 Wisconsin ACT 134 is used as a foil for Langlade County from possibly imposing any ordinances to protect Langlade County from surface and groundwater harm or chemical waste health harm. Protections from these sources are top concerns of the Langlade County LWRM plan.

Neighboring Forest County has metallic sulfide deposits around the Crandon deposit. Lincoln County has the Horseshoe Zinc, Lead, Copper, and Gold deposit. Oneida County has the Lynne Deposit of Zinc, Lead, Silver, Gold and Copper. According to www.us-mining.com there is a copper deposit in White Lake on the shore of the Wolf River. Aircraft are flying over Lincoln County and mapping out the locations of magnetic anomaly caused by Metallic Sulfide Deposits. If Upper Michigan gets a processing plant, all of these known deposits become economically viable for development. There are likely more deposits that have either been un-discovered or go un-disclosed.

Pollution does not stop at any county line. Langlade County protections – or lack of protections – have consequences to our neighbors to the south: Menominee, Shawano, and Marathon Counties. Langlade County is affected by the protections – or lack of protections – from our neighbors to the north: Oneida, Forest, and Lincoln Counties. Just as we want our neighbors to have adequate protections in place to protect the source of our water, our neighbors expect Langlade County to have protections in place that protect the source of their water. We have an obligation to be good stewards of the water that has its source, or passes through, Langlade County.

Consider how much we all depend on the Wolf River basin. The Wolf River basin lies in northern and central Wisconsin and drains 3,690 square miles. It includes all of Waupaca County and parts of Forest, Langlade, Marathon, Menominee, Oneida, Outagamie, Portage, Shawano, Waupaca, Waushara and Winnebago Counties. Almost the entire 233,384-acre

Menominee Indian Reservation (Menominee County) is within the basin. A portion of the 655,000-acre Nicolet National Forest extends into the northern part.

Source: https://dnr.wi.gov/topic/watersheds/basins/wolf/

Langlade County Residents do not want our neighbors up-stream - *to the north* - to do a slack job by disregarding damaging activities to the water in the region. Langlade Counties' neighbors downstream - *to the south* - do not want Langlade County to do a slack job of disregarding the duty to avoid damaging activities that will harm their water.

Metallic Mining Activities

Introduction Activities and processes that occur at metallic mining sites have the potential to affect the quantity and quality of groundwater surrounding the project area. At most surface or underground mines, groundwater will flow into excavated areas and must then be pumped out in order to dewater places where mining activities are intended to take place. Depending on the site's local hydrology, mining activities may affect groundwater quantity by lowering the water table elevation, which in turn may impact nearby lake levels and base flow in streams. Additionally, groundwater quality may be affected by the handling, storage, and disposal of mining wastes; the mine excavation itself; the water-table drawdown; the wastewater discharge; and the storage and handling of chemicals, reagents, and fuels at the mine site. (WDNR)

As explicitly stated in Wisconsin's mining laws and regulations, the contamination of groundwater quality must be prevented through compliance with strict performance based standards. (WDNR)

While there have been improvements to mining practices, significant environmental risks remain. Water pollution from mine waste rock (tailings) may need to be managed for decades after closure. These impacts depend on a variety of factors, such as the susceptibility to groundwater contamination, the composition of bedrock being mined, the type of technology employed; the skill, knowledge and environmental commitment of the company; and our ability to monitor and enforce compliance with environmental regulations.

One of the problems is that high-grade ore has decreased, so low-grade ore is being mined. With the mining of low-grade ore comes a much greater tonnage of waste rock, and much smaller pieces that provide a higher surface area to potentially come in contact with water.

Types of Potential Soil and Water Contamination from Metallic Mining:

1. Acid rock drainage

Many waste rocks contain sulfide minerals associated with metals, such as lead, zinc, copper, silver, or cadmium. An important sulfide mineral common in waste rock is pyrite, iron sulfide. When pyrite is exposed to air and water, it undergoes a chemical reaction called "oxidation." The oxidation process produces acidic conditions that can inhibit plant growth at the surface of a waste pile.

If water infiltrates into pyrite-laden waste rock, the resulting oxidation can acidify the water, enabling it to dissolve metals such as copper, zinc, and silver. This production of acidic water is commonly referred to as "acid rock drainage." If acid rock drainage is not prevented from occurring, and if it is left uncontrolled, the resulting acidic and metal-bearing water may drain into and contaminate streams or migrate into the local groundwater, therefore inhibiting its use for drinking water or irrigation.

2. Waste rock (tailings) erosion

Waste rock (also called tailings) disposal areas are either located as close to the mine as possible or as close to the processing plant as possible to minimize haulage costs. If not properly managed, erosion of waste rock into surface waters will most likely oxidize pyrite in the rock, leading to higher concentrations of acid and leached heavy metals into the stream bed and water, because the whole surface of this waste rock is now exposed within running water. When this

occurs, the metals are considered to be "bioavailable" in the environment. Bioavailable metals are easily absorbed by plants and animals that are still alive within the acidic water, causing additional detrimental effects.

The potential for economical and environmental damage to Langlade County from Metallic Sulfide Mining has no equal. The Langlade County LWRM plan only serves to summarize this potential. Actual potential effects will vary from case to case. Langlade County and its surrounding neighbor Counties have vested interest in sharing concern to protect water, land, air, and quality of life.

Sources:

WDNR Potential Metallic Mining Development in Northern Wisconsin https://dnr.wi.gov/topic/Mines/documents/pot-dev.pdf (list attached: Figure 2 - Other known mineral occurrences in Wisconsin)

Wisconsin Geological and Natural History Survey https://wgnhs.wisc.edu/wisconsin-geology/minerals-wisconsin/

Oneida County 113 page LWRM 2020-2029 plan prepared by: North Central Wisconsin Regional Planning Commission

Map - "Figure 5. Known mineral deposits in the vicinity of the Wolf River watershed." The Effects of Sulfide Mining on Ecosystems – Chapter Two https://www.glifwc.org/publications/pdf/SulfideMining.pdf

Partial Metallic Sulfide Deposit Map available at http://www.wnpj.org/pdf/Wisconsinmines.pdf (map attached)

Inventory of Metallic Sulfide Deposits in Wisconsin (maps): www.us-mining.com and www.thediggings.com

Wisconsin Department of Natural Resources. "Protecting Groundwater at Metallic Mining Sites." Mining Information Sheet. Revised: February 2003.

Watersheds and Waterbodies

Pages 20 through 24 of the draft LWRM plan discuss the amount of watershed and waterbodies that are polluted and impaired. 10 (ten) watersheds within the County appear to be polluted and page 22 states that there are now 18 waterbodies that are impaired. The WDNR's website of 303(d) impaired Langlade County waterbodies puts the total at 21 (twenty-one) as of 2018. The draft LWRM indicates that in 2014 there were only 7 (seven) impaired waterbodies in the County. In four years time, the amount of impaired waterbodies in the County has increased by 200%. That coincides with the introduction of CAFO's and Manure Transportation and Application by Truck throughout the County.

CAFOs – Confined Animal Feeding Operations & Liquid Manure Transportation and Application

At both the January 22, 2019 and the March 11, 2019 meetings of Resource Advisory Group; the concern of CAFO's and liquid manure transportation and application by truck were major concerns that all the members of the Group prioritized. The current draft of the Langlade County LWRM plan does not do an adequate job of conveying the concern of County Residents. In fact, the only mention of the acronym CAFO is on page 31 and it is only a notation of the inventory amount of CAFOs within the County at 2 (two). There is no mention of the harm that liquid manure transportation and application is doing to the watersheds and waterbodies. The members of the Land Conservation & Solid Waste Committee must surely be aware of the concerns from County Residents on this issue. The increases in CAFO's and liquid manure application have contributed to the increase of watershed and waterbody degradation. The topic deserves worthy mention in the 10-year LWRM plan.

Is the current approach working?

Page 16 of the draft LWRM indicates that there has been a 45.5% increase in the total amount of farmland and farm size in recent years. Throughout the draft LWRM the concepts of "self monitoring", "voluntary approach", "spot check", and "self certification" are referenced as the mechanisms for achieving the objectives of the LWRM plan. When you look at the results of this approach, namely the 200% increase in impaired waterbodies, does it make sense to continue to rely on this methodology?

Climate Change

(pages 7 to 9)

RESOURCE ASSESSMENT Chapter 3 (page 14 of draft Langlade County LWRM plan)

(As recently as this weekend in Hawaii (June 29 & 30, 2019) Hundreds of mayors and their delegates from across America met to declare Climate Change the biggest threat to public health and economic prosperity and that the future of their cities depend on acting on it now.)

Climate Change (suggested language to be added after the first paragraph on page 14)

Already the impacts of climate change to the landscapes, economy and people of Wisconsin are felt with routine flooding occurring throughout Wisconsin, and less ice leading to increased evaporation on lakes.

Wisconsin's average annual amount of precipitation is not expected to change much, but our summers are expected to become drier as warmer temperatures increase evaporation and seasonal precipitation patterns shift. Winter precipitation is projected to increase by as much as 30%, while summer precipitation may decline by as much as 20%. As the amount of water vapor in the atmosphere increases with global temperatures and warmer ocean waters, the air will become more humid. When it does rain or snow, it's likely to be in larger amounts.

All of these changes mean we can expect an increase in extreme heat waves and more frequent droughts in summer. At the same time, severe thunderstorms may double in frequency, increasing the amounts of damage caused by heavy rainfall, hail and strong tornadoes. The winter season is likely to be punctuated with increasingly frequent mid-winter thaws, freezing rains, ice storms, and flooding. We may expect heavier snowfalls, especially over the next few decades, yet the average length of time the ground stays snow covered and our lakes remain ice covered will shrink with each passing decade

If conditions become warmer and drier as projected, the current range, density, and type of forest species could be reduced and eventually replaced by plant communities more suitable for that climate. The acreage of Wisconsin's northern forests of hemlock, spruce and fir, as well as birch and jack pine, are likely to shrink and perhaps disappear from the landscape altogether. These species will likely lose their ability to reproduce and compete with more suitable trees. Southern oaks and hickories are expected to migrate north, but their dispersal may depend on traits of individual tree species, such as seed dispersal methods. The ability of each species to adapt to changing climates also depends on human influences, including development, roads, and fragmentation.

Sport fishing will change as the range of warm-water fish expands northward, while cold-water species such as trout, and even some cool-water fish like walleye and perch, disappear from southern parts of the state. Ice fishing may become extremely limited. Many small streams may dry up, and wetland size and function could be diminished. All fish could face other threats including increased potential for oxygen depletion in waterways and possible increased pollution-related impacts from shallower water and storm-induced heavy erosion. Additional losses of wetland and forest habitat and food resources for migratory songbirds, shorebirds, and waterfowl will affect Wisconsin's multimillion-dollar bird watching and hunting industries.

> This publication is intended for local government officials and others interested in investigating the connections between climate change and land use. They present an introduction to climate change at the global and state level. examine infrastructure and economic implications, and show how natural resources may change through this current century. They wrap up by looking at state level policies and potential tradeoffs and community level mitigation and adaptation strategies.
>
> Source: Wisconsin Land Use Megatrends: Climate Change. Center for Land Use Education, UW Stevens Point, UW-Extension. Summer 2009. (Oneida County 113 page LWRM 2020-2029 plan prepared by: North Central Wisconsin Regional Planning Commission)

Forest ecosystems across the Northwoods will face direct and indirect impacts from a changing climate over the 21st century. This assessment evaluates the vulnerability of forest ecosystems in the Laurentian Mixed Forest Province of northern Wisconsin and western Upper Michigan under a range of future climates.

Model projections suggest that northern boreal species such as black spruce, quaking aspen, and paper birch may fare worse under future conditions, but other species may benefit from projected changes in climate. Upland spruce-fir, lowland conifers, aspen-birch, lowland-riparian hardwoods, and red pine forests were determined to be the most vulnerable ecosystems. White pine and oak forests were perceived as less vulnerable to projected changes in climate. These projected changes in climate and the associated impacts and vulnerabilities will have important implications for economically valuable timber species, forest dependent wildlife and plants, recreation, and long-term natural resource planning.

Source: Forest Ecosystem Vulnerability Assessment and Synthesis for Northern Wisconsin and Western Upper Michigan: A Report from the Northwoods Climate Change Response Framework Project. U.S. Forest Service, Northern Research Station, General Technical Report NRS-136, August 2014.

(Oneida County 113 page LWRM 2020-2029 plan prepared by: North Central Wisconsin Regional Planning Commission)

Invasive Species

Invasive species have a wide range of adverse effects on Wisconsin's environment and citizens including negative impacts to natural resources, costs to control damaging species, alteration of aesthetic values, and harm to wildlife and human health. Unfortunately, the costs to manage and control invasive species once they are established represent money that could be spent on something else, or not spent at all, if invasions were prevented in the first place. The following are examples from recent years, including estimates of the economic scope of what is at stake

Aquatic invasive species such as the zebra mussel financially impact industries that use water for cooling and municipalities that rely on lakes for drinking water. Zebra and quagga mussels cost the U.S. economy up to $1 billion annually. The $7 billion Great Lakes fishery has been adversely impacted by pathogens including viral hemorrhagic septicemia (VHS) and invasive fish species like white perch, round goby, and sea lamprey. Costs from invasive species that originate in the ballast water of ocean-going vessels visiting the Great Lakes have been estimated at $138 million annually, but could be as much as $800 million annually.

Invasive species, including weeds, pests, and diseases, also negatively impact Wisconsin's $59 billion agriculture industry (350,000 jobs) by increasing production costs and reducing crop yields. For example, Canada thistle, a major agricultural pest, costs tens of millions of dollars in direct crop losses annually and additional millions in control costs.

Wisconsin's forestry industry, a $28 billion industry (66,000 jobs), is impacted by oak wilt, gypsy moth, and more recently, the emerald ash borer and beech bark disease, which damage and kill trees. Costs to respond to the emerald ash borer in our region, including treatment, removal, and replacement of millions of ash trees, has a current annual effect of $280.5 million on municipal budgets, a figure that does not include the value of trees on private property. This insect also negatively affects electrical utility budgets with the removal of dead trees that could fall onto utility lines.

Natural re-growth of tree seedlings, especially of the sugar maple, our state tree, is being limited by invasive plants and non-native earthworms. Over the long term, this will change the composition of our forests and the economic benefits they provide.

Terrestrial invasive species, such as garlic mustard and wild parsnip, invade and degrade our forests and grasslands and reduce enjoyment of our trails and parks. Eurasian water milfoil and other invasive aquatic plants harm our lakes and rivers. Chemical herbicides used to control Eurasian water milfoil can cost from $200 to $2,000 per acre. Mechanical control methods range from $300 to $600 per acre and must be repeated all summer.

Outdoor recreation is one of the top reasons visitors come to our state. In 2016, Wisconsin visitor numbers reached 107.7 million and visitor spending created an estimated $20 billion impact on the state's economy. As invasive species continue to change our environment and negatively impact the use and beauty of our lakes, forests, and hiking trails, Wisconsin may lose valuable visitor spending.

Source: Invasive Species Interim Performance Report. Prepared by the DNR's Invasive Species Team. July 1, 2016--June 30, 2017.

Insect Decline

The biodiversity of insects on planet Earth is staggering, as many as 30 million species. Insects pollinate our food, recycle dead things, supply fibers and raw materials to humans, provide food for birds, mammals, and fish, and help to reduce each other. Insects make up the base of our food chain and are critical to ecosystems and the health of our planet. Only a small fraction of insects are not beneficial to humans.

Alarmingly, insect populations have been plummeting. Lepidoptera (moths and butterflies) have declined by 53%. The iconic Monarch butterfly is threatened by habitat loss, pesticides, and climate change. In the last 22 years, their numbers have decreased by 68%, with the Western population especially at risk of extinction. Native bee populations have also declined dramatically. Historically, the Rusty-patched bumble bee was found throughout Wisconsin. In 2017, it became the first federally listed endangered bumble bee species, and is now known to exist only in small pockets in western and southern Wisconsin.

The reasons behind insect population declines are both varied and complex. Habitat loss, climate change, pesticides, and pathogens top the list. As varied as the reasons are behind the widespread declines, the methods we need to halt and reverse declines are as complex. It is easy to say, restore habitat, but as we experience a changing climate, what is the best way? It is easy to say, use less pesticides, but how do we 'redesign' our agricultural fields to be productive and insect-friendly?

What is known is that changes, both small and large, must occur. In order to help reverse the current loss of insect biodiversity, how we grow our food, build our homes, and live our lives, will need to be examined. Small changes that take place in our backyards, along lake shores, in the city, and in our farm fields, can benefit insects. Activities such as reducing light pollution, installing buffer strips, minimizing pesticide use, planting a pollinator garden, and letting our properties be a little more wild, all start at the local level, but have a much larger landscape-level effect.

Sources: Francisco Sanchez-Bayo, Kris A.G. Wyckhuys. "Worldwide decline of the entomofauna: A review of its drivers." Biological Conservation, Vol. 232, April 2019, pp. 8-27.

"Saving the Monarch Butterfly", Center for Biological Diversity, www.biologicaldiversity.org/species/invertebrates/monarch_butterfly/

Oneida County 113 page LWRM 2020-2029 plan prepared by: North Central Wisconsin Regional Planning Commission

(The suggested text inclusion for the **Climate Change** section ends here.)

Additional Langlade County Assets

(pages 10 to 12)

The following suggested language inclusion is similar to that of the Oneida County 113 page LWRM 2020-2029 plan. Oneida County and Langlade County share the same concerns for County Assets.

Pages 31 to 37 of the Oneida County LWRM 2020-2029 plan have detailed listings of Rare Natural Communities, State Natural Areas, Wildlife, Forestry, & Terrestrial Invasive Species. These features should be included to get a more comprehensive inventory of Langlade Counties Assets.

Sensitive and Rare Natural Communities

Areas of critical environmental sensitivity are those unique areas of the natural environment that should be preserved, and therefore excluded from intensive development. Typically, areas of critical environmental sensitivity include wetlands, floodplains, floodways, shorelands, areas of steep slope (especially those adjacent to wetlands and shorelands), publicly-owned scientific and natural areas (e.g. fish & wildlife habitats), and identified cultural and archaeological sites. The protection of such areas is intended to: 1.) protect the health, safety, and welfare of the general public; 2.) protect surface water and groundwater quality; 3.) reduce damage from flooding and stormwater runoff; and 4.) maintain important wildlife habitats or recreational areas.

Most of the known areas of critical environmental sensitivity within Langlade County are already managed or regulated at the federal, state, and county levels. Wetlands, floodplains, shorelands, and state natural areas are all publicly regulated.

The DNR maintains a listing of all rare, threatened, and endangered species and natural communities within the state. A listing of the species and communities which exist in Langlade County is available by town on the DNR's website under: Natural Heritage Inventory. A comprehensive inventory does not exist, but when rare species or rare natural communities are found, then they are entered into the National Heritage Inventory.

State Natural Areas (SNAs)

State natural areas were acquired to protect the state's natural diversity, provide sites for research and environmental education, and serve as benchmarks for assessing and guiding use of other lands in the state. Natural areas are defined as tracts of land or water, which have native biotic communities, unique natural features, or significant geological or archeological sites. These sites do not have much facility development, though there may be a designated trail on the site.

(The Department of Natural Resources (DNR) has a list of SNAs within Langlade County. Each site has a DNR identification (#), and is shown on a Map in the order listed. Insert a similar list of Langlade Counties' SNA's as was done for Oneida Counties SNA's to reflect Langlade Counties assets. Oneida County has 23 SNA's listed in their LWRM plan. Langlade County has SNA's that are worthy of being referenced in their LWRM.)

Wildlife

Numerous species of songbirds, waterfowl, raptors, shorebirds, reptiles, amphibians, fish and mammals frequent forested areas in Oneida County. Each species, or interacting group of species, do best under different conditions, ranging from recently disturbed ground to old growth. A diversity of plant communities is key to providing a niche for a variety of wildlife species. For example, two very popular wildlife species in the county are white-tailed deer and ruffed grouse. Aspen forests are recognized as key habitat for these species and are important in maintaining biological diversity across

North America. Longer rotation forest communities, such as uneven aged northern hardwood, similarly provide important habitat for other, less well-known species, such as pileated woodpeckers or northern goshawk.

State wildlife areas were acquired by the state to protect and manage important habitat for wildlife and to preserve unique wild land features for hikers, wildlife watchers, hunters, trappers, and all people interested in the out-of-doors. Wildlife areas have only minor facility development (e.g. a very small gravel parking lot).

Langlade County wildlife areas are owned by the State of Wisconsin and managed by the Department of Natural Resources. Are there federal wildlife areas in Langlade County? If so - list them. When complete, compare to Oneida County LWRM plan.

Forestry

Forests play a key role in the protection of environmentally sensitive areas like steep slopes, shorelands, wetlands, and flood plains. Expansive forests provide recreational opportunities, aesthetic benefits, and economic development.

The pre-settlement composition of forestland in Langlade County was a mix of conifer and deciduous tree species that included white pine, red pine, yellow birch, aspen, cedar, hemlock, and tamarack. (WI Land cover in 1800s poster)

Source: "WI Land Cover in 1800s Poster", UW-Madison, DNR https://dnr.wi.gov/wnrmag/2009/08/poster.pdf

All forests are dynamic, always changing from one stage to another, influenced by natural forces and humans. Changes can be subtle and occur over long periods, or can happen in seconds from a timber harvest, windstorm, or fire.

Some private woodlands in the county are enrolled in Managed Forest Law (MFL). This program provides a low annual tax rate per acre and requires a management plan for the property that must include some harvesting along with allowing some public uses based on acreage thresholds. When timber is harvested from MFL properties, a harvest tax is also assessed. This provides an incentive to keep woodlots in active production and allows some community access to the site in exchange for greatly reduced taxes. See the programs section at the end of this chapter for more detail on this program.

Terrestrial Invasive Species (TIS)

While aquatic invasive species are well known to citizens and receive sizeable funding levels to support management and outreach activities, terrestrial invasive species are somewhat less known and less managed. However, they can still have dramatic effects on our natural resources, economy, and our health. For example, garlic mustard will push out native wildflowers and ferns, and can prevent tree seedlings from regenerating. This can ultimately change our forests and the ecological, recreational, and economic values they provide. The sap of giant hogweed can cause severe burns and blisters, while Japanese knotweed can send rhizomes under, and through, our streets and pavement.

Insert language similar to Oneida County's example that is accurate for Langlade County:

(Reprinted here to show detail of Oneida County LWRM)

(In Oneida County, Japanese knotweed infestations are found in the City of Rhinelander, and in the Towns of Minocqua and Three Lakes. Garlic mustard has been located in the Enterprise block of County forest, exists in small patches in the City of Rhinelander, and occurs on County highway right-of-ways. Spotted knapweed is by far the most prevalent TIS in the County, followed by Buckthorn (common and glossy), and invasive thistles. Although the most prominent and widely integrated into the landscape, these species see very little management activity. Contrary to that, the Town of Three Lakes actively manages its knotweed population, as does the County Forestry Department for their areas of garlic mustard.

Although a County Aquatic Invasive Species (AIS) program has been in existence since 2007, LWCD partners with the Wisconsin Headwaters Invasives Partnership (WHIP) to manage terrestrial invasive species occurring within the county.

WHIP is a 15-partner cooperative that services both Oneida and Vilas counties, with a mission that states, "The Wisconsin Headwaters Invasives Partnership (WHIP) is dedicated to the conservation of the native species, habitats and landscapes of Oneida and Vilas Counties in north-central Wisconsin. WHIP recognizes the threat of invasive species and will work cooperatively to provide education, monitoring and invasive species control." To that end, WHIP has developed a TIS Management Plan and a Strategic Plan (which includes a Species Priority List), with the help of its partners. Since LWCD played a role in developing the goals, objectives, and activities within WHIP's Strategic Plan, LWCD has incorporated many of these items into the included 5-Year Work Plan.

With assistance from WHIP, LWCD will encourage the use of invasive species BMP's, conduct invasive species early detection monitoring, provide technical assistance with control and management strategies, and encourage the use of native plants for restoration on TIS-affected sites. LWCD will prioritize TIS based on the following Species Priority List, paying particular attention to monitoring those species listed under the 'Early Detection and Response' section, and managing those on the 'Priority Management' section. Additionally, LWCD will collaborate closely with WHIP in revising this list when new invasive species threaten the region. See Table 6.

Table 6 Species Priority List, Common Name Scientific Name

Status in Wisconsin R = Restricted P = Prohibited, Management Objective

Early Detection and Response Wild Chervil Anthriscus sylvestris P Common Reed (nonnative) Phragmites australis P/R (R in WHIP area)

Oriental Bittersweet Celastrus orbiculatus R Wild Parsnip Pastinaca sativa R Garden Valerian Valeriana officinalis R European Marsh Thistle Cirsium palustre P/R (R in WHIP area)

Butterfly Dock Petasites hybridus P February Daphne Daphne mezereum not regulated Priority Management Glossy Buckthorn Frangula alnus R Common Buckthorn Rhamnus cathartica R Garlic Mustard Alliaria petiolata R Purple Loosestrife Lythrum salicaria R Japanese Knotweed Polygonum cuspidatum R Yellow Flag Iris Iris pseudacorus R Eurasian Honeysuckles Lonicera tatarica, L. morrowii, L. x bella R Leafy and Cypress Spurge Euphorbia esula, E. cyparissias R Plumeless Thistle Canada Thistle Musk Thistle Carduus acanthoides Cirsium arvense Carduus natans R

Japanese Barberry Berberis thunbergii R Garden Yellow Loosestrife Lysimachia vulgaris R Common Tansy Tanacetum vulgare R Black Locust Robinia pseudoacacia R Crown Vetch Coronilla varia R Watch List Giant Hogweed Heracleum mantagazzanium P Bohemian Knotweed Giant Knotweed Polygonum x bohemicum Polygonum sachalinense P Policeman's Helmet Impatiens glandulifera P

Source: Wisconsin Headwaters Invasives Partnership Terrestrial Invasive Species Management Plan 2016. Wisconsin Headwaters Invasives Partnership (WHIP), 2016.

Status in Wisconsin: P = Prohibited, R = Restricted Species are chosen for regulation by state agencies based on the harm they pose to the State's environment, economy, and/or public health. In general, species that are more widespread or naturalized are restricted while less widespread species are prohibited. The transport, introduction, and sale of all regulated species (P/R) is illegal. In Wisconsin, it is illegal to possess a prohibited species, and property owners are legally required to control prohibited species present on their property.)

Source: Oneida County 113 page LWRM 2020-2029 Plan by NCWRPC Pages 36, 37 & 38

The Oneida County LWRM 2020-2029 plan does a detailed job of listing the top concerns. Notice that they have supplemental bullet points to further clarify each goal. (*from the 113 page Oneida County LWRM plan*)

Special Resource Concerns

This section was created to identify important emerging issues (Climate Change, Invasive Species, Insect Decline, and Metallic Mining) that the Resource Advisory Group and the CUW Committee identified and wished to include in a 10-yr LWRM plan. 2020-2029 Work Plan is organized with the most important goals first. Objectives and activities are also prioritized from highest to lowest.

Goal 1: Protect and enhance wetlands and surface water quality.

- Protect and restore shoreland buffers.
- Administer cost share program.
- Encourage conservation and restoration of wetland function.
- Promote a watershed approach to protect and restore water quality.
- Reduce erosion caused by road stream crossings (e.g. culverts).
- Reduce urban non-point source pollution.
- Maintain county mining ordinance(s).
- Reduce agricultural non-point source pollution.
- Promote nutrient management planning.
- Properly manage animal waste.

Goal 2: Increase our community's level of natural resource knowledge and inspire stewardship.

- Provide youth education.
- Build capacity.
- Provide workshops and training opportunities.
- Promote citizen science.
- Participate in professional development.
- Provide news and updates.
- Increase awareness of sensitive areas and species.
- Increase forestry outreach.

Goal 3: Protect groundwater quality.

- Properly maintain septic systems.
- Properly maintain wells.
- Prevent hazardous waste from contaminating groundwater.

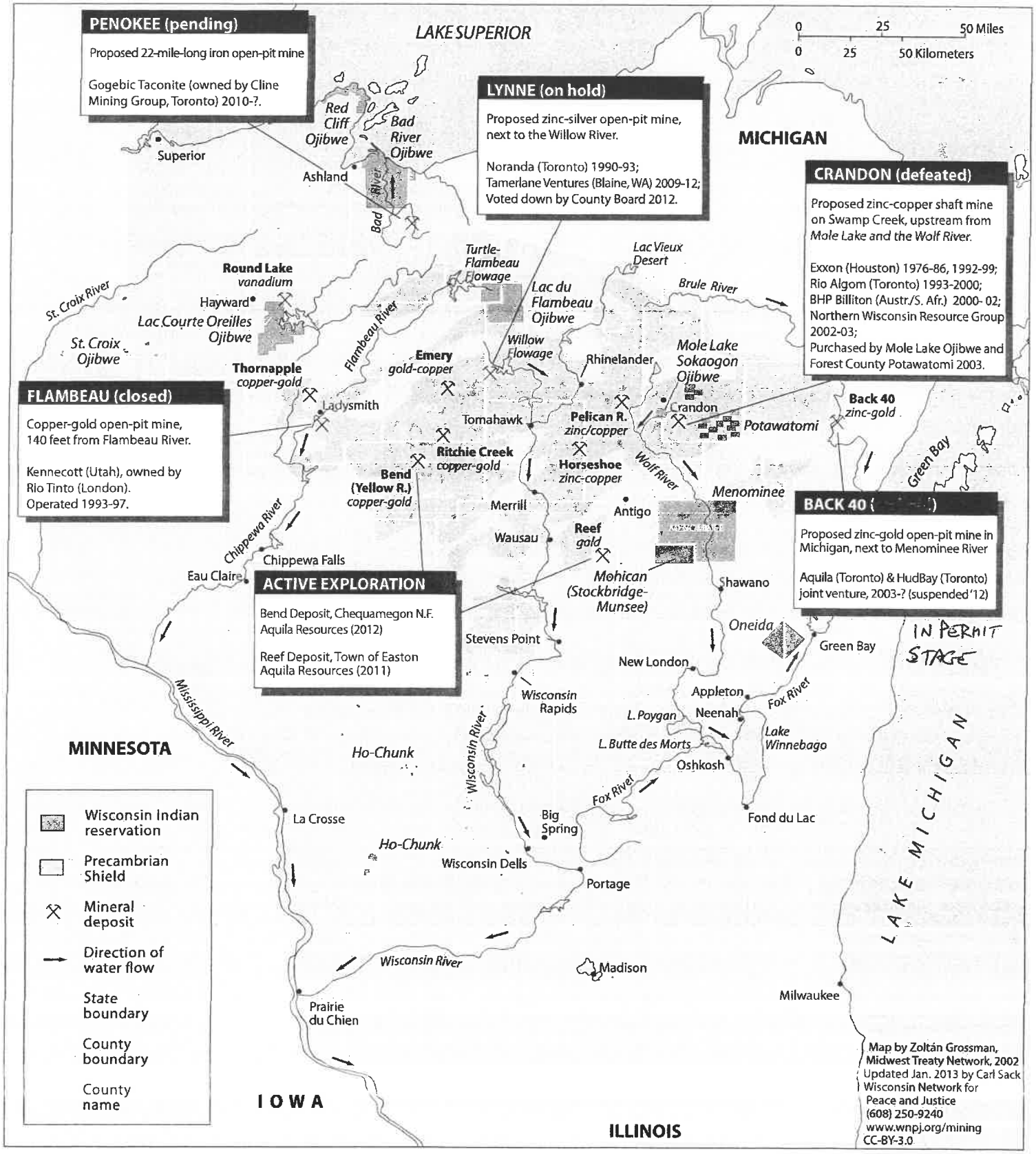
Goal 4: Protect native species, habitats, and landscapes from invasive species.

- Continue providing education and outreach.
- Continue early detection and rapid response of invasive species.
- Control and manage invasive species.
- Restore native species and habitat after invasives are removed.
- Build capacity through cooperation with other groups.

Goal 5: Protect, enhance, and restore soil resources.

- Promote healthy croplands and pastures.
- Reclaim abandoned mining sites.
- Preserve productive farmland.

Mining in Northern Wisconsin



gional and long term cumulative implications.

Regional impacts are a particular concern for the Chippewa tribes whose treaty-reserved rights extend throughout the northern portions of Wisconsin, Michigan and Minnesota (see Chapter 3). For example, if the ore from the proposed Crandon mine in Wisconsin were smelted in White Pine, Michigan, any environmental impacts that affect treaty rights at either or both locations, would have to be addressed.

F. Smelting/Refining

One of the primary threats from smelting and refining is the release of large amounts of sulfur dioxide. The history of the huge smelter in Trail, British Columbia illustrates the destructive effects of this chemical.

The Trail smelter opened in 1896. At its peak in the 1930s, it was emitting 10,230 tons of sulfur dioxide per month. Studies of the area performed between 1929 and 1936 found that almost no conifers within 12 miles of the smelter had survived, and found retarded growth in some species located as far as 39 miles away from the smelter.

Sulfur dioxide adversely affects and sometimes kills trees by acidifying the soil and injuring leaves and flowers. In addition, sulfur dioxide can react with oxygen and water to form sulfuric acid.

Sulfuric acid is a component of acid rain, which lowers the pH of water and may increase the production of hydrogen sulfide, both of which can be toxic to aquatic and terrestrial ecosystems.

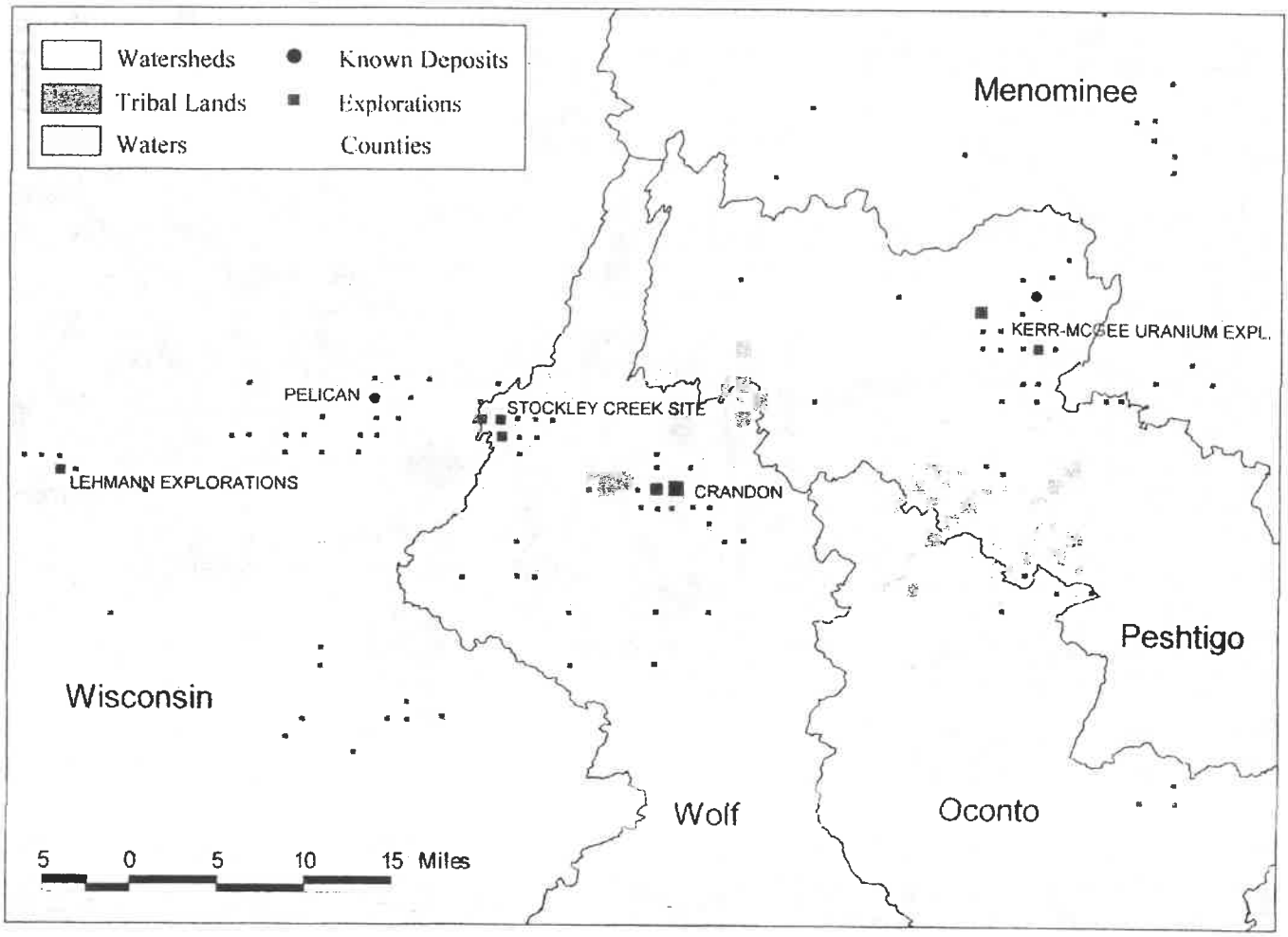


Figure 5. Known mineral deposits in the vacinity of the Wolf River watershed.

The *Flambeau Mine* extracted about 1000 tons per day of copper-rich ore. Reclamation of the pit began in early 1997 and was completed in late 1998. The *Crandon deposit* is presently being evaluated for the required environmental impact analyses and the mining permit and other related permits, licenses, and approvals necessary before mineral extraction could begin. If permitted, the mine

Figure 2 - Other known mineral occurrences in Wisconsin (no expectation for development):

Name	Location	Description	Comments
Richie Creek	Price County	copper, gold, lead, zinc	insufficient tonnage and grade known
Reef	Marathon County	gold	too costly to mine at foreseeable prices
Thornapple River	Rusk County	copper, zinc	insufficient tonnage and grade known
Pelican River	Oneida County	copper, zinc	insufficient tonnage and grade known
Round Lake	Sawyer County	iron, titanium, vanadium	metal recovery too low due to complex mineralogy
Duval	Marinette County	iron pyrite	low grade; no real market for pyrite
Horseshoe	Lincoln County	zinc, lead, copper, gold	insufficient tonnage and grade known
Thunder River	Price County	zinc	insufficient tonnage and grade known
Horseshoe	Lincoln County	zinc, copper	insufficient tonnage and grade known
Catwillow Creek	Forest County	base and precious metals	insufficient tonnage and grade known
Mole Lake	Forest County	base and precious metals	no current interest in development
School House, Clear Creek, G-23, Hawk , Spirit, Somo, Prentice East	Various counties	base and precious metals	considered to be occurrences only; no potential to develop
Mercer	Iron County	gold	potential unknown

Langlade County Land Conservation & Solid Waste Committee

Submitted 7-8-2019

Members: David Solin (Chair), Reinhardt Balcerzak, Roger Buck, Carol Feller-Gottard, Joseph Novak III

Public Hearing: Monday, July 8, 2019 @ 9:00 AM

Subject: Langlade County Land and Water Resource Management Plan 2020-2029 (LWRM draft)

Written & Oral Comments Submitted by: Ron Kaas of 634 School Street, White Lake, WI 54491
Additional comments from those submitted July 1, 2019
(5 pages total today)

Thank you for welcoming comments on the LWRM today. As a resident of Langlade County I wish to submit the following written comments in addition to the oral comments I am presenting today.

The additional three pages that the LWRM plan author added after the public hearing last week are appreciated. The additions are a good start but there needs to be additional County assets and resources included in the ten year LWRM plan.

A whole host of government agencies utilizes the LWRM plans for the allocation of funding for projects to repair and enhance land and water resources within a county. A partial list of the agencies is included in these comments. Just as page 20 of the draft plan mentions the word "grants", the concept is the same for these additional sources of funding. That is why it is important to make the LWRM as detailed as possible.

Please include the following text additions.

Metallic Mining

Page 11 "Special Resource Concerns" & Page 13 "Resource Assessment":

Langlade County is located in the Penokean Volcanic Belt, an area known to have volcanogenic massive sulfide deposits. These metallic mineral deposits include copper, zinc, gold, silver, and lead. Sources such as the Wisconsin Geological and Natural History Survey, the Wisconsin Department of Natural Resources, and the Great Lakes Indian Fish & Wildlife Commission detail the locations of these deposits. (*This addition would add needed context to the new section on "Metallic Mining" that has been added.*)

Surface Water

Pages 6 & 25: The references to Outstanding/Exceptional Resource Waters only include the count of how many of these features exist in the County. It would serve the plan well to list the actual names of these waterbodies. This would make it so that anyone reading the plan knows the names of the Counties most prized lakes, rivers and creeks.

Pages 6 & 19: Langlade County is home to the highest concentration of naturally occurring spring ponds in the United States (some think in the world). The DNR knows the number is above 350 and could be as many as 400. Langlade County has the only spring pond dredging equipment in the state of Wisconsin. Neighboring counties are on a waiting list to use the dredger to dredge their ponds. It takes one summer to dredge a single pond and get it back to the condition it was at the time of the last glacier. There should be special mention of these very special spring ponds in the LWRM plan. These unique spring ponds should be prioritized and protected. Currently the words "spring pond" are not contained in the plan.

Page 22: The DNR's website of 303(d) impaired waters lists 21 individual waterbodies that exist in Langlade County. The list on page 22 of the draft plan lists only 13 such waterbodies. Utilizing the DNR's list will make the plan accurate.

GroundWater

Pages 7 & 31: The references to groundwater impairment should include high capacity wells, CAFOs and Fertilizer and Manure Storage and Application in all locations within the draft plan where "groundwater" is mentioned.

Regulations

Page 44: The draft plan offers detail listings of "local regulations used to protect natural resources ..." Including a reference to Langlade Counties' metallic mining ordinance will make the list more complete.

Glossary

Pages 49 to 55: The glossary section of the plan should include definitions for the following, all of which affect the Land and Water Resources of Langlade County:

Acid Mine Drainage – (aka: Metal mobility from solid mine wastes.) Soluble sulfate salt minerals derived from weathering and oxidation of sulfide minerals in mine dumps and tailings piles represent a potential source of metal contamination and acid generation. As percolating surface and groundwater evaporates during dry periods, efflorescent metal-sulfate salt minerals form encrustations around and below the base of the piles, which effectively stores acidity and metals released during sulfide mineral breakdown. Subsequent rainfall or snowmelt following a dry period is likely to release a highly concentrated pulse of acid mine water known as acid mine drainage. Mine drainage is formed when pyrite (an iron sulfide) is exposed and reacts with air and water to form sulfuric acid and dissolved iron. Some or all of this iron can precipitate to form the red, orange, or yellow sediments in the bottom of streams containing mine drainage. The acid runoff further dissolves heavy metals such as copper, lead, and mercury into groundwater or surface water. The rate and degree by which acid-mine drainage proceeds can be increased by the action of certain bacteria. (Source: USGS - US Geological Survey definition of Acid mine Drainage)

CAFO - Confined (or Concentrated) Animal Feeding Operations refer to a specific type of animal feeding operation where animals are kept and raised in confined situations for the duration of their lives. CAFOs congregate animals, feed, manure and urine, dead animals, and production operations on a small land area. Rather than roaming and feeding in a pasture, food is brought to the animals in their pens. (*Sources: USGS and USDA/NRCS definition of CAFO*)

Climate Change - Climate change is a change in the typical or average weather of a region or city. This could be a change in a region's average annual rainfall or a change in a region's average temperature for a given month or season. Climate change is also a change in Earth's overall climate. (*Source: NASA definition of Climate Change*)

Metallic Sulfide Mining - (aka: hard rock mining) is the practice of extracting metals such as nickel, gold, zinc, silver, lead, and copper from a sulfide-rich ore body. Sulfides are a geologic byproduct of mining, and by exposing sulfides to the air and water in our atmosphere, sulfuric acid can be created - threatening to poison the nearby water, environment, and communities. Metallic mineral mining is the commercial extraction of metal-bearing minerals and includes all aspects of the development, operation, and reclamation of the mining site (*Sources: Save The Wild UP, Wisconsin Geological and Natural History Survey definition of Metallic Sulfide Mining*)

Mine Tailings - The ore waste of mines; large piles of finely-crushed, chemically processed material (also called gangue) left over after metals of interest (such as copper) have been extracted from the ore that contained them. May contain metals or other contaminants, and may be susceptible to erosion by wind or water. (*Source: The University of Arizona definition of Mine Tailings*)

In Conclusion

It would serve the LWRM plan well to include a mission statement that highlights Langlade Counties' most unique assets and the commitment that our County Government has to managing those assets. For example:

Clean Water, Clean Land, and Clean Forests, are essential for the quality of life within Langlade County. Clean Water, Clean Land, and Clean Forests are economically essential for the tourism industry and its small business beneficiaries. Restaurants, hotels, campgrounds, watercraft rental companies, gas stations, bait shops, and many more, all depend on proper management of these resources. Langlade County is a destination for people from far away for fishing and hunting because of our spring ponds, lakes, rivers, and forests.

Pollution does not stop at any county line. Langlade County protections – or lack of protections – have consequences to our neighbors to the south: Menominee, Shawano, and Marathon Counties. Langlade County is affected by the protections – or lack of protections – from our neighbors to the north: Oneida, Forest, and Lincoln Counties. Just as we want our neighbors to have adequate protections in place to protect the source of our water, our neighbors expect Langlade County to have protections in place that protect the source of their water. We have an obligation to be good stewards of the water that has its source, or passes through, Langlade County.

Consider how much we all depend on the Wolf River basin. The Wolf River basin lies in northern and central Wisconsin and drains 3,690 square miles. It includes all of Waupaca County and parts of Forest, Langlade, Marathon, Menominee, Oneida, Outagamie, Portage, Shawano, Waupaca, Waushara and Winnebago Counties. Almost the entire 233,384-acre Menominee Indian Reservation (Menominee County) is within the basin. A portion of the 655,000-acre Nicolet National Forest extends into the northern part. Source: https://dnr.wi.gov/topic/watersheds/basins/wolf/

Langlade County Residents do not want our neighbors up-stream - *to the north* - to do a poor job of disregarding damaging activities to the water in the region. Langlade Counties' neighbors downstream - *to the south* - do not want Langlade County to do a poor job of disregarding the duty to avoid damaging activities that will harm their water. This commitment to proper Land and Water Resource Management is highlighted throughout this LWRM plan.

Who gives money for topics (work projects) in LWRM plans?

It is important to have a comprehensive LWRM plan that is inclusive of all the assets and resources that are located within, or surrounding, Langlade County. The government agencies listed below read LWRM plans and make decisions to allocate funds based on aspects listed in the plans. A county will not have a credible case to request funding for projects related to items that were not shown in the LWRM plan.

FEDERAL GOVERNMENT SOURCES:

United States Department of Agriculture

- Farm Service Agency
  - Conservation Reserve Program (CRP)

Natural Resources Conservation Service

- Environmental Quality Incentives Program (EQIP)
- Wetland Reserve Program (WRP)
- Conservation Stewardship Program (CSP)
- Rural Development Administration

Environmental Protection Agency

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

U.S. Fish and Wildlife Service

- North American Waterfowl Conservation Act (NAWCA)
- Partners for Fish and Wildlife

National Park Service

STATE GOVERNMENT SOURCES:

Department of Natural Resources

- Aquatic Invasive Species Grants
- Forest Legacy
- Targeted Runoff Management Funds
- Stewardship Grants
- Lakes Planning Grants
- Lakes Protection Grants
- River and Stream Planning and Protection Grants

WDNR Wildlife Sources

- Pheasant Stamp
- Segregated Funds (general license)
- Wisconsin Waterfowl Stamp
- Turkey Stamp
- Trout Stamp (Inland)

Department of Agriculture, Trade, and Consumer Protection

- Land and Water Resource Management Funds
- *Soil and Water Resource Management*
- Cost Sharing

University of Wisconsin – Extension

Wisconsin Environmental Education Board Grants Program

Cooperative Educational Services Administration

Wisconsin Geologic and Natural History Survey

Wisconsin Groundwater Resource Center