Hubbard County Local Water Management Plan

January 2016 to January 2026

~ Crow Wing Lake ~

GUIDING PRINCIPLES OF HUBBARD COUNTY'S LOCAL WATER PLAN

- **Local Influence:** Local influence includes the general public along with state agencies and local government working together to promote and encompass local influence over policy that affects the lives of the county's citizens, natural and water resources.

- **Conservation:** Conservation of the natural resources within the county. That those resources would be used in a way that is sustainable and remain healthy for future generations and that the integrity of Hubbard County's natural resources, especially water resources, be maintained at the level they are at, if not improved.

- **Balance:** Finding a balance between individual liberties and the public's welfare, and between synergistic economic development and environmental protection objectives and strategies.

- **Equity:** Equity in the distribution of resources, the improvement of infrastructure and in the decision making process and not to the detriment of the environment and water resources.

- **Respect:** Respect for the knowledge, abilities and role of all jurisdictions involved in managing growth and natural resources in Hubbard County.

The Hubbard County Local Water Management Plan (LWMP) Guiding Principals were developed from a public process gathering input as to the concerns and values of Hubbard County. Participants for this input were from the LWMP Task Force members, the general public through public meetings and a survey, and from Minnesota Government Agencies. This plan would like to foster the above principals and values that maintains a county that protects its natural resources and embraces growth, sustainability, and change while keeping its rural character.

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Hubbard County Board of Commissioners

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Park Rapids, MN 56470

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Lake George, MN 56458

Local Water Management Coordinator: Hubbard County Soil and Water Conservation District.

Frequently Used Acronyms and Abbreviations

AIS	Aquatic Invasive Species
BMPs	Best Management Practices
BWSR	Board of Water & Soil Resources
COLA	Coalition of Lake Associations
CRP	Conservation Reserve Program
CWI	County Well Index
CE	Civic Engagement
DNR	Department of Natural Resources
DWSMA	Drinking Water Supply Management Area
ESO	Environmental Services Office
EQIP	Environmental Quality Incentive Program
EQuiS	MPCA Storage and Retrieval- new form
FSA	Farm Service Agency
FWS	Fish & Wildlife Service
GIS	Geographic Information Systems
HCLWP	Hubbard County Local Water Plan
HLRP	Healthy Lakes & Rivers Partnership
IWM	Intensive Watershed Management
LGU	Local Government Unit
LLAWF	Leech Lake Area Watershed Foundation
LWMP	Local Water Management Plan
MDA	Minnesota Department of Agriculture
MDH	Minnesota Department of Health
MNDNR	Minnesota Department of Natural Resources
MPCA	Minnesota Pollution Control Agency
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
SSTS	Subsurface Sewage Treatment Systems
SWCD	Soil & Water Conservation District
WCA	Wetland Conservation Act
WHP	Wellhead Protection
WRAC	Water Resources Advisory Committee
WRAPS	Watershed Restoration and Protection Strategy
USACE	U.S. Army Corps of Engineers

EXECUTIVE SUMMARY

The Hubbard County Local Water Management Plan (HCLWMP) is committed to protecting, preserving and improving water resources in Hubbard County by being proactive, efficient, customer focused, organized and innovative while being good stewards of the county's resources. The county has gathered and evaluated available scientific information relating to the physical environment, including, but not restricted to, the surface and groundwater resources and related land uses. The purpose of this plan is to identify existing and potential problems and opportunities for the protection, management and development of water and related land resources, to develop objectives and carry out a plan of action to promote sound hydrologic management of water and related land resources, effective environmental protection, and efficient management of Hubbard County water resources. The Hubbard County Board of Commissioners has delegated responsibility of writing the HCLWMP to the Hubbard County Soil and Water Conservation District. The January 2016 to January 2026 HCLWMP replaces the 2007 to 2012 HCLWMP.

Hubbard County is covered by three major watersheds. The Mississippi River Headwaters, Leech Lake River and Crow Wing River watersheds. This is a change in previous LWMPs as it is now a watershed **"Protection"** based plan with a scope focused on the minor watershed (catchment) level. This information shows data-driven strategies can be implemented in a targeted and efficient manner. At this time the 89 minor watersheds within Hubbard County have been ranked according to risk where water quality is shown to be stable or improving, declining or impaired, or variable depending on the amount of land use disturbance. This puts minor watersheds in categories to Enhance, Enhance/Protect, Protect, or be Vigilant. Another method of looking at the watersheds is to look at GIS overlays of each watershed's percentage of Disturbed land, Phosphorous Sensitivity, Lake Water Quality Trends, and Land Conversion Risk which when compiled gives a Lake Vulnerability Risk. Both methods of risk analysis will be updated in an on-going process of evaluation and implementation of projects within those watersheds as more information becomes available. Another tool that will be added to this water plan after the Mississippi River Headwaters and the Leech Lake River WRAPS are completed will be using a Zonation model, a values based system incorporating data valued by the community. This includes protecting or improving waters of concern; reducing erosion and runoff; protect and improve fish and wildlife habitat; protect and improve lands of concern and enhance connectivity. The Zonation software (Moilanen et al., 2009) uses a nested hierarchy of conservation priorities.

Through the HCLWM plan update process, four priority concerns were identified to focus water management efforts in 2016 through 2026. They are: Aquatic Invasive Species (AIS); Surface Water Quality and Quantity Improvement and Protection; Groundwater Quality and Quantity Improvement and Protection; and Land Use and Habitat Protection for Water Quality. Objectives and action steps

have been identified for each concern and are included on pages 60 - 86. The process through which these priority concerns were identified is further detailed in the Priority Concerns Scoping Document located in Appendix three, which includes results of a survey of Hubbard County residents and County and State agencies from 2011. Further information was gathered in 2015 from the LWMP Task Force and State agencies through LWMP Task Force meetings and written additions from the agencies.

Developing water resource protection strategies within a watershed (catchment) context is a logical, scientific approach as it acknowledges upstream activities affect those downstream. Although a major watershed can be analyzed and modeled, it is difficult to manage since watersheds typically cross municipal, county, and/or state boundaries. Planning at a smaller watershed level is much easier to determine trends, priorities and cause-and-effect relationships. Implementation is also easier since many catchments are within a single jurisdiction and strategies can be targeted and designed for optimal success and cost efficiencies. This approach will ultimately result in healthy major watersheds in the most efficient manner.

The Hubbard County LWMP applies to the entire area within Hubbard County. It is based on key economic and environmental principles, and is consistent with other plans that exist for Hubbard County, including but not limited to the Hubbard County Soil and Water Conservation District (SWCD), Hubbard County Environmental Service Office (ESO), and appropriate state and federal agency plans. Incorporated by reference are the most current versions of the Wellhead Protection Plan for Park Rapids; Wellhead Protection Plans, once developed, for the Cities of Nevis, Akeley and Laporte; Hubbard County Solid Waste Plan; Minnesota Stormwater manual; the City of Park Rapids Stormwater Management Ordinance; the NRCS Soil Survey; the State of Minnesota and Hubbard County's Shoreland Ordinances; Hubbard County Subsurface Sewage Treatment System Ordinance (SSTS); the Mississippi Headwaters Board report "*Prioritizing Conservation Project Implementation in the 400-Mile Mississippi Headwaters"*; the Clean Water Act; and the Wetland Conservation Act. Hubbard County SWCD has also committed to supplying information for the Hubbard County Geologic Atlas and when the atlas is completed the data will be incorporated into the LWMP which can lead to more strategic targeted projects county wide.

The Minnesota Pollution Control Agency (MPCA) is also conducting assessments of all of Minnesota's major watersheds on a ten year cycle. This Intensive Watershed Monitoring (IWM) schedule will provide intensive monitoring of streams and lakes within each major watershed to determine overall health of the water resources, identify impaired waters, and identify those waters in need of additional protection to prevent future impairments. Biology, chemistry, and fish contaminant information is collected and analyzed. Based on results of intensive watershed monitoring, MPCA staff and its partners conduct a rigorous process to determine whether or not water resources meet water quality standards and designated uses. Water resources that do not meet water quality

standards are listed as impaired waters. Based on the watershed assessment, a Total Maximum Daily Load (TMDL) study and Watershed Restoration and Protection Strategy (WRAPS) report is completed. The MPCA completed the Crow Wing River WRAPS IN 2014 and this information is incorporated into this plan. Within Hubbard County the MPCA is now completing IWM on the Mississippi River Headwaters and the Leech Lake River watersheds. As data is gathered and the WRAPS are completed that information will be included in future Hubbard County LWM plans. Civic Engagement (CE) on all three of these watersheds will continue through future activities and project development for each watershed.

The LWMP Task force has recommended that the LWMP "nest" regulatory, educational and implementation strategies within the objectives, goals and actions for each watershed in the county rather than having these be discrete categories. While there is support for the WRAPS process and documents with work toward implementing the One Watershed One Plan approach in the future, there are concerns not addressed by these approaches. Those concerns are the impacts of climate and temperature change on cold water regime lakes, the loss of critical habitat on the health of the ecosystem, habitat fragmentation, groundwater vulnerability and availability, and groundwater/surface water interactions. Local water management plans can better address these concerns.

Hubbard County Local Water Management Plan Financials

Hubbard County LWMP Budget with county funding:

2015	LWMP	Levy
$2,500.00	Freshwater Festival	
$4,000.00	Administration	
$3,745.00	Geologic Atlas/Survey	
$1,300.00	Lake Water Quality Monitoring-stipend	
$1,200.00	Water Education	
$ 500.00	Nitrate Testing	
$ 0	LWMP Coordinator	$8,566.00
$13,245.00	**TOTALS**	**$8,566.00**

Total Costs for Implementation for Hubbard County Local Water Management Plan:

Costs have been applied on both a per year basis and on a project basis which may cover multiple years. Those costs that exceed the annual Hubbard County LWMP budget funding will be sought with grants, special projects, public and private contributions, some of which may come from but are not limited to, Clean Water Legacy funds, Lessard Sam's funding, MPCA, MDA, MDH, MN DNR, lake associations, MN Land Trust, LLAWF, and more. The budget for 2016 has not been determined by the Hubbard County LWMP Task Force as yet.

If funding is not found then those listed actions will not be able to be completed.

Priority Concern	Objective	Objective Costs	Total Objective Costs
AIS	Objective 1	$ 86,438.00	
	Objective 2	$251,345.00	**$ 337,783.00**
Surface Water	Objective 1	$ 12,000.00	
	Objective 2	$ 14,000.00	
	Objective 3	$ 9,500.00	
	Objective 4	$ 40,000.00	
	Objective 5	$ 4,000.00	
	Objective 6	$564,450.00	**$ 643,950.00**
Groundwater	Objective 1	$ 29,720.00	
	Objective 2	$ 3,250.00	
	Objective 3	$108,850.00	
	Objective 4	$ 500.00	
	Objective 5	$ 3,585.00	
	Objective 6	$ 900.00	
	Objective 7	$ 2,500.00	
	Objective 8	$ 1,000.00	
	Objective 9	$ 1,000.00	**$ 151,305.00**
Land Use & Habitat	Objective 1	$ 26,103.00	
	Objective 2	$ 39,500.00	**$ 65,603.00**
		TOTAL PLAN	**$1,198,641.00**

The discrepancy between the annually budgeted amount and the total plan amount shows the large amount of work that could be done and the need for additional funding to “Protect” Hubbard County.

Many maps have been generated and included in this LWMP “To tell the story” of Hubbard County. Where we are currently, what problem areas there are, and where we need to focus our attention to better protect Hubbard County waters in the future.

Local Water Management Plan Priority Concerns and Summaries

The 2015 HCLWMP is different from past versions in that it includes:

Priority Concern: Aquatic Invasive Species (AIS)

- A focus on Aquatic Invasive Species through a county wide adoption of an AIS plan including Public Awareness Education and Information; Prevention through watercraft inspection and decontamination; Early Detection of AIS through monitoring; Rapid Response

in case of infestation; Mitigation and Management in case of infestation; and Administration of the comprehensive AIS plan.

Priority Concern: Surface Water Quality and Quantity Improvement and Protection

- Stormwater Management through erosion and sediment control for each municipality within Hubbard County and also on a county wide basis.
- Implementing the Minnesota Buffer Initiative by placing buffers along public waters, judicial ditches, and public and private drainage systems.
- Identify sensitive shoreline, ecologically significant and large undisturbed tracts of shoreline and create a prioritized list for protection strategies.
- Develop prioritized, targeted projects on a watershed basis across county lines with common goals and objectives.
- Create information sources for oil, petroleum and gas pipelines within the county and what to do in case of spills or ruptures.
- Build on the model for water plans that the Crow Wing County LWMP developed on a minor watershed level with additional science based parameters including percent disturbed land cover, lake water quality trends, risk of land conversion, and lake phosphorous sensitivity which leads to a risk classification determination for each minor watershed.
- Incorporates the 2012 Large Lake Assessment done by Hubbard County SWCD, Hubbard County COLA, RMB Labs, and the Minnesota Board of Soil and Water Resources (BWSR) on 39 county lakes. Data will continue to be collected on lakes within the county to establish trends, monitor trends - either improving, declining, or showing no trend, and gather data on lakes where data sets are incomplete or none existent.
- Incorporates the findings of the Mississippi Headwaters Board's report *Prioritizing Conservation Project Implementation in the 400 mile Mississippi Headwaters, 2011/12.*

On Going Activities from 2007 - 2012 LWMP:

- Watershed Restoration and Protection Strategy (WRAPS) projects within the three major watersheds in Hubbard County: Mississippi River Headwaters, Leech Lake River and Crow Wing River programs, which were started after the 2007 LWMP was written will continue.
- Surface Water Assessment Grants (SWAG) applications will be applied for by Hubbard SWCD, to cover lakes within Hubbard County that have little or no water quality data, lakes with declining water quality and to continue to collect data on area lakes for trend analysis.
- Where possible the SWCD will develop apprentice positions with the Conservation Corps and internships for College students with area Colleges, Technical Colleges and the Leech Lake Tribal College to provide professional development for those students and increase the potential for more project implementation within Hubbard County.
- The Hubbard SWCD will continue to offer the Freshwater Festival for area 6th grade students.

Priority Concern: Groundwater Quality and Quantity Improvement and Protection

- Incorporates the gathering of well data by Hubbard SWCD for the County Geologic Atlas Program which is a joint effort of the Minnesota Geological Survey with the University of Minnesota, and the MN DNR division of Ecological and Water Resources. As data is collected this will be included in LWMP and can lead to targeted areas for implementing projects, protection, and for strategic economic development within the county while still "Protecting" the environment.
- Hubbard County, and Hubbard SWCD will also be working with the MN DNR on the Straight River Groundwater Management Area (GWMA) in the county. When the Straight River GWMA plan is completed the strategies for implementation of projects such as wellhead protection, sensitive area protection, water recharge area identification and protection, water appropriations, remediation of contamination, setting of thresholds for appropriation, and more strategic land use planning and management will be reviewed and where appropriate incorporated into the Hubbard County LWMP.
- Hubbard SWCD will implement the MDA Nitrate Testing program for six townships in Hubbard County – Todd, Henrietta, Straight River, Hubbard, Crow Wing Lake and Badoura Townships.

On Going Activities from 2007 - 2012 LWMP:

- Where possible the SWCD will develop apprentice positions with the Conservation Corps and internships for College students with area Colleges, Technical Colleges and the Leech Lake Tribal College to provide professional development for those students and increase the potential for more project implementation within Hubbard County.
- Hubbard SWCD will continue to provide free nitrate testing of private wells at the Shell River fair in Park Rapids, MN in July, and will continue to do nitrate testing on private well water at the SWCD office the first Friday of every month. The results are mapped and shared with the MDH and the MDA.

Priority Concern: Land Use and Habitat Protection for Water Quality

- Addresses the concerns of large scale land conversion from forested to agricultural land within the county.
- Includes programs under the Clean Water Legacy Amendment for creating easements for Wild Rice and Tullibee Forest Management plans for fish species protection and watershed protection of sensitive areas. These projects target specific surface and ground water resources to focus implementation efforts at a minor watershed level. These are multi-year programs.
- Hubbard SWCD will work with the MDA to implement its Nitrogen Management Program.
- Hubbard SWCD, and NRCS will help landowners implement the State of Minnesota's Buffer Initiative.

- Hubbard SWCD will help implement the Minnesota Agricultural Water Quality Certification Program for producers in Hubbard County.
- Hubbard SWCD will work in cooperation with East Ottertail, Wadena and Todd SWCD's to implement the Ag. Corner Pollinator and Tree Planting grant.
- Hubbard SWCD along with BWSR will implement the Soil Erosion law.

On Going Activities from 2007 - 2012 LWMP:

- A Clean Water Legacy program, that was started after the 2007 LWMP was written, that will continue is the cooperative project between Hubbard, Todd and Wadena Counties implementing an Irrigation Specialist program in the counties with a shared Irrigation specialist to offer sound irrigation management and give producers a second opinion on in-field soil moisture status that can assist the producer on when and how much to irrigate based on crop needs. This will in-turn prevent crop loss, and prevent groundwater contamination due to over application of water and leaching of nutrients.

- Where possible the SWCD will develop apprentice positions with the Conservation Corps and internships for College students with area Colleges, Technical Colleges and the Leech Lake Tribal College to provide professional development for those students and increase the potential for more project implementation within Hubbard County.

WATER PLANNING BACKGROUND:

Water plans were developed under the legislative authority and a mandate of the Comprehensive Local Water Management Act (Minnesota Statutes, Chapter 103B). The purpose of Local Water Planning, by statute (LWP), is to identify existing and potential problems and opportunities for the protection, management and development of water and related land resources; and develop objectives and carry out a plan of action to promote sound hydrologic management of water and related land resources, effective environmental protection, and efficient management.

The Board of Water & Soil Resources (BWSR) has oversight responsibilities to ensure that local water plans are prepared and coordinated with existing local and state efforts and that plans are implemented effectively. All parts of Minnesota have state-approved and locally adopted plans in place. These local plans focus on priority concerns, defined goals and objectives, and actions with measurable outcomes. BWSR also provides financial assistance to Local Government Unit's (LGU's) through the Natural Resources Block Grant.

The Hubbard County SWCD, with authority delegated by Hubbard County, is responsible for the writing and updating of the LWM plan. The original Hubbard LWM plan date was 1990 and has been updated in 1995, 1998, 2007, and received extensions on the 2012 revision to November 2015 due to

multiple change overs in staff, inclusion of data and information gathered from the MPCA's WRAPS process, and the addition of an Area 8 Joint Powers Board GIS specialist to develop the maps that led to tools for prioritizing and targeting minor watersheds and projects. The focus has also shifted from the 2007 – 2012 LWMP from individual lake and stream projects to watershed based priorities, especially at the minor watershed level. The Hubbard County Local Water Management Taskforce oversees the Hubbard County LWM plan. This task force is a diverse group of individuals from private and government sectors that establish the goals and objectives of the plan and oversee the LWMP budget and implementation of local projects and plans.

In 2003, there were changes to Minnesota Statute sections 103B.301 to 103B.355. Any references to the *Comprehensive Water Plan* were changed to the *Local Water Management Plan (LWMP)* to focus on local priorities, local control and local implementation. The plan is written within a watershed context. The county will be able to identify trends, problems and opportunities that are specific to a watershed rather than assuming the problem or issue is confined to political boundaries.

Local Water Management Plan Updates

This update of the Hubbard County Local Water Management Plan was completed after the legislature passed one year start-up funding for the Clean Water Legacy. The county recognizes that most of the county's surface waters are in a protection mode with the objective to preserve them from degradation. For the surface waters currently listed as impaired, the county's objective is to restore their beneficial uses by completing Total Maximum Daily Load (TMDLs) studies that will provide strategies and projects that will strive to improve water quality, and try to remove these lakes from impaired status (recognizing that some impairments, such as those resulting from mercury (Hg), are difficult to address from the local level).

The county sees the Clean Water Legacy as an opportunity to work to improve the quality of its lakes, rivers, wetlands, and groundwater and at the very least, protect the county's valuable surface and groundwater resources from further degradation. The county also recognizes that the sandplain that includes most of the county's lakes goes a long way to protect lake water quality by maximizing water infiltration. The county's forest cover and wetlands also provide protection by minimizing and buffering runoff. In the last year the county's forest cover has seen vast changes in conversion from forested to irrigated row crop agriculture with many new center pivot irrigation systems being installed. This further emphasizes the need for information and protection strategies. This water plan also recognizes the need to work on stormwater issues in developing areas, and lake related wastewater issues - especially non-conforming septic systems. Shoreland and ditch re-vegetation is another important component in the county's protection strategy and the county will work to implement the 2015 Minnesota's Buffer Initiative and the 2015 revised Soil Erosion laws. Although not an exhaustive

list, these issues represent the core of the county's effort to protect water quality and quantity with the Clean Water Legacy Amendment.

The January 2016 Hubbard County LWMP will apply for a period of ten (10) years to January 2026, from the date of State approval. In each subsequent fifth year, the County will evaluate the LWMP and update it for the next five year period.

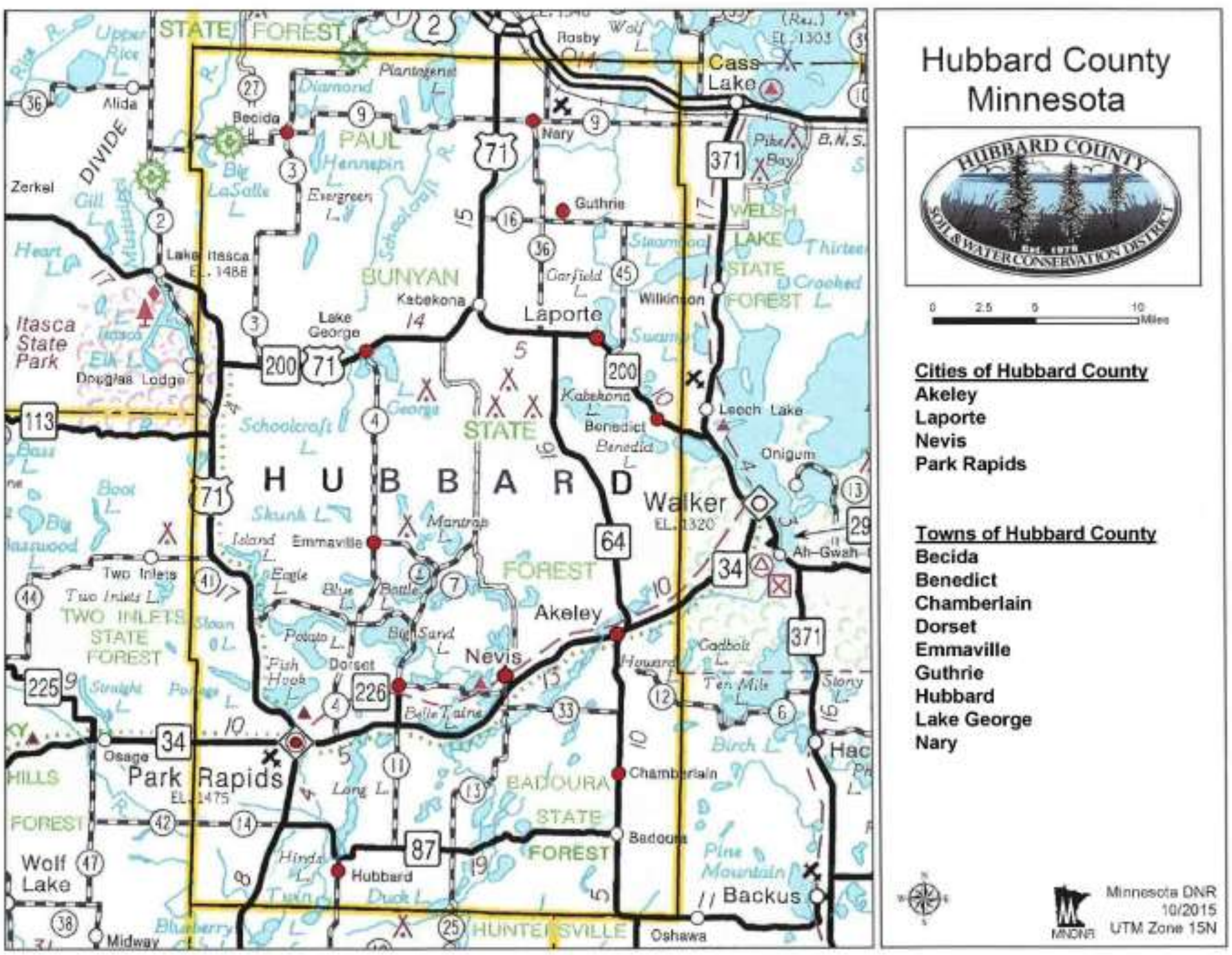
Hubbard County Local Water Management Task Force

COMMITTEE MEMBER		REPRESENTING
Duane Splittstoesser		Agriculture
Ed Smith		County Commissioner
Marvel Haynes		Realtor
Mark (Chip) Lohmeier		Land Commissioner
Eric Buitenwerf		Environmental Services
Robert Isles		SWCD Supervisor
Sally Shearer		University of MN Extension
Dean Christofferson		Large Municipal
Dan Kittilson		Little Sand Lake Association
Chad Severts		Board of Water and Soil Resources
Amy Westmark		DNR Wildlife
Tim James		MN Pollution Control Agency
Calub Shavlik		MN DNR Fisheries
David Olsonawski		Hubbard County Engineer
Dan Pazdernik		Natural Resources Conservation Service (NRCS)
Chris Parthun		MN Department of Health
Darrin Hoverson		MN DNR Hydrologist
Lynn Goodrich		Hubbard County SWCD
Chad Severts		BWSR Board Conservationist
Julie Kingsley		Hubbard SWCD Staff
Phil Votruba		Minnesota Pollution Control Agency
Bonnie Finnerty		Minnesota Pollution Control Agency
Jeff Hrubes		Board of Water and Soil Resources

COUNTY BASICS

Hubbard County is located in north central Minnesota, approximately two hundred miles northwest of the Minneapolis – St. Paul metropolitan area and ninety miles east of Fargo, ND/Moorhead, MN area. Hubbard County covers approximately 640,000 acres, has 28 townships, and 4 cities with 9 smaller communities. The county seat is the City of Park Rapids. Population is centered in the Park Rapids area and the Highway 34 corridor, but northern Hubbard County is seeing growth associated with the City of Bemidji. The county is rich with lakes, wetlands and rivers along with large tracts of publicly administered land which supports the number one economic driver, tourism. Agriculture also has an important economic impact in Hubbard County raising potatoes, corn, and edible beans.

Hubbard County Cities and Towns



POPULATION TRENDS

The 2010 census showed Hubbard County with 20,428 residents. This is an increase of 2,052 residents from the 2000 census. According to the Minnesota State Demographic Center, it is projected that the county population will grow 56% by the year 2030. This high growth rate will put greater demands on our natural resources and county infrastructure.

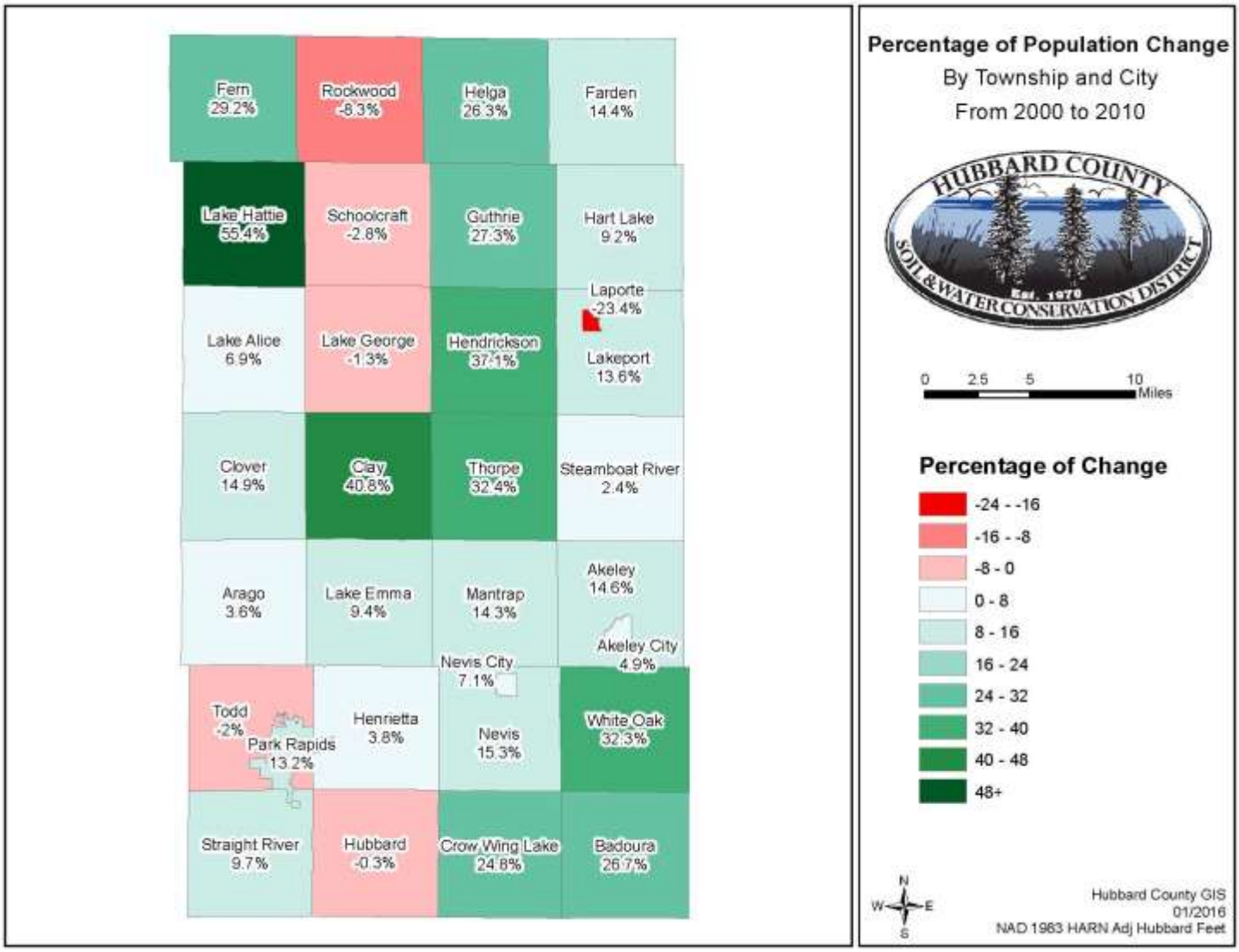
Hubbard County Population 1920 to 2010

1920	1930	1940	1950	1960	1970	1980	1990	2000	2010
10,136	9,596	11,085	11,085	9,962	10,583	14,098	14,939	18,371	20,428

Development increases in Hubbard County from 2007 to 2014 based on the number of E911 address points added (per sq. mile) was 991 addresses.

YEAR	# ADDRESSES
2007	192
2008	150
2009	135
2010	122
2011	104
2012	91
2013	92
2014	105
Total	991

Hubbard County Percentage Population Change from 2000 to 2010



The Top five townships with the greatest population growth from 2000 to 2010 are Lake Hattie, Clay, Hendrickson, Thorpe, and White Oak. The population of the City of Park Rapids gained 13.2 %, Nevis gained 7.1%, Akeley gained 4.9% and Laporte lost 23.4%.

GEOLOGIC CONTEXT

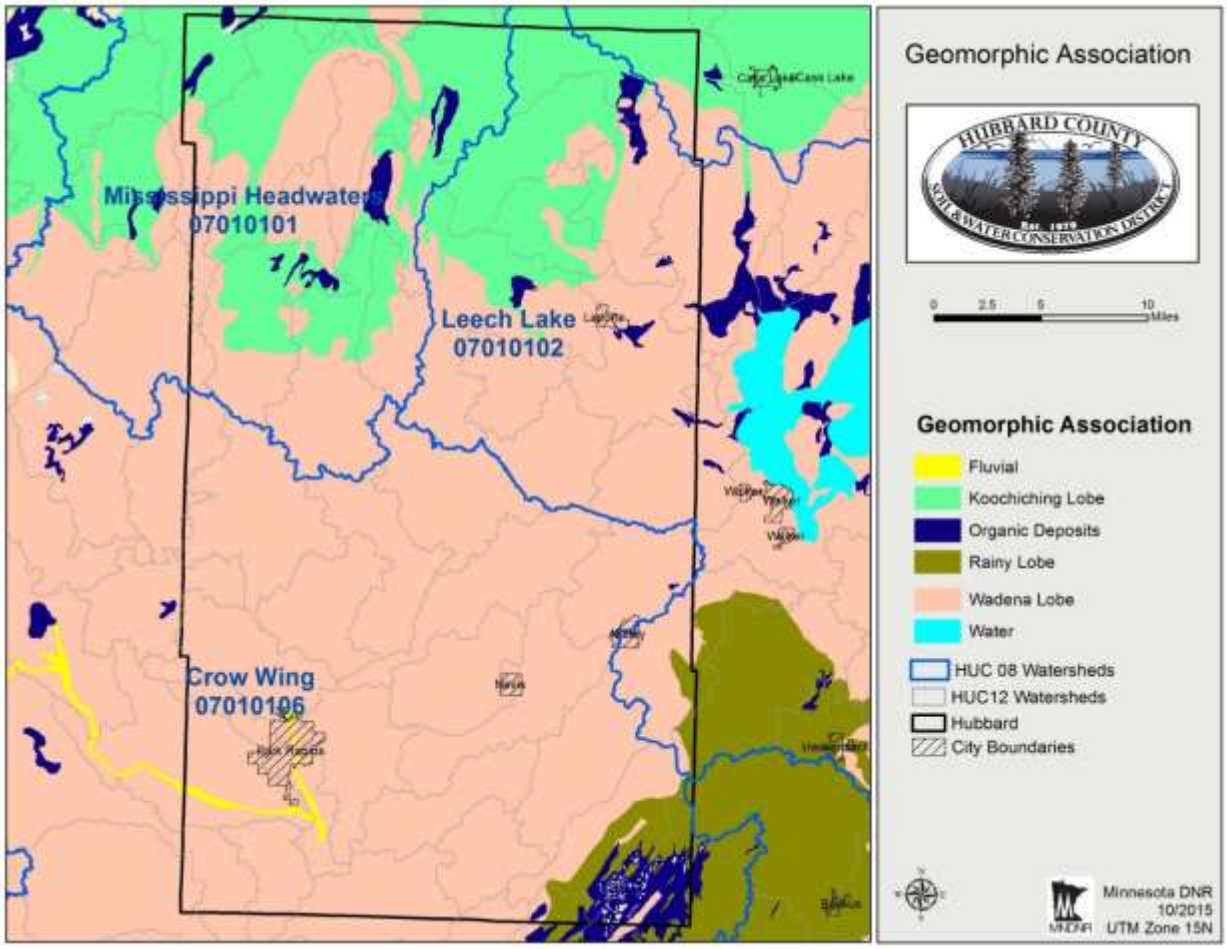
There are many geomorphic regions (landforms) in Hubbard County, all of which were formed by various glacial actions, which led to the surficial geology of today's landscape. Glacial deposits on the landscape can generally be sorted into two categories: *till* (heavier loams and clay soils that were deposited directly by the glacier) and *outwash* (sands & gravels deposited by flowing glacial melt water). A map showing the glaciation of Hubbard County is shown.

Geomorphology and surficial geology are critical drivers of watershed health for a number of reasons. For example, Hubbard County has a large amount of outwash area that allows better infiltration for both groundwater recharge and stormwater management than till. However, these areas are also more erodible and can also be more difficult to stabilize. In addition, the high infiltration rates can contribute contaminants like nitrates to the groundwater. The heavier till soils shed more water and when eroded can contribute sediment and any associated nutrients further downstream.

The relationship between geomorphology and stream characteristics, forest cover, and watershed storage (lakes & wetlands) in relation to peak flow events, such as spring snow melt and high rain events, is significant. The amount of mature forest cover on the landscape, or the lack there of, is a driving factor in sediment and nutrient delivery to downstream water bodies. Minimizing these changes in land use is important to maintaining high water quality and reduce Phosphorous loading. Land use disturbance includes land cover classes that are converted from a natural, forested state to human-altered classes such as: developed, cultivated, pasture, or grassland.

Hubbard County reflects the effects of several periods of glacial activity which swept the area until about 10,000 years ago including the Koochiching Lobe, Wadena Lobe and the Rainy Lobe.

Hubbard County Glaciation Map



The county has three distinctive geologic districts. The northern one-third of Hubbard County is a mixture of ground and terminal moraine land forms. Approximately one-fourth of this area is glacial outwash and assorted glacial deposits. The Bemidji-Bagley Sand Plain occupies most of the extreme northern portion of the county. These deposits have surficial aquifers close to the surface making them highly susceptible to ground water contamination. There are few large lakes in the northern one-third of the county, but is largely made up of cattle grazing operations, hay production, and rural residences. It is also home to several natural trout streams.

The middle one-third of the county is an area of complex terminal morainic terrain. There are numerous lakes amid a generally hilly land surface. Many lakes are connected in long chains with connecting channels while several have no surface outlets. Recent investigations indicate the Itasca

moraine to be an area of regional groundwater recharge. This central portion of Hubbard County is made up almost entirely of public land filled with pine, aspen, wetlands and small lakes.

The southern one-third of the County consists of the Pineland Sandplains, a 770 square mile area, of surficial glacial outwash aquifer. Irrigated and dry land farming are concentrated in the south third of this area. Three of the major cities in the county are located here and utilize the groundwater for drinking water supplies. Most of the industry is concentrated here as well. This entire area is drained by the Crow Wing River and its tributaries. This area is also home to many of the area's largest and most popular lakes.

Land Use/Land Cover

Hubbard County depends on water as the foundation for its agricultural, forestry, manufacturing, and tourist/recreation economies. Land uses are listed below including 313 lakes, and 230 miles of rivers and streams.

Developed	4.45%
Agriculture	6.78%
Grass/pasture/	7.67%
Forest	61.37%
Open water	7.43%
Wetland	12.0%
Barren land	0.30%

Land use trends indicate continued development of lakeshore and rural-urban areas for residential use. Tracts of land continue to become smaller as larger parcels are split, sold and developed. Forest lands have seen an increased amount of clear cutting for conversion to agricultural land in the past several years. This change from forested to agricultural lands, with increased center pivot irrigation, is a substantial land use change and increased usage of groundwater. This increase will put additional stress on surficial and buried aquifers and could change the makeup of major and minor watersheds. An example would be the drawdown of wetlands thus reducing the filtering benefits of those wetlands within watersheds. Within Hubbard County wetlands close to pivots have not been monitored. This year the MN DNR issued an irrigation permit for a new well that was located approximately 50 feet from a Type 5 shallow wetland. In the MN DNR's permit evaluation it was determined that irrigation

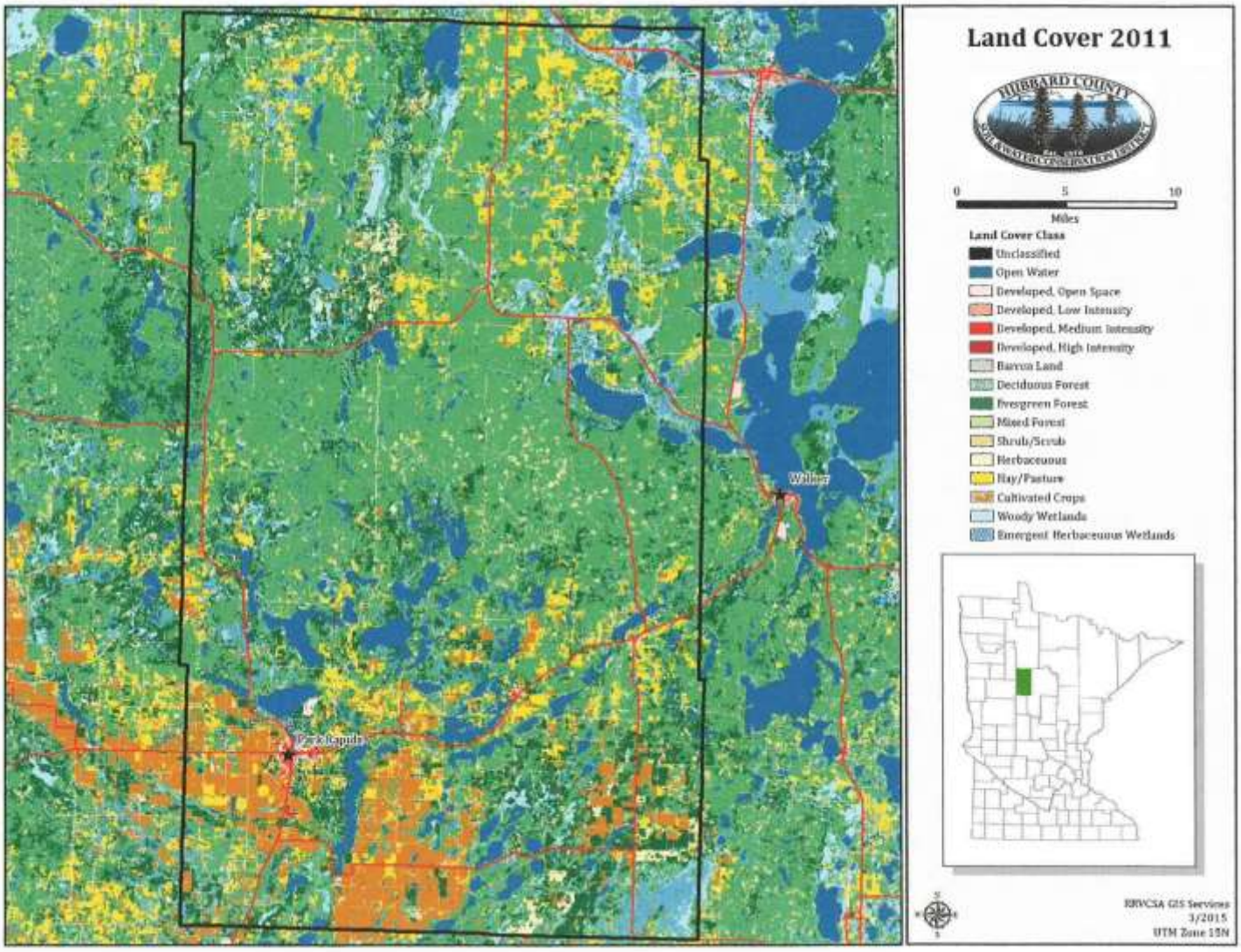
from this well could cause a one to three foot decrease in wetland water levels. As this was the first case in Hubbard County it was decided to place both a piezometer and a staff gauge in the wetland to monitor the effects of pumping for a two year period. The gauges were installed and monitored monthly from June through September 2015 by Hubbard County SWCD. The well in question was not utilized in 2015 by the producer. A decrease in water levels in the wetland was noticed at the August 3, 2015 monitoring. The field to the west of the wetland in question is also irrigated and was pumping that day.

2015 Big Stony Lake Wetland

DATE	Staff Gauge	Tape Held	Wet Length	Notes
6/26/15	19.44	4 ft.	0.45 inches	
8/3/15	18.84	4.5 ft.	0.35 inches	Field to west of wetland irrigating
9/30/15	18.50	5.0 ft.	0.35 inches	

The major agricultural crops in Hubbard County are potatoes, corn and dry edible beans. Also of concern are the changing weather patterns with increased large storm events and temperature increases. These changes need to be recognized and incorporated into any future planning and development.

Hubbard County Land Cover



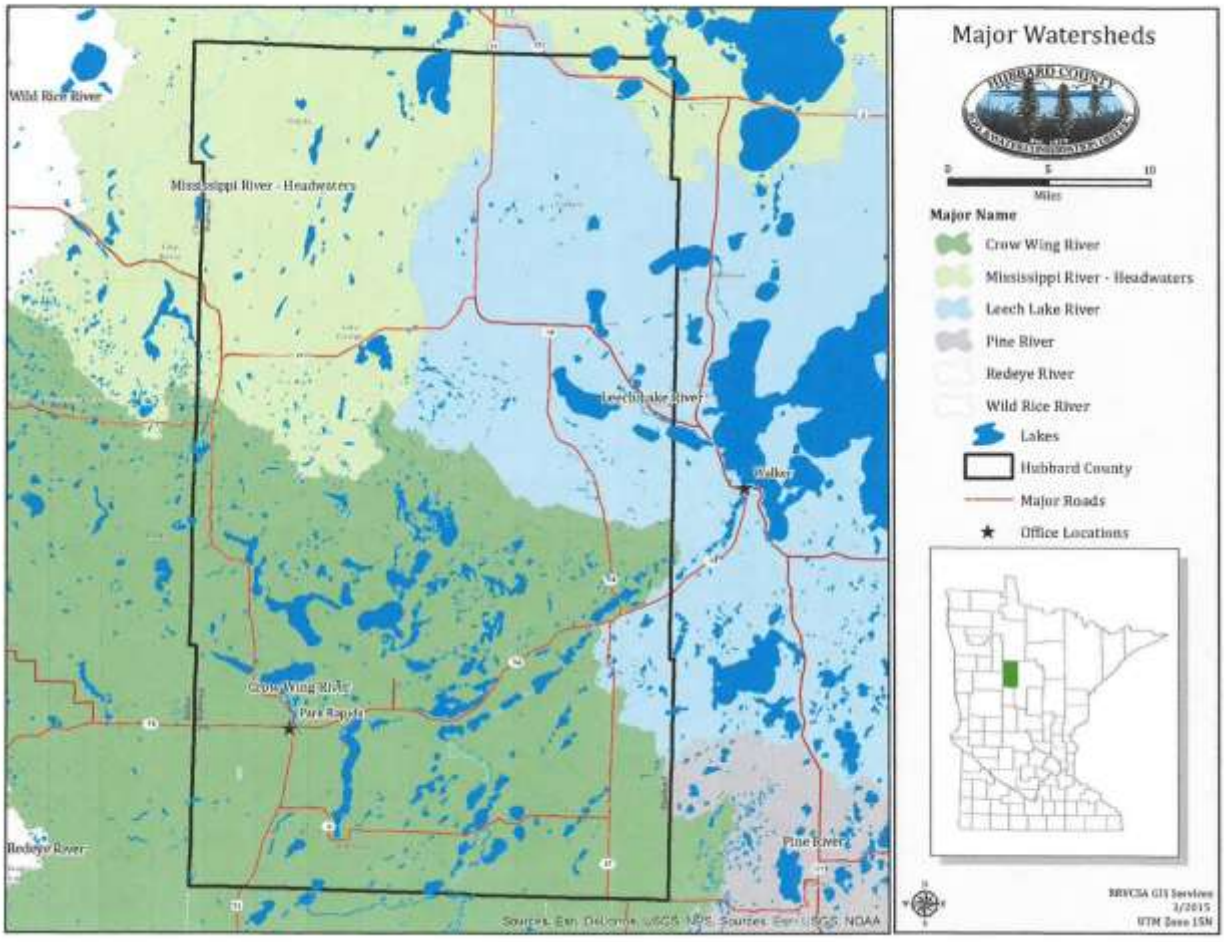
Hubbard County is a water rich county with approximately 313 lakes and 89 minor watersheds. The scope of this plan is the entire area of Hubbard County which includes 4 cities, 9 towns, and 28 townships. The County has an area of 999 square miles with an estimated 2014 population of 20,573 people.

MAJOR WATERSHEDS IN HUBBARD COUNTY

The MPCA defines a watershed as: “The area of land where all of the water that is under it or drains off of it goes into the same point or outlet. A watershed carries water “shed” from the land into soils, groundwater and streams, making its way to rivers, lakes and eventually the sea. It is important to remember that what you do on the land not only affects water quality in that watershed, but for all communities downstream.”

Hubbard County is split into three major watersheds, the Crow Wing River, Leech Lake River and the Mississippi River Headwaters. Each of which is involved in the MPCA Watershed Restoration and Protection Strategy (WRAPS), a 10 year process. The major project elements include intensive watershed monitoring (IWM), stressor identification, watershed modeling, identifying critical areas, implementing projects, and civic engagement.

Hubbard County Major Watersheds



Crow Wing River Watershed

The Crow Wing River Chain is one of Hubbard County's best known water features and attracts many canoeists, boaters, and fishermen each summer. The lake chain consists of eleven lakes connected by short sections of river. Of the eleven lakes in the chain, two are listed by the MPCA as having impairments due to excess nutrients, those being Eighth and First Crow Wing Lakes. The furthest upstream lake, Eleventh Crow Wing Lake, has Curly Leaf Pondweed, an aquatic invasive species (AIS), which will likely have future implications for the rest of the downstream chain.

This is the headwater area for the rest of the Crow Wing River Watershed which also goes through Wadena and Crow Wing Counties, through other lakes and eventually flows into the Mississippi River just south of Brainerd, Minnesota.

The dominant land uses within the Crow Wing River watershed are forested (41%), agriculture (32%), grass, shrub and wetland make up (17%), water (7%), and urban (3%). The majority of the watershed is within the Northern Lakes and Forests Ecoregion with a small portion in the North Central Hardwood Forest. This watershed encompasses the southern one-third of the county and contains the highest amount of lakes and population. The lakes are generally surrounded by extremely sandy soils. There is one large bog area in the southeast portion of Hubbard County known as the Badoura area. Hubbard County communities within this watershed are: Chamberlain, Dorset, Emmaville, Hubbard, Nevis, Park Rapids and part of Akeley.

Changes, now occurring within this watershed, are large scale conversion of forested land to agricultural lands with increased irrigation pivots being installed and large amounts of groundwater being withdrawn. This area, being located in the Central Sands sand plain, is very sensitive to pollutants, nitrates, herbicides, pesticides and fungicides leaching into the groundwater. There has been a marked increase of nitrate levels above the MDH drinking water standards in private wells in the area. Large conversions of land from forested to agriculture may have drastic effects on the watershed as a whole.

The vast majority of the surface water resources within this watershed meet Minnesota's surface water quality standards for conventional parameter pollutants (not including Mercury - Hg). However these resources continue to experience increased pressure from development and subsequent loss of shoreline and aquatic habitat. The threat of aquatic invasive species is also a primary concern for Local Units of Government (LGU), local partner groups, conservation groups and the citizens within this watershed. Changing weather patterns with increased large storm events and increased temperatures are having an effect on area waters and need to be considered when doing any protection strategies.

The following tables list the known stream and lake impairments within this watershed based on the MPCA's 303(d) impaired waters list.

Existing Stream Impairments within Hubbard County

Reach Name	Reach Description	Year Listed	River ID #	Affected Use	Pollutant or Stressor	EPA Cat	TMDL Status
Straight River	Straight Lake to Fishhook river	2010	07010106-558	Aquatic Life	Dissolved Oxygen	5C	Completed

Existing Lake Impairments

Reach Name	Reach Description	Year Listed	County	Lake #	Affected Use	Pollutant or Stressor	EPA Cat	TMDL Status
Eighth Crow Wing Lake	Lake	2006	Hubbard	29-0072-00	AQR & AQC	Hg, Nutrients	5B	Completed
First Crow Wing Lake	Lake	2006	Hubbard	29-0086-00	AQR	Nutrients	5C	Completed
Portage	Lake	2006	Hubbard	29-0250-00	AQR & AQC	Hg, Nutrients	5B	Completed
Upper Twin	Lake		Hubbard		AQR & AQC	Hg, Phosphorous	5B	Completed

Crow Wing River Watershed Restoration and Protection Strategy (WRAPS), MN Minnesota Pollution Control Agency, 2014, www.pca.state.mn.us/water/watersheds/crow-wing-river

MPCA's protection priorities and strategy recommendations for the Crow Wing River Watershed from the Crow Wing River WRAPS are:

Eighth Crow Wing Lake:

The goal of this TMDL study was to determine how much phosphorus needs to be reduced to make a lake fishable, swimmable and usable. Eighth Crow Wing Lake has an existing phosphorus load of 666 kg/year with the goal of reducing 10% of the phosphorus load to 599 kg/year. Phosphorus sources are linked to failing septic systems (account for 34%), non-point sources (66%). Most of the loading occurs from bottom sediments and from Ninth Crow Wing Lake contributions.

- Develop lake management plans for upstream Ninth and Tenth Crow Wing Lakes with Clean Water Fund Diagnostic Study and Implementation Plan.

- Quantify and reduce phosphorus loads from wastewater spray irrigation fields with infiltration BMPs.
- Inspect all shoreline septic systems and upgrade all failing septic systems.

First Crow Wing Lake:

The goal of this TMDL study determined how much phosphorous needs to be reduced to make First Crow Wing Lake fishable, swimmable, and usable. The phosphorus load now is 5,610 kg/year and needs to be reduced 10% to 5,048 kg/year. Non-point source phosphorous contribution to First Crow Wing Lake is 98% from Second Crow Wing Lake and 2% from failing septic systems. There are also registered dairy cattle, beef cattle and swine that may contribute up to 8.4 pounds of phosphorous per year. Common carp are also present in the lake and high water pH may contribute to sediment phosphorus release.

- Protect upstream lake water quality of Second Crow Wing Lake.
- Inspect all shoreline septic systems and update all failing systems.
- Develop carp and plant management plans.

Portage Lake:

The goal of this TMDL study determined how much phosphorous needs to be reduced to make Portage Lake fishable, swimmable, and usable. The phosphorus load is comprised of 78% non-point sources and 22% from failing septic systems. Now the phosphorous load is 302.6 kg/year and the reduction of 10% would be to limit phosphorous to 272.34 kg/year. Portage Lake is a shallow lake with an abundance of curly leaf pondweed and has a high total phosphorous (TP) retention and long residence time before draining into Fish Hook Lake.

- Curly-leaf management to assist in reducing high TP concentration and allow for native plants to rebound.
- Investigate feasibility of lake draw down to reduce internal loading.
- Shoreline buffers.
- Inspect all shoreline septic systems and upgrade all failing septic systems.

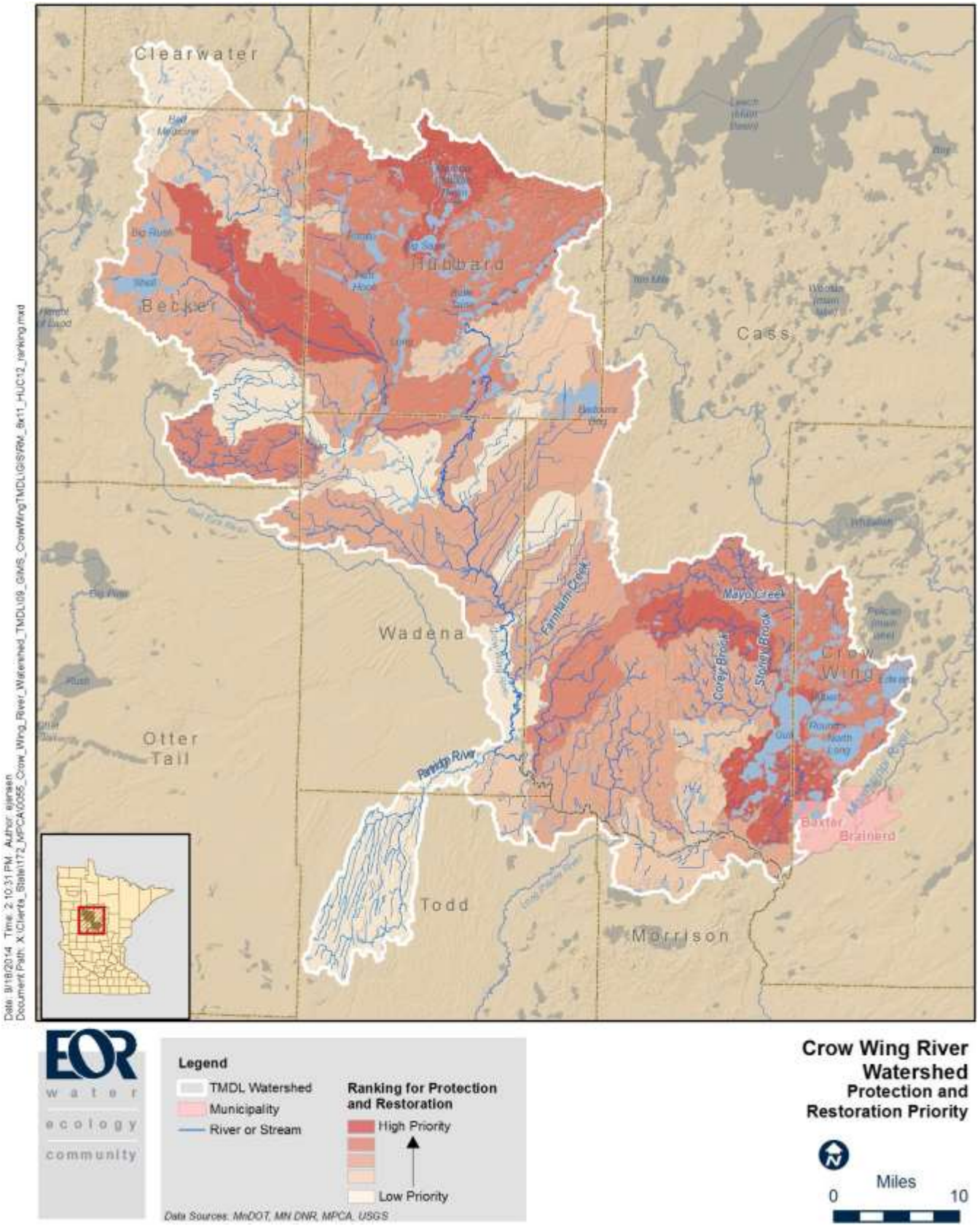
Upper Twin Lake:

The goal of this TMDL study determined how much phosphorous needs to be reduced to make Upper Twin Lake fishable, swimmable, and usable. Upper Twin Lake is fed by the Fish Hook River and Shell River and is connected to Lower Twin Lake which is located in Wadena County. Upper Twin's phosphorous loading is 8,720.1 kg/year with the goal of reducing phosphorous loading by 10 % to 7,819.4 kg/year. The Fish Hook River that joins with the Shell River and empties into Upper Twin Lake was dredged from Highway 87 in Hubbard County to the Upper Twin in 1909 and has

contributed substantial sedimentation to Upper Twin Lake. The goals for Upper Twin Lake are to restore and stabilize the channelized portions of the Fish Hook and Shell Rivers and restore 50% of the channel to its original meanders.

General Watershed Protection Strategies:

- Preserve existing forests
- Increase and maintain natural Shoreline buffers
- Culvert and dam management
- Cropland and manure management
- Livestock, pasture, and feedlot management
- Promote rotational grazing to reduce cattle trampling of stream banks
- Upgrade failing septic systems
- Wetland restoration
- Stream restorations of channelized stream reaches
- Wild rice and/or conservation easements, fee title acquisitions.


Clearwater
Hubbard
Becker
Cass
Wadena
Crow Wing
Otter Tail
Todd
Morrison
Mayo Creek
Farnham Creek
Corey Brook
Stoney Brook
Fawn Lake
Baxter
Brainerd
Date: 9/18/2014 Time: 2:10:31 PM Author: ejensen
Document Path: X:\Clients_State\172_MPCA\0055_Crow_Wing_River_Watershed_TMDL\09_GIMS_CrowWingTMDL\GIS\RM_8x11_HUC12_ranking.mxd
Legend
TMDL Watershed
Municipality
River or Stream
Ranking for Protection and Restoration
High Priority
Low Priority
Data Sources: MnDOT, MN DNR, MPCA, USGS
EOR
water
ecology
community
Crow Wing River Watershed
Protection and Restoration Priority
Miles
0
10

Leech Lake River Watershed

The Leech Lake River Watershed is located in the Northern Lakes and Forest Ecoregion of Minnesota. This watershed covers approximately 854,659 acres (1,335 square miles) in the northern part of the Mississippi River Basin.

This watershed contains some of the most pristine natural resources in Minnesota. The watershed also has a very high degree of biodiversity in its forests and surface waters. One-half of Minnesota's naturally producing muskie lakes and a quarter of the natural muskie habitat in the United States is in the Leech Lake River Watershed. The State Action Plan for Minnesota Wildlife identified 89 species of greatest conservation need, including 29 species that are federal or state endangered, threatened or of special concern within this watershed. The watershed is largely forested with about 46% of land privately held. The remaining land is county, state, federal public land, or held by tribal land owners. The Leech Lake Watershed has 277 total river miles and contains over 750 lakes with a total acreage of 166,374.

This watershed contains the steepest slopes in the county which are most evident in the western portion of the watershed known as the Gulch Lakes area. These slopes consist mostly of till soils and are on the south slope of the Itasca moraine. The remainder of the watershed has gently rolling to rolling slopes with some bluffs and wetlands adjacent to lakes and streams.

This area has had some population growth also, but not to the current extent of the other two major watersheds. Land use is forested, public, private, tribal, and lakeshore development with only 5% - 6% of the land area under cultivation. Hubbard County communities within this watershed are: Benedict, Guthrie, Laporte, Nary and part of Akeley.

The vast majority of the surface water resources within this watershed meet Minnesota's surface water quality standards for conventional parameter pollutants (not including Mercury (Hg)). However these resources continue to experience increased pressure from development and subsequent loss of shoreline and aquatic habitat. The threat of aquatic invasive species is also a primary concern for Local Units of Government, local partner groups, conservation groups and the citizens within this watershed. Changing weather patterns with increased large storm events and increased temperatures are having an effect on area waters and need to be considered in doing any protection strategies.

Threats to this watershed are increased pressure from lakeshore development and subsequent loss of shoreline and aquatic habitat. Leech Lake has an AIS infestation of Eurasian water milfoil and is a high destination lake. It is in close proximity to the waters of Lake Winnibigoshish and Cass Lake which are infested with other AIS species such as zebra mussels, spiny waterfleas, faucet snails and flowering rush which poses an increased threat of additional infestation. This watershed is also experiencing large conversions of forest land to agricultural irrigated land which will change the dynamics of the watershed.

The Leech Lake River watershed WRAPS will be finished in 2016. When this information becomes available it will be reviewed and where appropriate added to the Hubbard County LWMP with specific prioritized, targeted projects that will have measureable outcomes. Preliminary results suggest that the designated use (aquatic recreation) is impaired for Nutrient/Eutrophication Biological indicators on Hart Lake within Hubbard County. However, due to natural lake background condition considerations, the possibility of the development of a shallow lake standards for the Northern Lakes and Forests Ecoregion in the future, and the relatively remote (minimal human impact) nature of these lakes, a TMDL is not planned to be written for this lake during this Intensive Watershed Monitoring (IWM) cycle. Along with evaluating these factors, the MPCA will gather additional water quality data in the future and re-evaluate Hart and Garfield lakes in the IWM cycle in 2022.

Possible Lake Impairments in the Leech Lake Watershed for Hubbard County

Lake Name	Lake ID	County	Acres	Depth (max)	Public Water Access
Hart Lake	29-0063-00	Hubbard	208.9	20 feet	Yes

Hart Lake has had a good portion of the Necktie River which leads into the lake channelized in the early 1900's.

Stream/River Reach Impairments in the Leech Lake Watershed for Hubbard County

Reach Name	Reach Description	Year Listed	River ID	Affected Use	Pollutant/ Stressor	EPA Cat	TMDL Status
Necktie	Hart lake to Steamboat Lake	Not listed as yet	07010102-502	Aquatic life	Dissolved Oxygen, Fish IBI	Unknown at this time	Not determined
Kabekona	Source to Kabekona Lake	Not listed as yet	07010102-511	Human Recreation/ consumption	Bacteria	Unknown at this time	Not Determined

Portions of both the Necktie and Kabekona Rivers are designated trout streams and should have additional protection strategies.

52 priority lakes were chosen for protection in the Leech Lake Watershed. Of those lakes 3 Hubbard County lakes were chosen to have phosphorus load reduction tables completed that had a mixed or watershed management focus. Those lakes are Benedict (lake number 29-0048-00), Garfield (29-0061-00) and Kabekona (29-0075-00) lakes.

Exceptional Waters of the Leech Lake Watershed within Hubbard County

Bungashine Creek, that lies within the Leech Lake River watershed in Hubbard County, is listed as the only **Exceptional** water and should be protected as an outstanding water for biodiversity.

RESPEC - consulting firm working with the MPCA, presented findings on the Leech Lake River Watershed Restoration and Protection Strategies –

"The following BMPs are recommended to identify priorities in the comprehensive county water plan and for adoption by the county board in future zoning ordinances and land use planning in order to reduce the potential for significant degradation to water resources in the Leech Lake River Watershed."

Leech Lake River Watershed and Protection Strategy (WRAPS), Minnesota Pollution Control Agency preliminary findings, 2015, www.pca.state.mn.us/water/watersheds/leech-lake-river

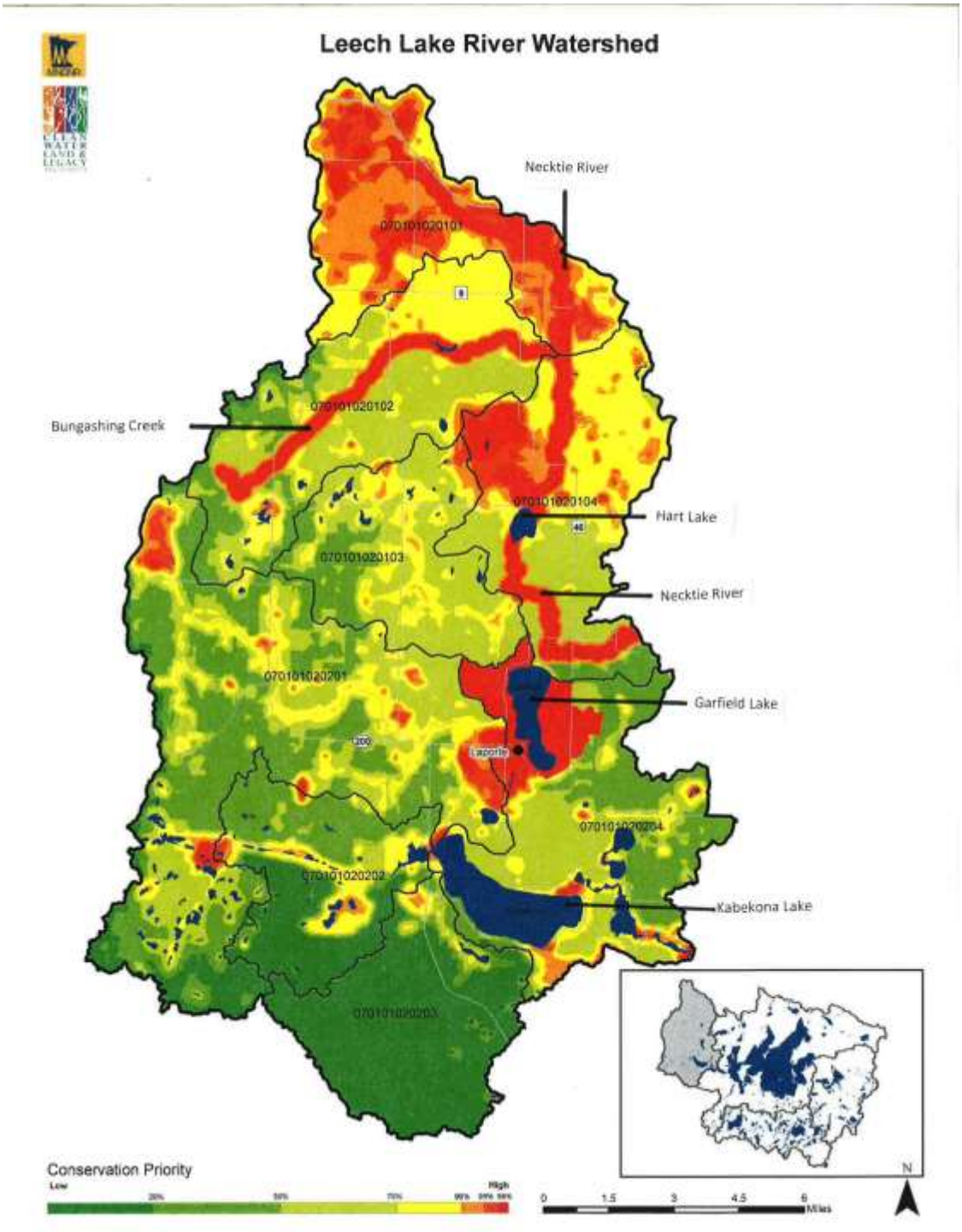
- Incentivize improved farming practices, such as rotational grazing, low-density feedlot operations and low or no-till agriculture
- Require the retention of 1.1 inches of surface runoff from all impervious surfaces
- Require 50 foot shoreline buffers for new development that occurs within 500 feet of lakes
- Preserve all wetlands and 75 percent of the natural areas within city boundaries
- Decrease the potential of forest fragmentation and conversion of forest land through setting minimal lot sizes and providing opportunities for transfer of development rights
- Decrease the effective impervious area within city limits to 10 percent, particularly through the use of cluster development in areas where natural areas are developed."

RESPEC External Memorandum, March 9, 2015 on Leech Lake Watershed prioritization

Project Central file 2245 Category A

In the Leech Lake River Watershed Zonation modeling was another tool that was added to the toolbox for helping determine priority areas for restoration and protection. It is a values based system that uses the MN DNR's five components for a healthy watershed conceptual framework to assess watershed problems and solutions. This includes protecting or improving waters of concern; reducing erosion and runoff; protect and improve fish and wildlife habitat; protect and improve lands of concern and enhance connectivity. This approach recognizes that attempts to solve clean water needs are not separate from other conservation needs and are tied with each conservation activity and should provide multiple benefits to the resource. This approach incorporates data valued by the community as was used as part of the Civic Engagement process in the Leech Lake River watershed. There were 24 conservation features that were used to value the model in this watershed. This model uses Zonation software (Moilanen et al.2009) and includes a nested hierarchy of conservation priorities. This modeling was not available for the Crow Wing River Watershed WRAPS.

Leech Lake Watershed Conservation Priorities Zonation Model



Red means high priority: Bungoshine Creek, Hart Lake, Garfield Lake, and Necktie River.

Mississippi River Headwaters Watershed

The Mississippi River Headwaters watershed is located in the Northern Lakes and Forest ecoregion of Minnesota. Approximately 44 percent of the land in this watershed is privately owned and the remainder is tribal, state, county or federally owned public land. Of this watershed 12.6 % or 158,439 acres lies within Hubbard County. This watershed lies north of the Itasca moraine with lakes and streams mostly bordered by forested swamps and other wetland types such as shrub swamps and sedge covered marshes. The topography is gently rolling to rolling hills. Extreme slopes can be found around the LaSalle Lakes and isolated areas around Beauty Lake. There are about 10,000 acres of open water in this watershed. Agricultural use of land in this area is mainly limited to grazing and perennial hay crops.

Higher residential growth is occurring here as a bedroom community to the City of Bemidji with residential/commercial development at 2.9%, 6.4% of the land area is cultivated, forest covers 58%, wetlands 15%, and open water covers 14.3% of this watershed. Hubbard County communities within this watershed are: Becida, Nary, and Lake George.

The vast majority of the surface water resources within this watershed meet Minnesota's surface water quality standards for conventional parameter pollutants (not including Mercury, (Hg)). However these resources continue to experience increased pressure from lakeshore development and subsequent loss of shoreline and aquatic habitat. The threat of aquatic invasive species is also a primary concern for LGU's, local partner groups, conservation groups, lake associations, and the citizens within this watershed.

The Mississippi River Headwaters watershed WRAPS will be completed in 2017. When this information becomes available it will be reviewed and where applicable added to the Hubbard County LWMP with specific prioritized, targeted projects that will have measureable outcomes. Zonation modeling will also be included in this WRAPS. Preliminary results suggest Lake Alice in Hubbard County is a concern because of lack of monitoring data to determine any water quality trends.

The Mississippi Headwaters Board (MHB), located in Brainerd in Crow Wing County, created a report in 2012, *Prioritizing Conservation Project Implementation in the 400-mile Mississippi Headwaters,* with a chapter related to Hubbard County. This report targets specific surface and ground water resources to focus implementation efforts, uses a watershed (catchment) based land protection model, summarizes all available water quality data for the main stem of the Mississippi River within Hubbard County and includes detailed data and maps for the catchments and is referenced in the sources at the end of this document. In this section of the Mississippi Headwaters, areas of concern for protection are the LaSalle Scientific and Natural area, area trout streams, native mussel habitat, and scattered throughout the area are rare, endangered or threatened species.

Mississippi Headwaters Board Water Plan, 2012, http://mississippiheadwaters.org/additionalResources.asp.

MHB resource concerns as top priorities for conservation in the Mississippi River Headwaters are:

- Aquatic invasive species
- Protection of well head protections areas for safe drinking water
- Nitrates – Use agriculture BMPs
- Septic systems that are failing
- Steep slopes and bluff areas in this portion of the watershed susceptible for erosion and sedimentation
- Development due to the proximity to the City of Bemidji

Minnesota 303d Listed streams in the Mississippi Headwaters within Hubbard County

Minnesota Pollution Control Agency, Mississippi River Headwaters Watershed and Protection Strategy (WRAPS), 2015, www.pca.state.mn.us/water/watersheds/mississippi-river-headwaters.

Preliminary results are listed below, but may be changed due to natural background conditions.

Existing Stream Impairments within Hubbard County

Reach Name	Reach Description	Year Listed	River ID #	Affected Use	Pollutant or Stressor	EPA Cat	TMDL Status
Mississippi River,	Headwaters to Schoolcraft river	2006	07010101	Aquatic Life	Low Dissolved Oxygen	Not Available	Natural background

The following are also resource concerns as top priorities for conservation as stated by the, Rapid Water Assessment - Mississippi Headwaters (MN) HUC: 7010101:

- **Soil Quality, Excessive Sheet and Rill Erosion.** Soil erosion and deposition has ranked as a moderate to high concern.

- **Woodland Management.** Management includes tree/shrub plantings, restoring prairies, timber stand improvement, timber sales, enhancing wildlife habitat, and prescribed burning.

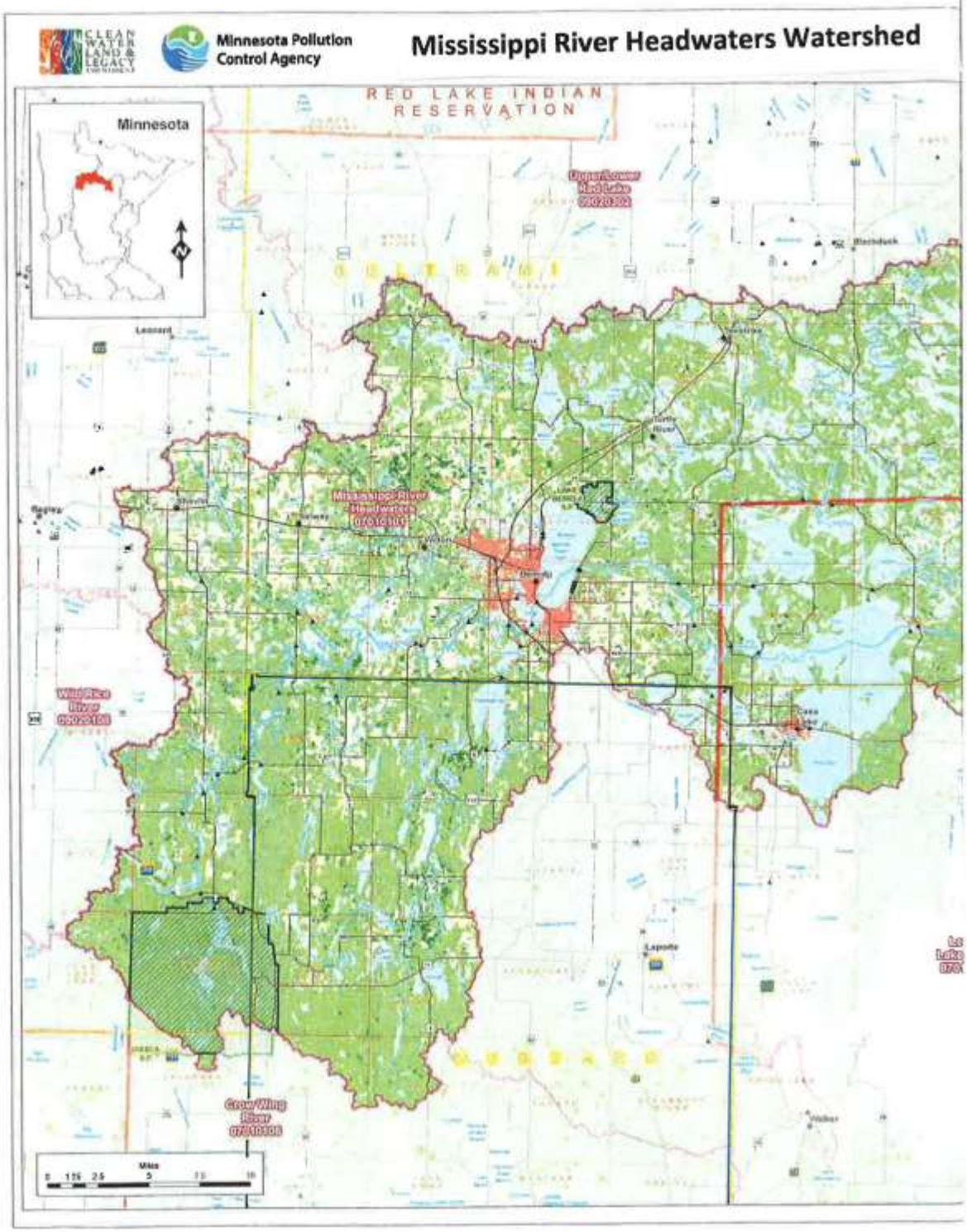
- **Surface Water Quality, Nutrients, Priority Pollutants:** Reduction of priority pollutants and sediments in surface waters is a priority all of which degrade water quality causing depressed

aquatic populations and limited diversity. Mercury and PCB levels are affecting aquatic consumption, aquatic life, and aquatic recreation.

- **Pasture and Grazing Land Management:** The majority of agricultural land is in forage production for grazing livestock.

- **Ground Water Quality, Nutrients, Organics, Animal and Human Wastewater Management:** Aging septic systems, feedlot runoff, nutrient runoff, tilling practices and wells pose threats to groundwater quality.

- **Wetland Management, Gully Control, Drainage Management:** Drained wetlands, crop production in flood prone areas, aging dams all diminish water quality. Restoration of wetlands, dam repair or removal, removing flood prone lands from production all lessen the impact of flooding and improve drainage.


Minnesota Pollution Control Agency
Mississippi River Headwaters Watershed
RED LAKE INDIAN RESERVATION
Minnesota
Leonard
Blackduck
Laporte
Miles

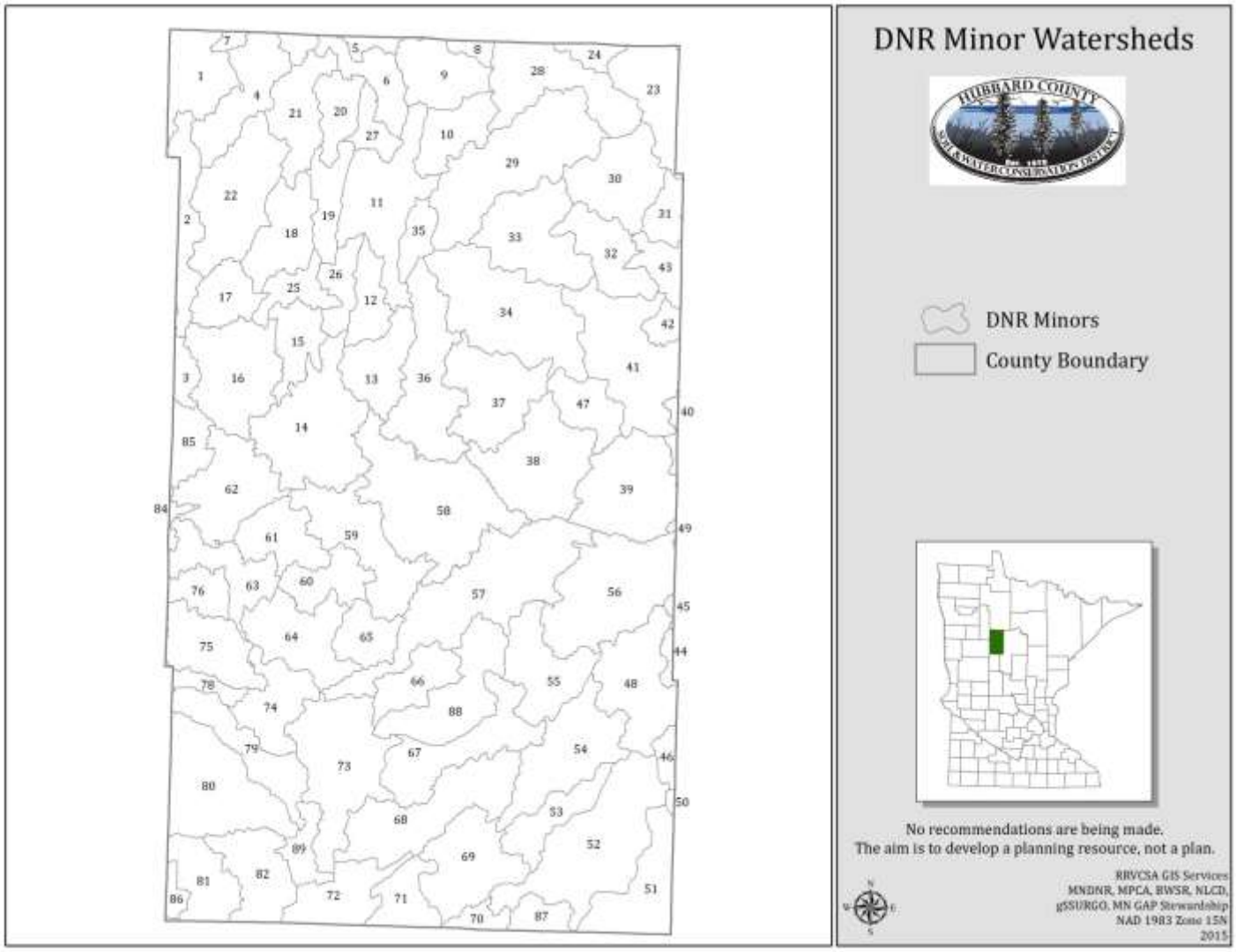
Determining Risk Classification Methods

Prioritizing and targeting areas for implementation efforts of water quality projects in Hubbard County requires an understanding of existing conditions and projected changes and how they may affect water quality within the watersheds. This could include increased development from population growth or changing climate patterns on our surface water resources. A goal of Hubbard County is to preserve the abundance of high-quality water resources despite being faced with the same pressures that have degraded lakes and streams in other parts of the state.

In 2013 Crow Wing County developed a risk classification system to address development pressure. This system ranked the areas in each minor watershed that should receive the highest priority for implementation of water quality protection and improvement efforts using a decision-point flow chart. The risk ranking was based on many factors, including the percentage of land that is protected by public ownership or conservation easements, the amount of land that is disturbed, the documented water quality trends of the waterbodies in each minor watershed and various risk factors.

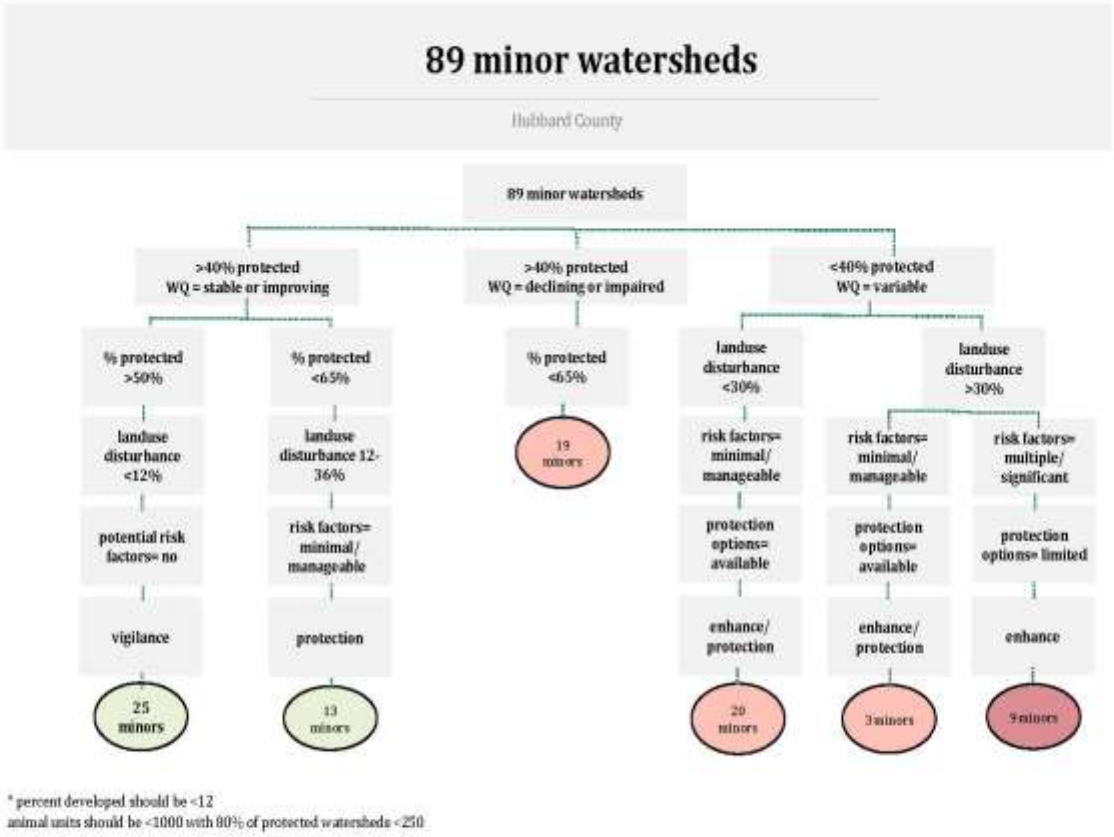
Hubbard County has also used a similar method to rank its 89 minor watersheds. This includes both lakes, rivers and streams. The flow chart and Strategy map are included here.

Hubbard County 89 Minor Watersheds



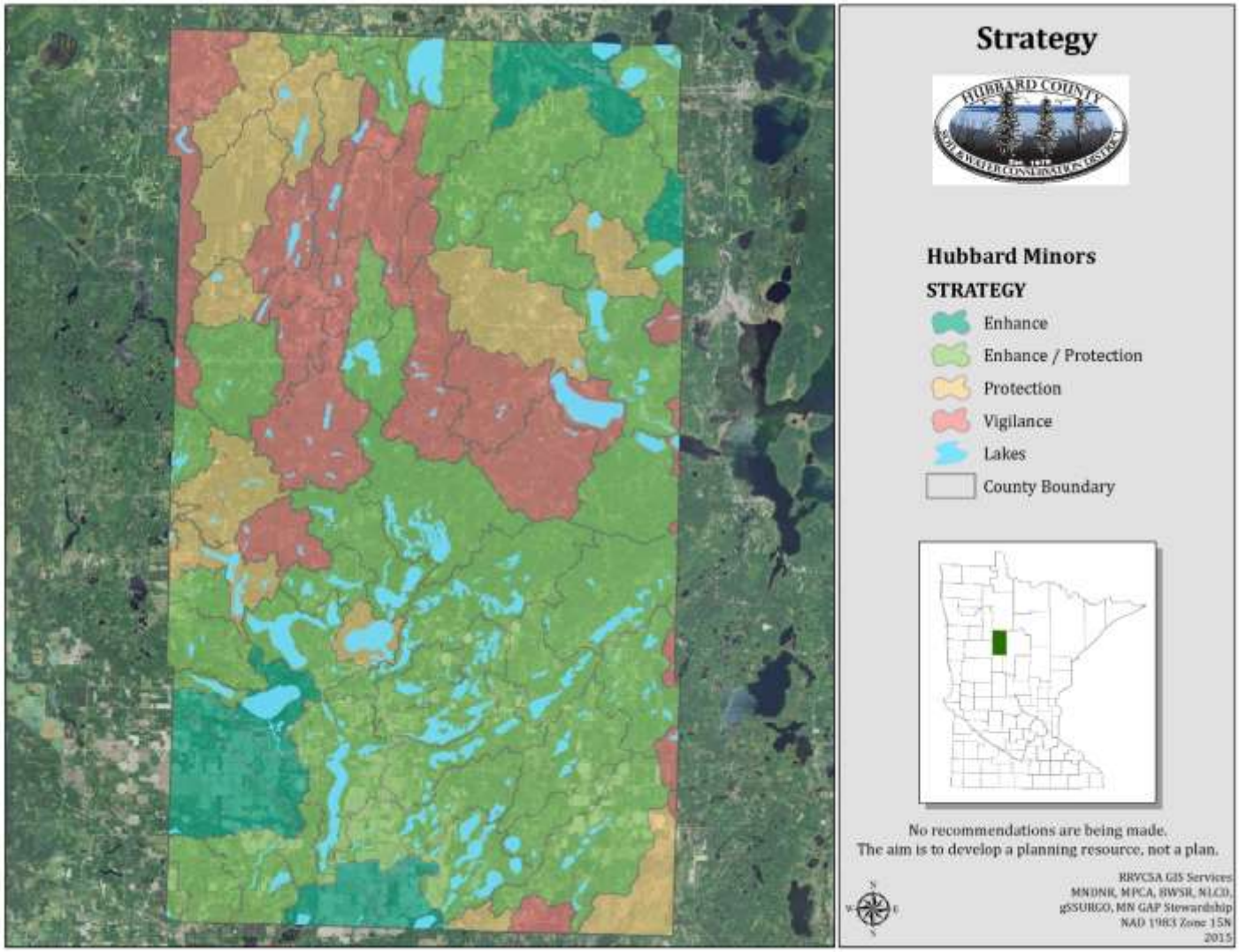
The 89 minor watersheds are numbered from top to bottom of the county. Not in any prioritized order.

Hubbard County 89 Minor Watersheds Strategy



This flow chart has each of the 89 minor watersheds within Hubbard County ranked by strategies and assigns those watersheds to vigilance, protection, enhance/protection, and enhance categories.

Hubbard County Strategy Map



Vigilance: There are no high risk factors such as agriculture, development, artificial drainage or extractive (mining) uses in the majority of the watershed. There are large tracts of county or state forest lands that protect the watershed and any development or agriculture that would occur would have minimal to no impact.

Protection: some land disturbance risk, minimal risk factors, and water quality that is stable or improving, multiple high-quality resources could be protected.

Enhance/Protection: Moderate amount of risk factors, water quality that is stable, declining, or impaired, manageable risk factors, one or more water resources that could be protected

Enhance: Multiple to significant risk factors, limited resources to protect.

Hubbard County Lakes and Rivers Ranked by Category

Numbers related to the minor watersheds map on page 41

ID	Minor	Minor Name	Strategy
1	7049	Mississippi R	Vigilance
2	7054	La Salle Cr	Vigilance
3	7055	L Itasca	Vigilance
4	7061	Hennepin Cr	Protection
5	7062	Mississippi R	Enhance / Protection
6	7063	Revoir Cr	Enhance / Protection
7	7064	Mississippi R	Vigilance
8	7065	Schoolcraft R	Enhance / Protection
9	7070	L Plantagenet	Enhance / Protection
10	7072	Cold Cr	Enhance / Protection
11	7073	Schoolcraft R	Vigilance
12	7074	Alchohol Cr	Enhance / Protection
13	7075	L George	Enhance / Protection
14	7076	Schoolcraft R	Vigilance
15	7077	Buffalo Cr	Vigilance
16	7078	Lake Alice Cr	Enhance / Protection
17	7079	Unknown	Protection
18	7080	Unknown	Vigilance
19	7081	Rat Cr	Vigilance
20	7082	Dead Cr	Protection
21	7083	Unknown	Protection
22	7084	Hennepin Cr	Protection
23	7085	Wolf L	Enhance / Protection
24	7086	Grace L	Enhance
25	7087	Birch Cr	Vigilance
26	7088	Schoolcraft R	Vigilance
27	7131	Unknown	Vigilance
28	8001	Necktie R	Enhance
29	8002	Bungashing Cr	Enhance / Protection
30	8003	Necktie R	Enhance / Protection
31	8004	Unknown	Enhance
32	8005	Necktie R	Protection
33	8006	Pokety Cr	Enhance / Protection
34	8007	Kabekona R	Protection
35	8008	Kabekona R	Vigilance
36	8009	Unknown	Vigilance
37	8010	Gulch Cr	Vigilance
38	8011	Sucker Branch	Vigilance
39	8012	From Benedict L	Enhance / Protection
40	8013	Kabekona Bay	Vigilance
41	8014	Kabekona R	Enhance / Protection
42	8015	From Swamp L	Vigilance
43	8016	Steamboat R	Enhance / Protection
44	8017	From Howard L	Vigilance
45	8018	Shingobee R	Enhance / Protection
46	8019	Tenmile L	Vigilance
47	8020	Kabekona L	Vigilance
48	8021	Shingobee R	Enhance / Protection

49	8061	From May L	Enhance / Protection
50	11026	Stony Cr	Vigilance
51	12001	Big Swamp Cr	Protection
52	12002	Bender Cr	Enhance / Protection
53	12003	Unknown	Enhance / Protection
54	12004	Wallingford Cr	Enhance / Protection
55	12005	Eighth Crow Wing L	Enhance / Protection
56	12006	Crow Wing R	Enhance / Protection
57	12007	Little Sand L	Enhance / Protection
58	12008	From Mantrap L	Enhance / Protection
59	12009	From Emma L	Enhance / Protection
60	12010	From Rice L	Enhance / Protection
61	12011	From Upper Mud L	Vigilance
62	12012	Unknown	Protection
63	12013	Eagle Cr	Protection
64	12014	Potato R	Enhance / Protection
65	12015	Big Sand L	Protection
66	12016	Sand R	Enhance / Protection
67	12017	L Belle Taine	Enhance / Protection
68	12018	Crow Wing R	Enhance / Protection
69	12019	Crow Wing R	Enhance / Protection
70	12020	Crow Wing R	Protection
71	12021	Shell R	Enhance
72	12022	Twin L	Enhance
73	12023	Long L	Enhance / Protection
74	12024	Fishhook L	Enhance
75	12025	Unknown	Enhance / Protection
76	12026	Hay Cr	Enhance / Protection
77	12027	Two Inlet L	Vigilance
78	12028	Portage R	Enhance / Protection
79	12029	Fish Hook R	Enhance
80	12030	Straight R	Enhance
81	12031	Shell R	Enhance / Protection
82	12032	Shell R	Enhance / Protection
83	12033	Blueberry R	Enhance
84	12034	Dinner Cr	Protection
85	12035	Unknown	Enhance / Protection
86	12067	Blueberry R	Enhance / Protection
87	12072	Unknown	Vigilance
88	12142	Unknown	Enhance / Protection
89	12143	Unknown	Enhance / Protection

Hubbard County Risk Classification of Area Lakes

Hubbard County LWMP has also developed a Lake Vulnerability Index stepping beyond the Crow Wing County LWMP model. This lake vulnerability Index is based on Percent Disturbed Land plus Lake Phosphorus Sensitivity plus Lake Water Quality Trends plus Land Conversion Risk to come up with the Lake Vulnerability Index. Each of the 89 minor watersheds within the County have been ranked for vulnerability from High to Low. This is lake based and does not include the influence of rivers and streams.

% Disturbed Land + Phosphorus Sensitivity + Lake Water Quality Trends +

Land Conversion Risk = Lake Vulnerability Risk

% Disturbed Land Cover: This is the percentage of land that has been converted from a natural forested condition to other land uses, such as crop and pasture land or developed areas. Minimizing or managing these changes in a watershed is a good way to maintain high water quality. Based on specified NLCD, 2011 Land use classifications of: Developed-open space; developed-Low intensity; Developed-medium intensity; Developed- high intensity; Grassland-herbaceous; Pasture-Hay; Cultivated crops.

Phosphorus Sensitivity: Phosphorus sensitivity was estimated for each lake by predicting how much water clarity would be reduced with 100 pounds of additional phosphorus loading to the lakes. A phosphorus sensitivity significance index was formulated by MN DNR to rank lakes as they relate to the policy objective of focusing on “high quality, unimpaired lakes at greatest risk of becoming impaired.” The phosphorus sensitivity significance index is a function of phosphorus sensitivity, lake size, lake total phosphorus concentration, proximity to PCA’s phosphorus impairment thresholds, and watershed disturbance.

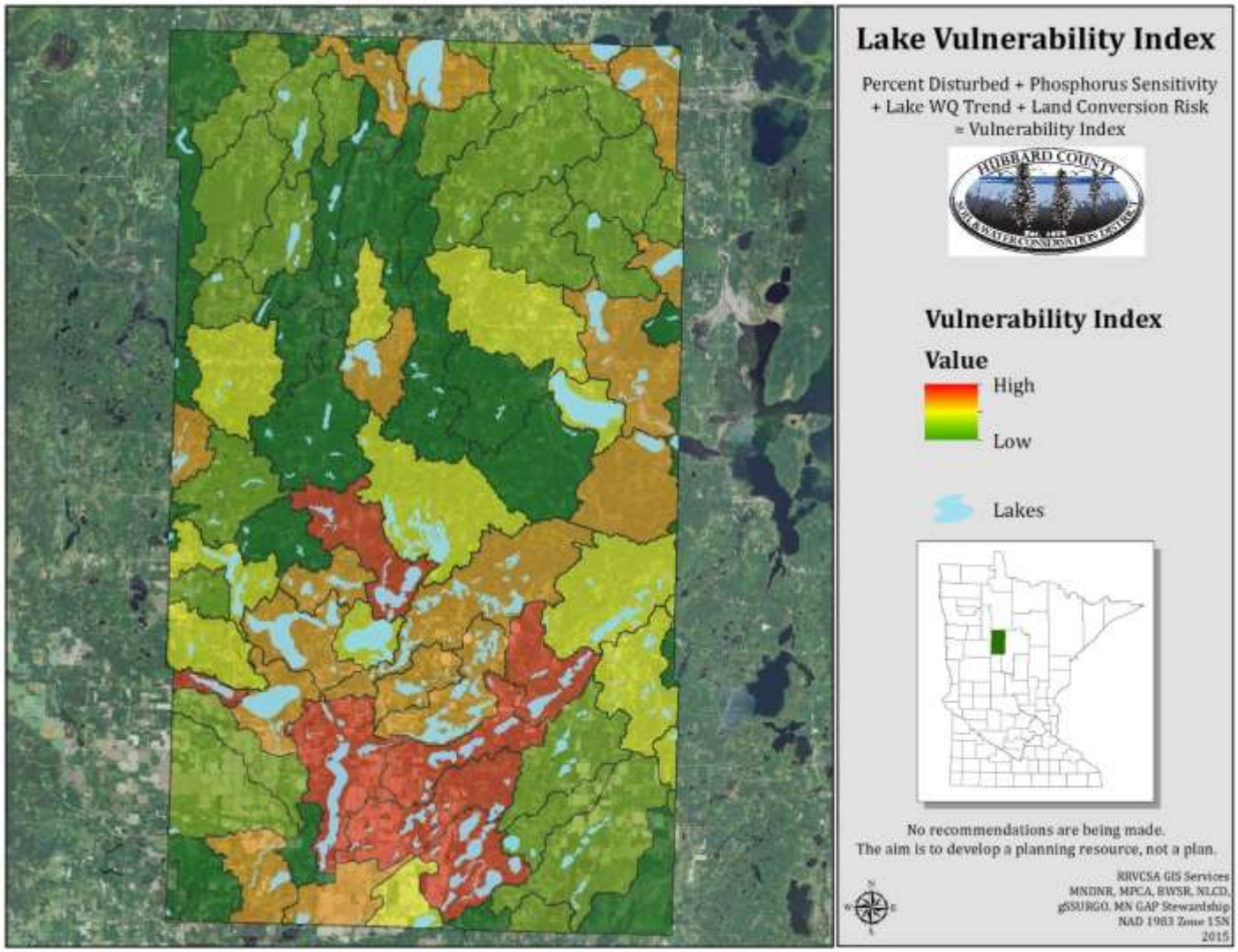
Lake Water Quality Trends: To determine Secchi transparency trends, all available Secchi data was extracted from EQuIS, the MPCA’s water quality database. The Seasonal Kendall statistical test was used to determine whether the data for each lake exhibited increasing or decreasing trends. A minimum of 8 years of data is required to run the test.

Land Conversion Risk: This includes lands that are available for purchase, where the soil type is conducive to agricultural practices, and water is available for irrigation. These lands may be forested at this time, but could be converted to agriculture. They are based on specific NCLD, 2011, gSSURGO gridded Soil Data, and GAP Stewardship. All forest classes from the NLCD were used. Soil map Units exhibiting a land capability classification of 1 - 4 were selected. Land capability

classification shows, in a general way, the suitability of soils for most kinds of field crops. Class1: soils have few limitations that restrict their use; Class 2: soils have moderate limitations that reduce the choice of plants or that require special conservation practices; Class 3: soils have severe limitations that reduce the choice of plants or that require very careful management or both. Gap Stewardship uses all private classes with the exception of private conservancy lands.

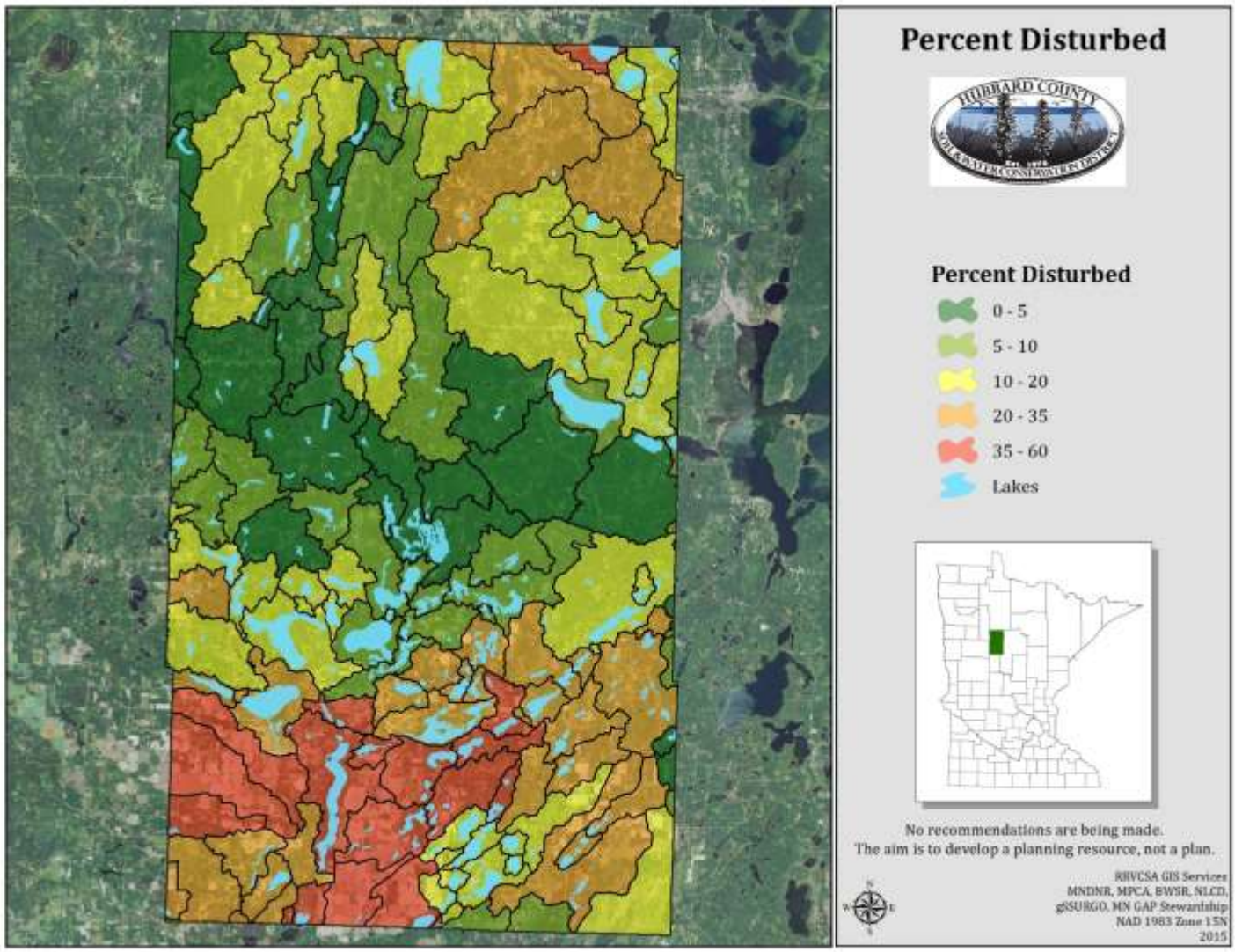
Lake Vulnerability Risk: This was generated by layering the above four geospatial overlays to show the minor watersheds of lakes at the most risk.

Lake Vulnerability Index



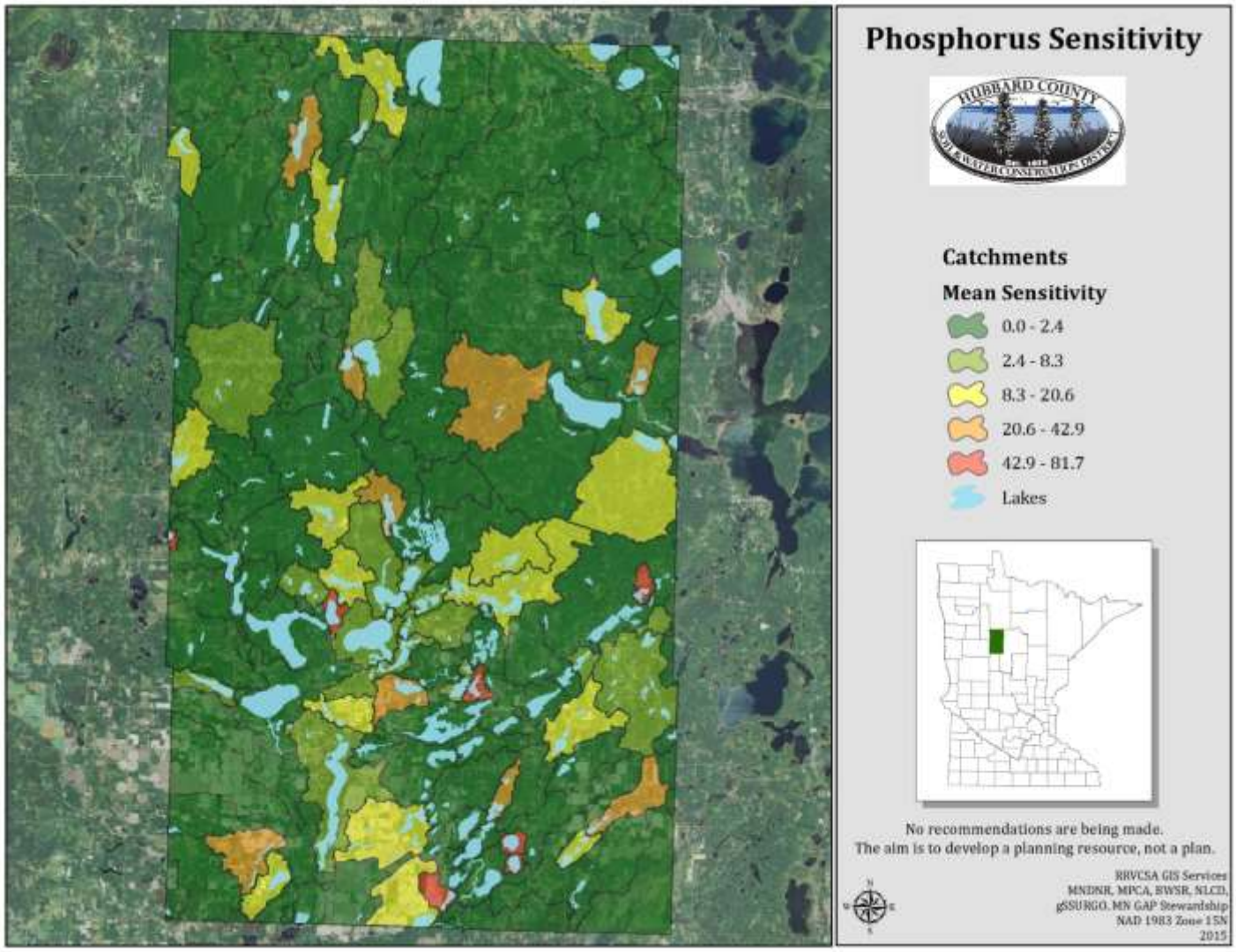
The Lake Vulnerability Index was made up of overlays of the following GIS maps - Percent Disturbed Lands, Phosphorous Sensitivity, Lake Water Quality Trends and Land Conversion Risk. Each of these separate maps are shown in the next pages.

Percent Disturbed Lands



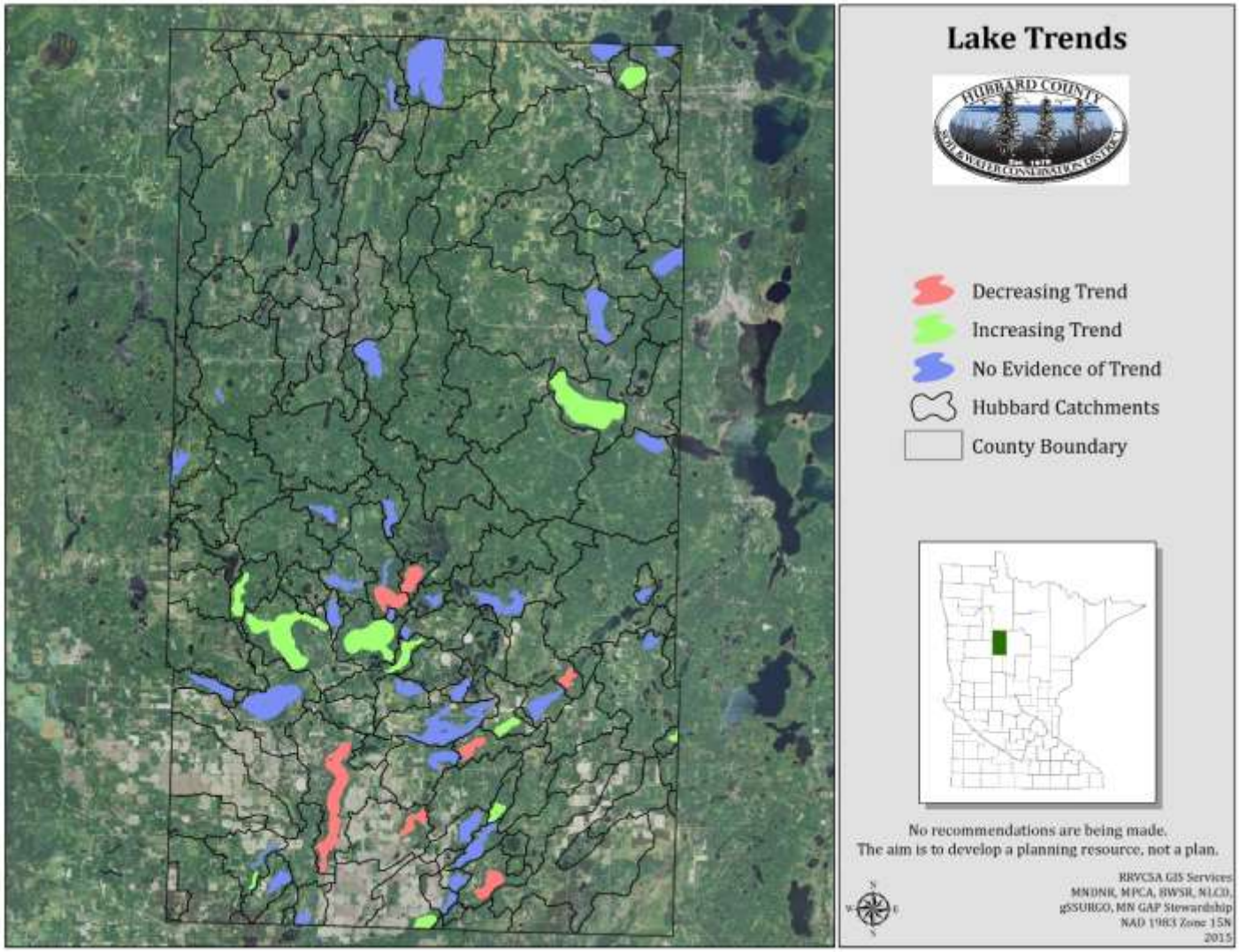
Minor watersheds with the highest percent disturbed land: Straight River, Fish Hook River, Long Lake, Crow Wing River, Upper Twin Lake, Shell River, and Necktie River.

Phosphorus Sensitivity



Minor watershed catchments the most sensitive to phosphorous are: Cedar Lake, Blue Lake, Deer Lake, Big Bass Lake, Palmer Lake, Wolf Lake, and Bladder Lake. For more information see Appendix 2. ***Lakes of Phosphorous Sensitivity Significance***, July 17, 2015; MPCA, MN DNR, BWSR.

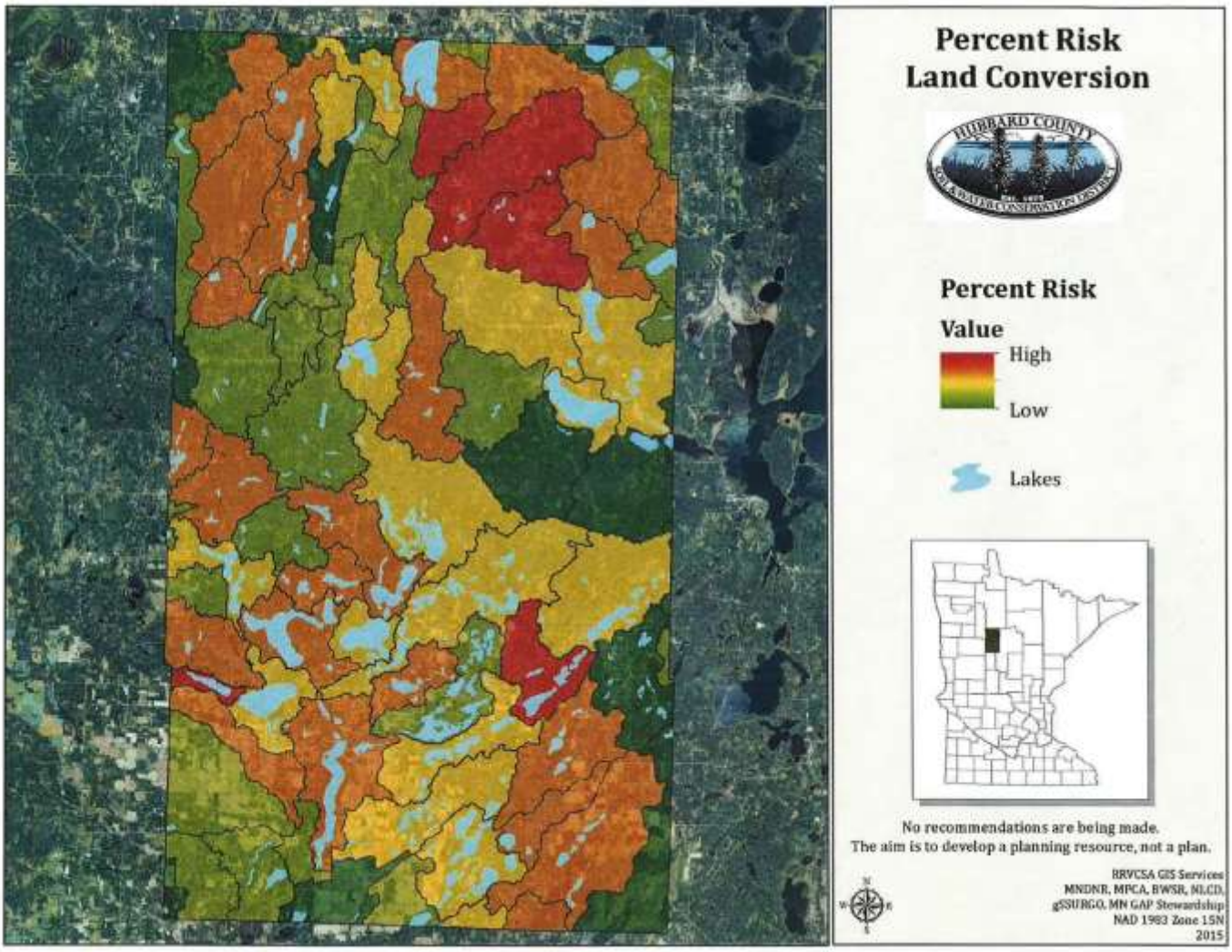
Lake Water Quality Trends



Lakes with declining trends:

Long Lake, First Crow Wing Lake, Sixth Crow Wing Lake, Ninth Crow Wing Lake, Big Stony Lake, Upper and Lower Bottle lakes

Land Conversion Risks



Minor watersheds with the highest potential for conversion from forested to agricultural row crops are listed as red, and orange.

OUTSTANDING SURFACE WATER RESOURCES

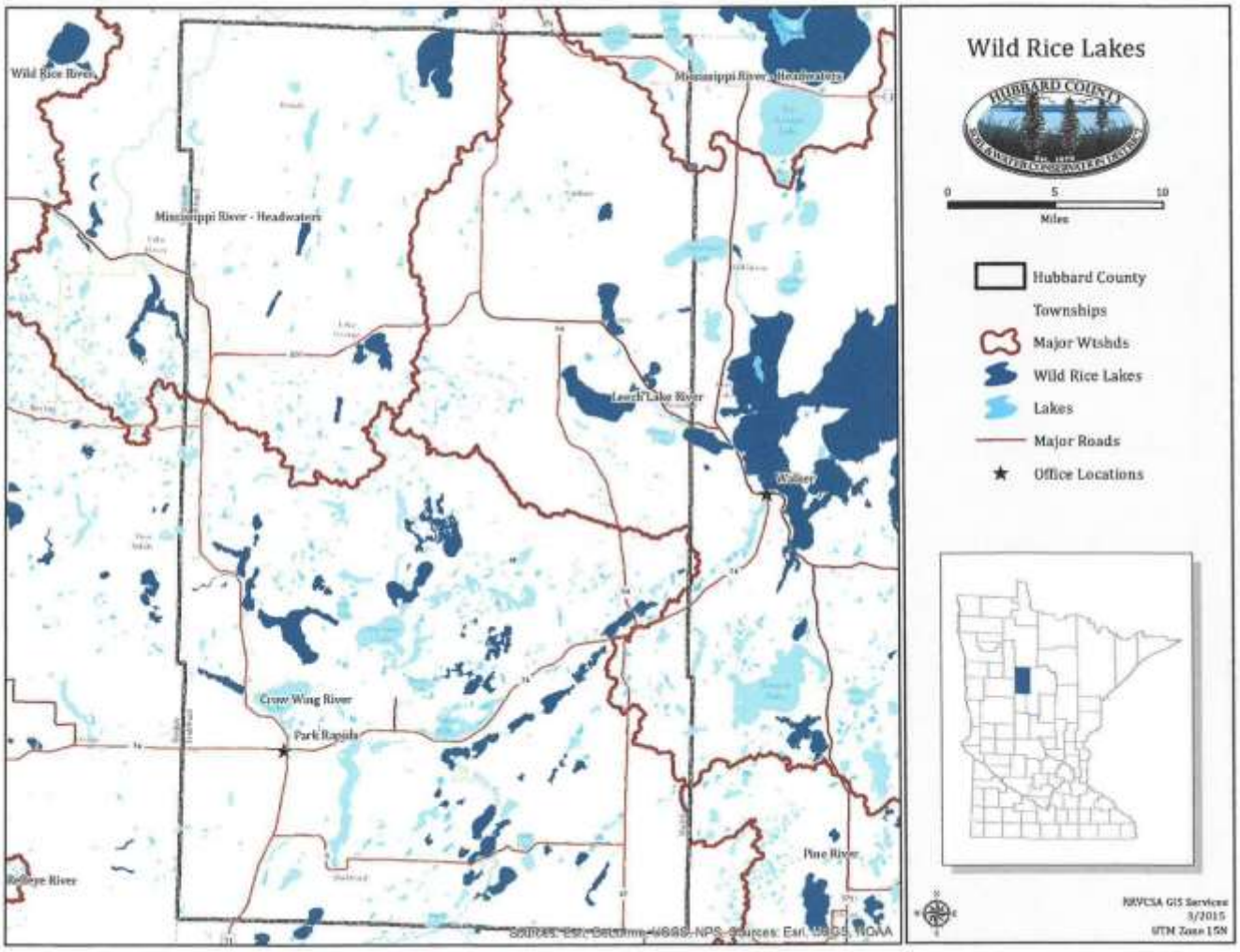
Hubbard County watersheds interact with a number of surface water resources that have outstanding characteristics and implementation focuses that are often independent of the catchment in which they reside. These include: lakes with outstanding water quality with deep, clear water capable of supporting cisco / tullibee and trout, shallow lakes that support vast areas of wild rice critical for maintaining healthy wildlife and waterfowl populations, and other high-value lakes that support rare, threatened and endangered species. Hubbard County has two Exceptional waters - Bungashine Creek, in the Leech Lake River Watershed and Schoolcraft River in the Mississippi Headwaters River watershed. These two minor watersheds both occur within Hubbard County and are the only minor watersheds within the Mississippi River Headwaters and the Leech Lake River watersheds that are exceptional. As exceptional waters they are held to a higher standard by the Minnesota Pollution Control Agency and need special protections to stay that way.

Wild Rice

Minnesota is the epicenter of the world's natural wild rice. Although once found throughout most of the state, it is now concentrated in north-central Minnesota. Wild rice is typically found in shallow lakes and rivers, in shallow bays of deeper lakes and provides some of the most important habitat for wetland-dependent wildlife species in Minnesota, especially migrating and breeding waterfowl. Wild rice is Minnesota's state grain and provides unique recreation opportunities and has cultural significance to Native Americans.

With funding from the Clean Water Land & Legacy Amendment, the BWSR, MN DNR, SWCD's, and Ducks Unlimited have partnered to acquire shoreline properties on priority wild rice lakes through easements and fee title acquisitions. Within Hubbard county six properties have completed wild rice easements for a total of 210 acres that are protected in perpetuity. Of that 210 acres, 76 acres are protected within Crow Wing Lake watershed, 51 acres in the 1st Crow Wing Lake watershed and 83 acres within the 4th Crow Wing Lake watershed. These easements keep the land forested and prevent the land from being developed. Other wild rice lakes that have been identified by the DNR for this program in Hubbard County are Spring Lake and Upper Mud Lake.

Hubbard County Wild Rice Lakes

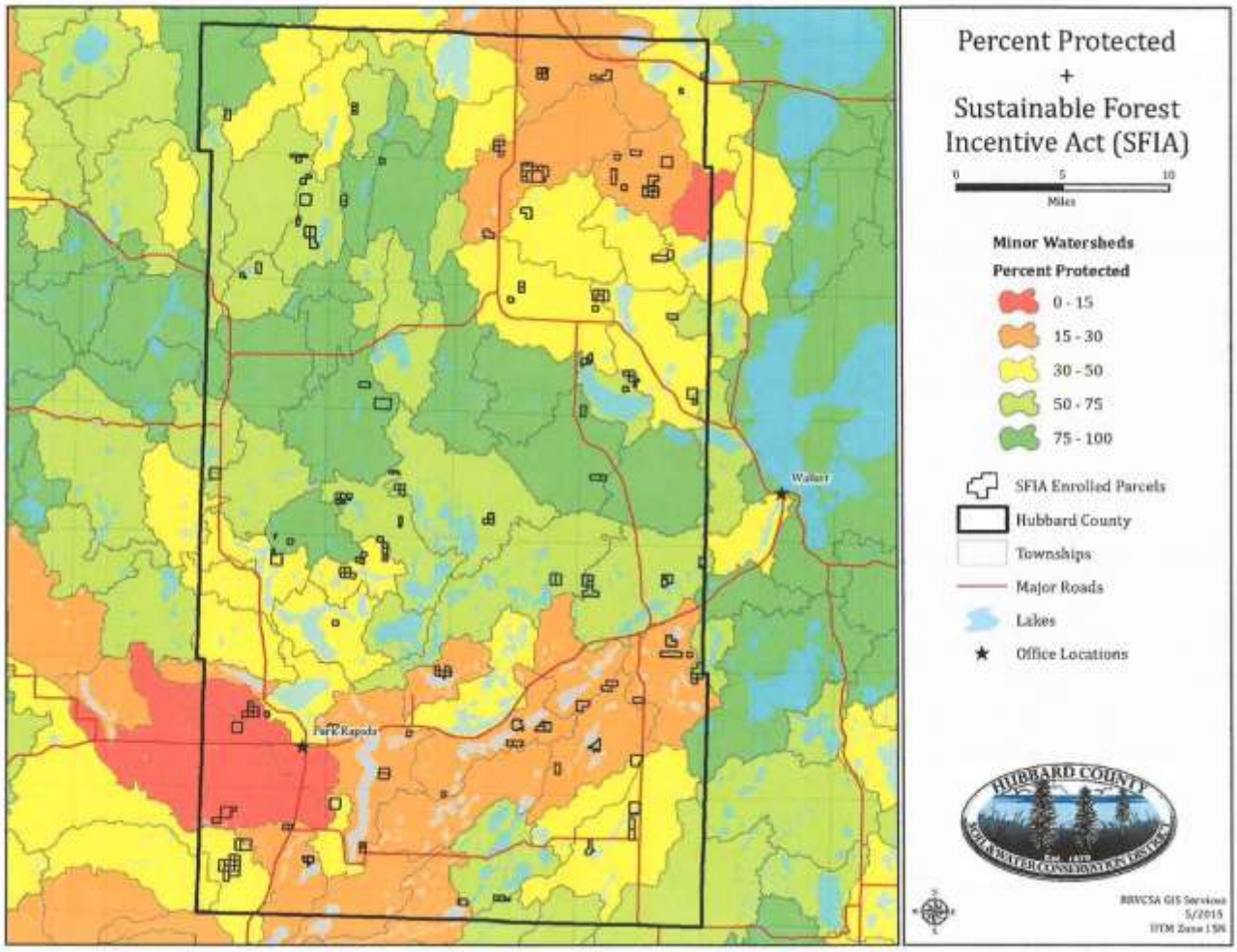


Cisco / Tullibee

Cisco (also known as tullibee or lake herring) are a cold-water fish that live in many of the lakes in Minnesota. They provide excellent forage for trophy walleye, northern pike, muskellunge, and lake trout. A requirement for cold, well-oxygenated water allows them to primarily live in deep lakes that have good water quality. In the summer, tullibee live in the cold water below the thermocline in most Minnesota lakes. Unfortunately, oxygen concentrations below the thermocline decline throughout the summer in many lakes, especially in more eutrophic systems, which can be caused by a loss of water quality from increased nutrient levels. Increased nutrients generate more algal cells, which eventually die and settle into the deeper portion of the lake where they decompose and consume oxygen, thereby causing a decline in oxygen levels in the water below the thermocline. As the upper layers of the lake warm, tullibee can experience a "squeeze" as they move up in the water column to avoid low oxygen concentrations and encounter the warmer water. In some summers, the squeeze is so great that some tullibee will die as they get forced into lethally warm temperatures.

Fortunately, many deep lakes with good water quality maintain adequate oxygen conditions below the thermocline all summer long, even in warm summers. The MN DNR Fisheries Research Unit, in conjunction with the University of Minnesota, have identified 176 lakes that are deep and clear enough to sustain tullibee in warm conditions. Hubbard County SWCD is entering into its second round of Tullibee Forest Stewardship projects that help provide land owners with forest stewardship plans for their land within the watersheds of Kabekona Lake, Spearhead Lake, 9th and 11th Crow Wing Lakes, and Big Sand Lake, now protecting and managing 22 Forest Stewardship plans on 22,622 acres of forested land with more stewardship plans in the process of being written.

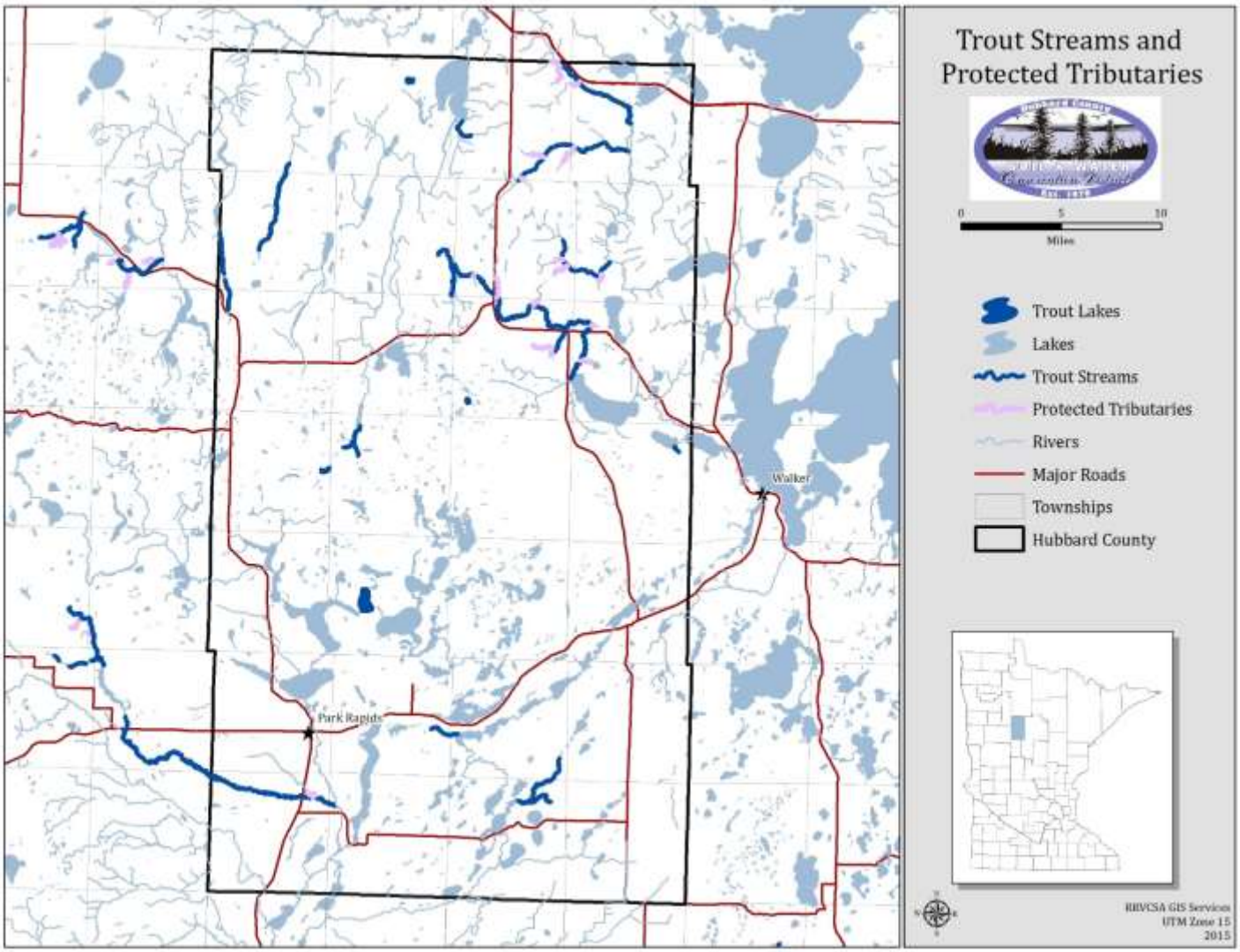
Percent Protected Plus Sustainable Forest Incentive Act (SFIA)



Trout

Trout lakes and streams require cool, well - oxygenated water and their presence in a lake or stream is often a result of the overall quality of that water body as well as suitable groundwater and substrate. Minnesota has hundreds of trout streams and lakes managed for trout by the MN DNR. The Straight River in Hubbard County is a nationally known brown trout fishery. The DNR has created the Straight River Groundwater Management Area around the Straight River to monitor the effect of increased groundwater pumping for irrigation on the river. Natural shorelines as well as cover and spawning habitat within the water body are critical to the long term health of trout lakes and streams. Most trout streams are groundwater - fed so protecting the land through buffers, maintaining good groundwater flow, particularly in low flow months, and being aware of climate change with larger and more frequent storm events and land temperature increases are important considerations. Gravel mining could be an additional stressor to these resources in some locations within Hubbard County. When the Straight River Ground Water Management Area plan is completed its strategies and actions will be reviewed and where appropriate included in this water plan. Blue Lake, Newman Lake, Crappie Lake and Blacksmith Lake all are deep cold water lakes that can support trout species. There are no naturally reproducing populations in these lakes. Trout rivers and streams are: Necktie River; Straight River, Bungoshine Creek; Cold Creek; Hellcamp Creek; Hennepin Creek; Kabekona River; Kawishiwash Creek; LaSalle Creek; Muckey Creek; Pokety (Pickedee) Creek; Schoolcraft Creek, Stall Creek; and Wallingford Brook. These lakes along with the trout streams are considered to be at a higher water quality standards than other area lakes and streams. Special protection strategies need to be used to maintain or improve these waters.

Hubbard County Trout Streams, Trout Lakes, and Protected Tributaries



Priority Concerns

~ Tributary to Kabekona Lake ~

Priority Concerns

The purpose of the Priority Concerns Scoping document is to provide Hubbard County with direction for water planning over the next ten years with a review and update in five years. Feedback about water quality, and water issues in the county were collected from the Hubbard County Local Water Management Plan Task Force, State agencies, and citizen groups. A citizen survey was conducted through the SWCD newsletter and online to give the general public a chance to voice their concerns and opinions. Common themes emerged from this public engagement process. The Local Water Management Plan Task Force met on July 28, 2011 to develop the list of Priority Concerns for the 2012 Hubbard County Comprehensive Local Water Management Plan. The Local Water Management Plan Task Force was granted an extension to the revision of the plan to November 2015, and further concerns and topics have been identified by State agencies, the Local Water Plan Task Force, Hubbard County COLA and the general public. This input has been included in this plan.

PRIORITY CONCERNS: GOALS, OBJECTIVES AND ACTIONS

Based on public feedback, agency comments, and current priorities and issues within Hubbard County the next pages show the four priority concerns, objectives and action steps that were identified for inclusion into the 2016 - 2026 HCLWP.

Under each of the priority concerns finding grants and funding opportunities, providing technical assistance, leadership and on-site guidance, providing educational materials, workshops and creating information and communication networks, creating and utilizing apprentice positions and/or internships with the Conservation Corps, Universities, Technical schools, and Tribal colleges and using the most current Best Management Practices (BMPs) for projects is implied. Priority concerns are not listed in order of priority, as they all have equal importance.

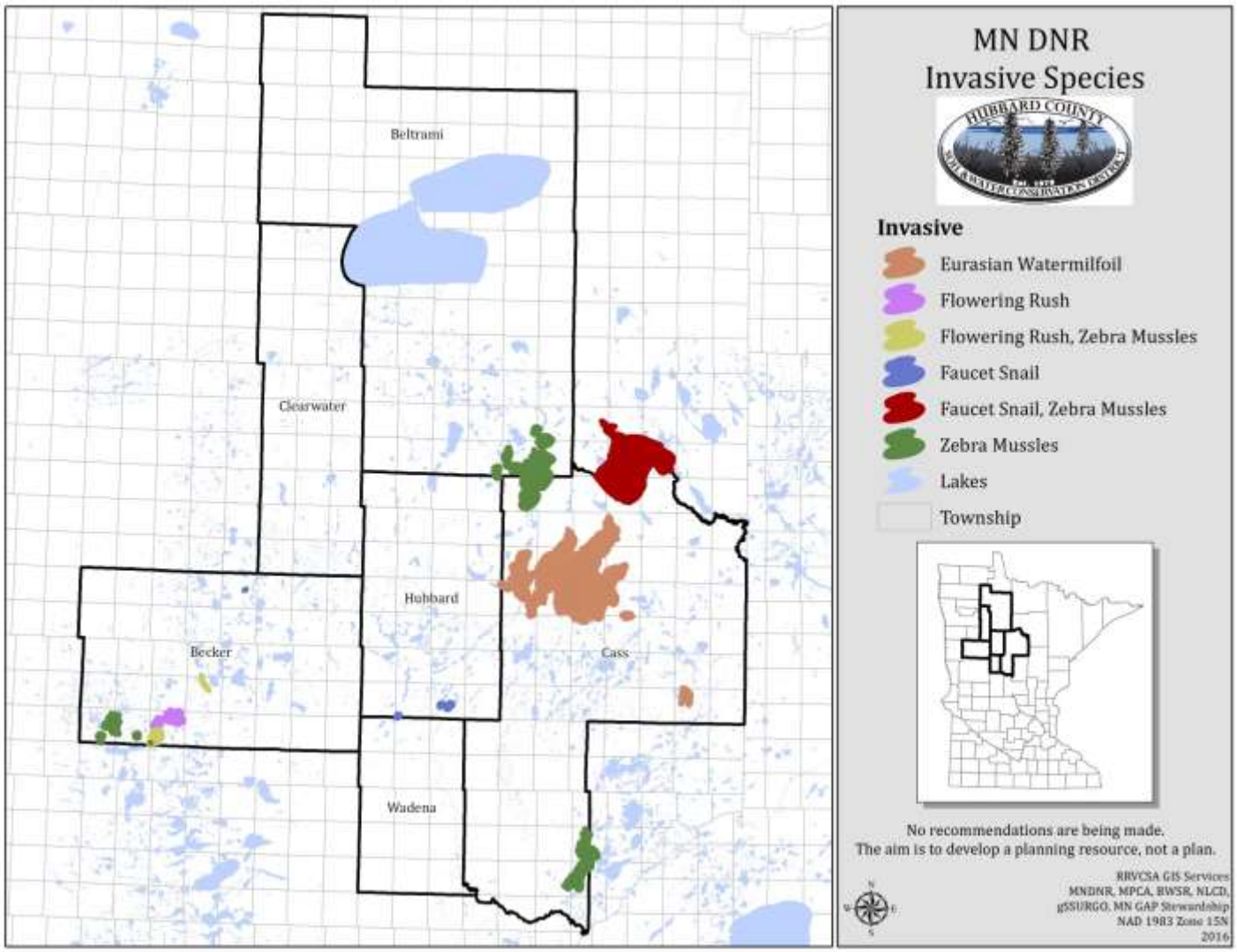
Priority Concern: Aquatic Invasive Species

A new concern that has been identified since the 2007 version of the HCLWP and the scoping document is the threat of Aquatic Invasive Species (AIS) to Hubbard County. In Hubbard County, 65% of the realized tax base is on water influenced properties. If the waters within Hubbard County become infested, the county could see a reduction in property values causing a major shift in revenue. Recreation and tourism is a major economic factor within Hubbard County. At this time Hubbard County is in a “Protection” mode and is trying to prevent the introduction of AIS to its waters.

Hubbard County has had a functioning AIS plan and program since 2012. The Hubbard County Board by resolution in 2011 formed a Hubbard County AIS Task Force that was charged with developing a

county - wide AIS program. In 2014, the State of Minnesota gave each county with lakes state funding to support this effort at the local level. The formula for allocating state money to the counties was based on the number of public accesses and the number of parking spaces at those accesses. This funding was made available to counties with accepted plans in December of 2014. The Hubbard County AIS Task Force wrote a plan encompassing the areas of Public Awareness & Education; Prevention (Watercraft Inspection & Decontamination); Early Detection; Rapid Response and Containment; Mitigation & Management; and Administration. This formal plan was submitted to the County Board, passed and ratified and was submitted to the DNR in December of 2014.

Hubbard and Neighboring Counties with Aquatic Invasive Species Infestations



Objectives:	***Action Steps:***
1. Hubbard County AIS Task Force	Annually review and revise the AIS plan for Hubbard County. Have it approved and ratified by the County Board and submitted to the DNR covering the areas of Public Awareness/ Education; Watercraft inspection/ decontamination; Early Detection; Rapid Response/Containment; Mitigation/ Management; and Administration. Maintain a current list of Task Force members with representation from lake associations, Hubbard COLA, a SWCD supervisor, SWCD Water Quality Specialist, a county commissioner, lake service providers, fishermen, the general public, agency representatives, and business people to be updated as necessary. The task force will annually develop a budget, keep track of finances and do any state and local reporting on a quarterly basis and annually as mandated. Establish a county - wide AIS Rapid Response plan. Be an AIS mentor to other counties. Annually revise and update a comprehensive education/outreach and information program using multiple media sources. This will include information and education to resorts. Annually review and revise an early detection program with Hubbard County COLA which includes veliger monitoring with net sampling and hanging blocks, spot vegetation monitoring for AIS, promote lake associations to conduct lake vegetation mapping to gather baseline information using DNR Fisheries methodology. Annually review of Hubbard County's infested waters to determine if state funding should be allocated for treatment.
2. Watercraft inspection and decontamination program	Annually review, revise and update this program as to how many base hours each lake receives for watercraft inspection that is allocated from the State

monies. This is based on lake usage (number of inspections per hour), number of resorts on the lake, number of accesses, and the number of boats coming from infested waters.

Priority Concern: Surface Water Quality and Quantity Improvement and Protection

Hubbard County is widely known as an “up-north” recreational destination, with tourism being the number one industry. Seasonal visitors and retirees come from all over the country to enjoy the clear waters found in Hubbard County’s 313 lakes. This influx of “outside money” stimulates much of the local economy and over 65% of the county’s property tax base comes from water influenced parcels.

Hubbard County has four incorporated cities; Park Rapids, Nevis, Akeley and Laporte. All four of these cities dispose untreated urban stormwater run-off directly into surface waters. The City of Park Rapids discharges into Fish Hook Lake and the Fish Hook River, Nevis into Lake Belle Taine, Akeley into Eleventh Crow Wing Lake and Laporte into Garfield Lake.

One of the most effective ways to improve water quality is to better manage stormwater runoff. Stormwater often contains oil, chemicals, excess nutrients (phosphorous), toxic metals, litter and disease-causing organisms. Stormwater frequently overwhelms streams and rivers, scours stream banks and river bottoms, and can increase stream and river sedimentation which in turn can affect temperatures, oxygen levels, and clarity which can impact fish and other aquatic organisms. None of the listed municipalities have developed or implemented a strategic stormwater management plan that sets priorities, objectives, actions or goals. The concerns and problems that are occurring due to climate change need to be recognized and planned for in any project that is undertaken.

The riparian areas of Hubbard County lakes and rivers have become more developed over the last two decades. Many large tracts of shoreline property have been subdivided, small environmental lakes have become housing developments, many resorts have turned into planned unit developments, and seasonal cabins have become year - round homes. These developments are good for the local economy and tax rolls and they can cause people to take a vested interest in local surface water quality. Unfortunately, the additional development also creates environmental concerns with increased run-off, habitat loss, declines in water quality, and has added stress on environmental systems.

Hubbard County SWCD and Hubbard Coalition of Lake Associations (HCCOLA) have been monitoring lake water quality (total phosphorus, chlorophyll-a, pH, specific conductivity and transparency) for 15 years on most of the large lakes in Hubbard County. Hubbard COLA’s lake associations sample approximately 30 lakes per year. The MN DNR Fisheries, the MPCA, Hubbard

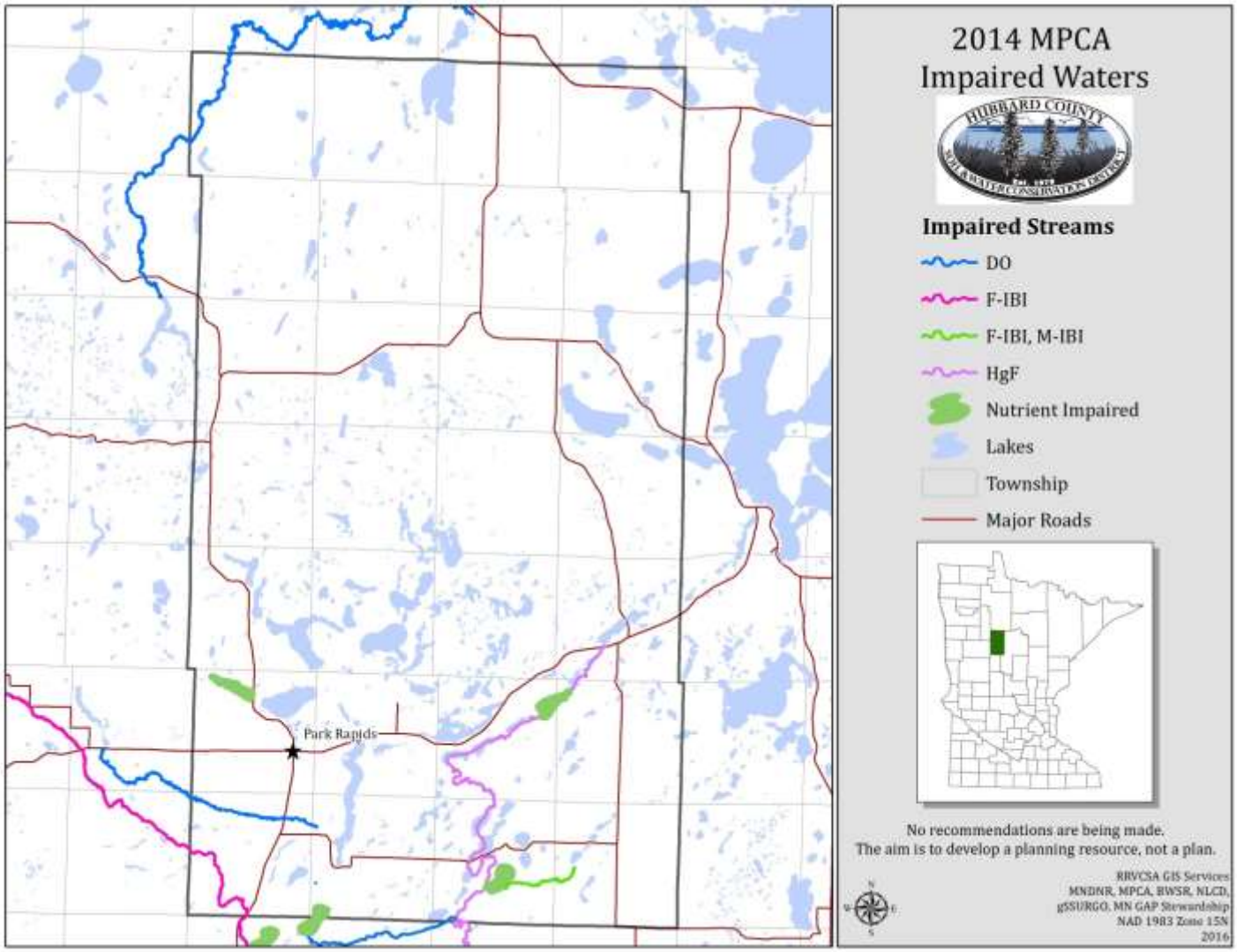
County SWCD, and individual lake associations have also been collecting water quality data for years. There are well developed processes in place for dealing with impaired waters. However there is not a lot of information, processes, or strategies for the “Protection” of un-impaired waters which this LWMP would like to develop and address in Hubbard County through local lake management plans and the MPCA’s Intensive Watershed Management projects on the Mississippi River Headwaters Watershed, the Leech Lake Watershed and the Crow Wing River Watershed. All water samples are summarized and reported to the Minnesota Pollution Control Agency (MPCA) who is mandated by the federal Environmental Protection Agency (EPA) to maintain water quality standards for Minnesota’s lakes and streams. Those water bodies that do not meet standards are deemed to be impaired and require total maximum daily load (TMDL) studies in order to set pollutant reduction goals needed to restore these waters and give strategies for how to address those TMDL problems.

In 2012 the Hubbard SWCD, RMB Labs, and BWSR did an assessment of 39 Large Lakes within Hubbard County. For the purpose of future water planning the Hubbard SWCD and Hubbard COLA wanted an evaluation of current lake water quality. This report compiled all available data for these lakes from all the different sources, evaluated the data quality, identified data gaps, assessed the data and looked for water quality trends. This process should be repeated in five years for comparison and to see whether lake trends are improving, declining or staying the same.

Hubbard County lakes that are on the Environmental Protection Agency’s list of impaired waters are Portage, First Crow Wing, Eighth Crow Wing Lakes which are impaired due to nutrient/eutrophication biological indicators, Upper Twin is impaired for phosphorous which empties into Lower Twin Lake in Wadena County which is also impaired for nutrients/eutrophication. TMDLs have been completed on Eighth Crow Wing, First Crow Wing, and Portage Lake. All of these lakes are in the Crow Wing River watershed. TMDLs for the other major watershed’s lakes and stream/river stretches when identified will be prioritized and implemented. The Leech Lake River and the Mississippi Headwaters Watershed are currently in different stages of the MPCA’s Intensive Watershed Monitoring (IWM) program which assesses surface water for impairments on a watershed scale.

The Fish Hook and Shell River were ditched in 1909 and have caused some unique problems for Upper Twin Lake beyond high phosphorous loading. Due to the channelization the rivers banks have become unstable and are causing large amounts of sedimentation. In the Crow Wing River WRAPS document the stretch of the Fish Hook River/Shell River complex from Hubbard County highway 87 south to Upper Twin Lake has specific recommendations to put the natural meanders back into the rivers, stabilize the river banks in at least 50% of this reach to help reduce sediment and phosphorous loading.

2014 Minnesota Pollution Control Agency Impaired Waters



Hubbard County waters that are impaired lie within the Crow Wing River watershed. A reduction of 10% of the current phosphorous load for each of the impaired lakes is recommended by the Crow Wing River WRAPS.

Objectives:	***Action Steps:***
1. Stormwater management erosion & sediment control	Promote that the cities of Park Rapids, Nevis, Akeley and Laporte each should work toward creating Stormwater Task Forces to do strategic planning and prioritization of projects to try and achieve zero stormwater runoff during a 1 inch rain event in the next five years. Find funding to create city stormwater task forces and find funding for each city to evaluate each of their stormwater systems. Find solutions to eliminate direct discharge of stormwater directly into Hubbard County lakes and rivers. This should include everything from the very simple as rain barrels and rain gardens to reduce run-off, to large sediment basins or devices such as Downstream Defenders to capture debris, oils and sediments. Use proven methods that promote minimal impact for stormwater that use natural drainage ways and vegetated surfaces to convey, store, filter and retain stormwater on site using the natural hydrology of the sites.
2. Shoreland, near shore, and river corridor protection.	Implement Minnesota's Buffer Initiative on public waters, judicial ditches, public drainage systems and private ditches within Hubbard County. "Vegetative buffers with an average of 50 feet are required on public waters, and buffers of 16.5 feet are required on ditches within the benefitted area of a public drainage system." www.dnr.state.mn.us/buffers/index.html. Landowners can get assistance for implementation of buffers through cost share programs, EQIP, CRP and other sources. In partnership with other agencies, Hubbard county COLA, and lake associations analyze and identify areas of sensitive shoreline, shoreline with ecological significance, and large undeveloped tracts of shoreline. Create a prioritized list of parcels to focus future projects, programs, easements or fee title acquisitions on. Use existing tools to evaluate existing vegetation, slope, run - off potential, soil type, and contiguous linear distance of protection into account. This is to be done

	on a minor watershed basis. An example of a program is the modified DNR fisheries program "Score the Shore" that lake associations can conduct on the lakes they represent. Encourage inclusion of conservation implementation strategies into the Hubbard County Shoreland Management Ordinance and variance processes for development in the Shoreland zone, especially along trout streams, sensitive shorelines, wild rice lakes, exceptional waters, and identified Tullibee lakes. Cooperatively work with neighboring counties, state agencies, and townships to identify, prioritize and develop projects to correct problems in areas of altered hydrology on a watershed basis and to provide connecting shoreland corridors. Develop informational and educational brochures and news articles on "What to do in case of pipeline spills and ruptures". Publicize the Hubbard County Emergency Response plan.
3. Measure water quality, quantity data and access trends.	Promote and support water quality monitoring through HCCOLA, local lake associations, volunteers, schools students, and others. The Hubbard County LWMP should continue to support COLA's water quality monitoring program by allocating monies for HCCOLA to help small lake associations that are unable to pay full lab costs. Continue to work with State agencies, RMB Laboratories, Cities and others to determine future water monitoring assessment needs. This data will then be submitted to appropriate sources following stated protocols. This data will then be incorporated into the Hubbard LWMP as it becomes available. Hubbard SWCD will provide the service for lake associations to collect Dissolved Oxygen and temperature profiles on their lakes. Work with the MPCA on the three major watersheds Crow Wing River, Mississippi River Headwaters and Leech Lake River WRAP to fill in data gaps, prioritize

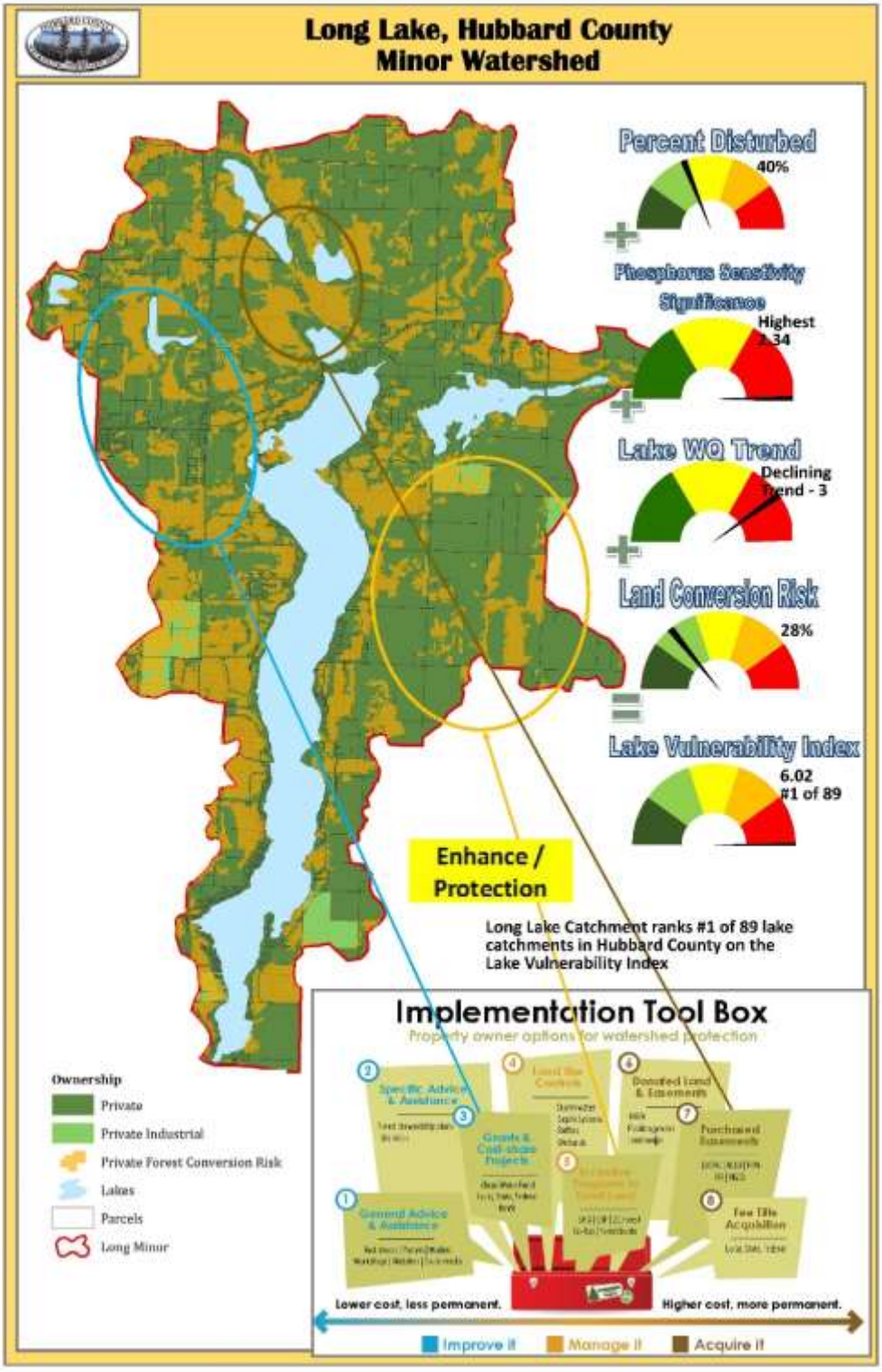
identified projects and implement the recommended TMDL projects as the projects are funded.

Create a prioritized list of Hubbard County lakes and streams with highest priority for protection strategies as identified using all available data and taking into account lakes of biological significance, declining water quality trends, lakes with data gaps or not enough data to determine trends.

Generate lake minor watershed maps including the Implementation toolbox for all minor watersheds to visually show that watershed's Vulnerability Index.

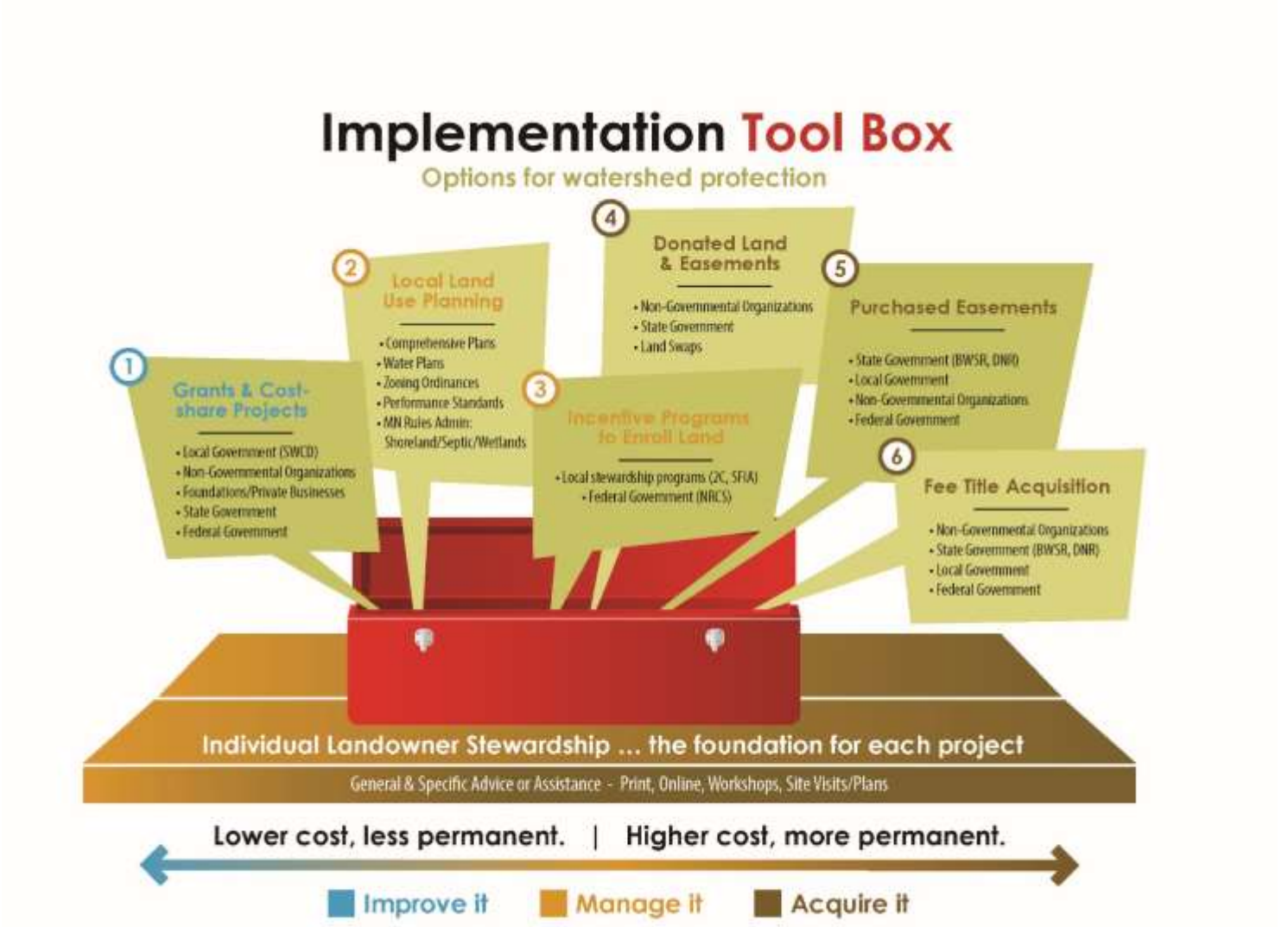
Restore the natural meanders to the Fish Hook/Shell River complex from Hubbard County Highway 87 south to the inlet of Upper Twin Lake.

Mock-up of Long Lake Minor Watershed



The “tachometer” shows where this minor watershed ranks for each of the inputs for the Lake Vulnerability Index. When strategies and projects have been completed the benefits to each input can be adjusted with the end result being a “movement of the needle” to show the progress. These maps will be completed for the lake minor watersheds in the future when the MPCA’s WRAPS process is completed.

Below is an enlarged version of the Implementation Tool Box. Any of the options can be changed or modified to fit each individual lake watersheds needs. The Long Lake mock up map showed work in areas 3, 5 and 7 below.



4. Lake & stream assessments	Find funding to collect lake and stream data, conduct assessments, prioritize lakes and stream projects, find and fill data gaps, look for water quality trends and make lake data accessible by posting on SWCD website. This is a continuation of the 2012 Hubbard County Large Lake assessment that was done in conjunction with RMB Labs.
5. Impaired waters	Hubbard SWCD will continue to work with MPCA on Intensive Water Monitoring plans as they come up for renewal. Be involved in TMDL development and public input process, then prioritize projects and implement recommendations. Engage county residents in the civic engagement process and secure funding to implement projects.
6. Prioritized waters	Secure funding and monitor Kabekona River for bacteria contamination, monitor and fill data gaps on Garfield Lake, Hart Lake and Lake Alice. Secure funding to restore the natural meanders to the ditched portion of the Fish Hook/Shell River complex from Highway 87 south to Upper Twin Lake. See page 26 for phosphorous loading and sediment reductions as goals from the MPCA's Crow Wing River Watershed WRAPS.

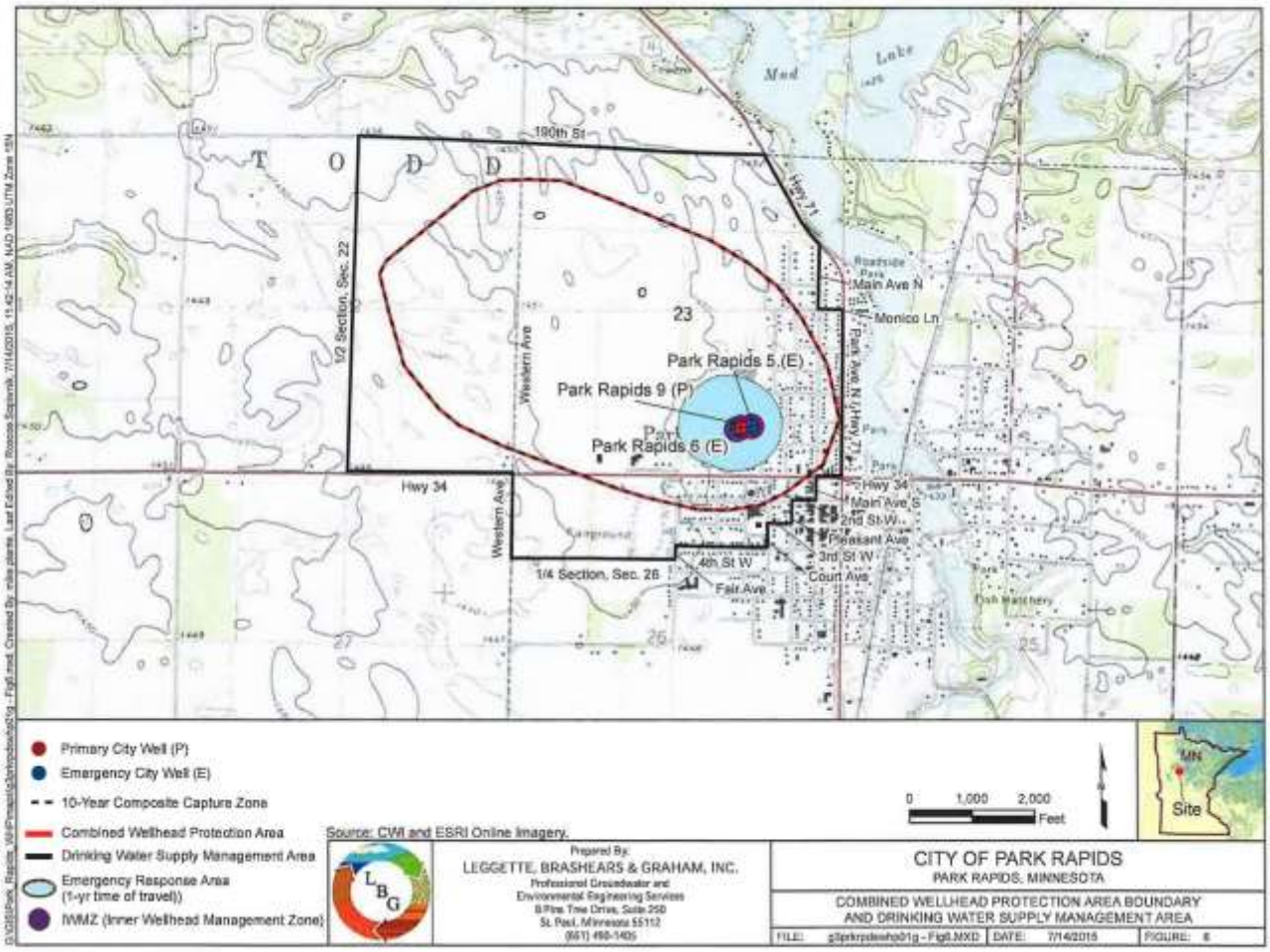
Priority Concern: Groundwater Quality and Quantity Improvement and Protection

It is estimated that over 70% of Minnesotans use groundwater as their source of drinking water. Hubbard County's drinking water sources are from the surficial and buried aquifers found throughout the county. The surficial aquifer is basically saturated sand found just above the first confining layer, where the confining layer exists. It is a shallow aquifer and is the first aquifer to be contaminated from surface activity. The surficial aquifer is found in the southern one-third of the county and smaller areas in the northern part of the county. Since water moves more rapidly through sandy soil, shallow sand-point wells are more susceptible to contamination than deep drilled wells. Many of the deeper aquifers have confining layers that limit water movement from upper aquifers. Much of the area around the Hubbard County lake area has a surficial sand aquifer with many shallow wells. Water table depths in this area are often less than 25 feet. In certain areas within this surficial sandy layer, there may be a deeper aquifer below. Past ground water quality studies have shown elevated levels of nitrates in ground water in some geographic areas over the 10-ppm Minnesota Department of Health (MDH) safe drinking water standard.

Long-term monitoring of ground water quality is a priority for Hubbard County SWCD. Long-term tracking of ground water quality is imperative to accurately identify practices that will reduce the amount of nitrates in ground water and where it is occurring. The City of Park Rapids and the Sundruds Mobile Home Court have completed Wellhead Protection plans. The LWM plan initiatives will include placing a higher protection focus on the associated Drinking Water Supply Management Areas (DWSMAs). Ground water quality data will be added to a MDH database that is GIS and LIDAR compatible and also ties in with the CWI Program.

The City of Park Rapids has had wells with higher than recommended standards for nitrates. The city was faced with the option of constructing a reverse – osmosis denitrification plant or seeking another source of drinking water that meets the 10 – ppm standard for nitrates. Acceptable wells have been hard to find and the city opted to construct a deeper well that produces water that has a high iron content. The city then had to build a water treatment facility to treat this water to remove levels of iron and manganese for human consumption. This has put an additional financial burden on the residents of the City of Park Rapids.

City of Park Rapids Wellhead Protection Area



The Cities of Nevis, Akeley and Laporte are in the process of developing Wellhead Protection Plans with the Minnesota Department of Health. As their plans are developed they will be incorporated in the Hubbard County LWMP.

City Of Nevis Wellhead Protection Area

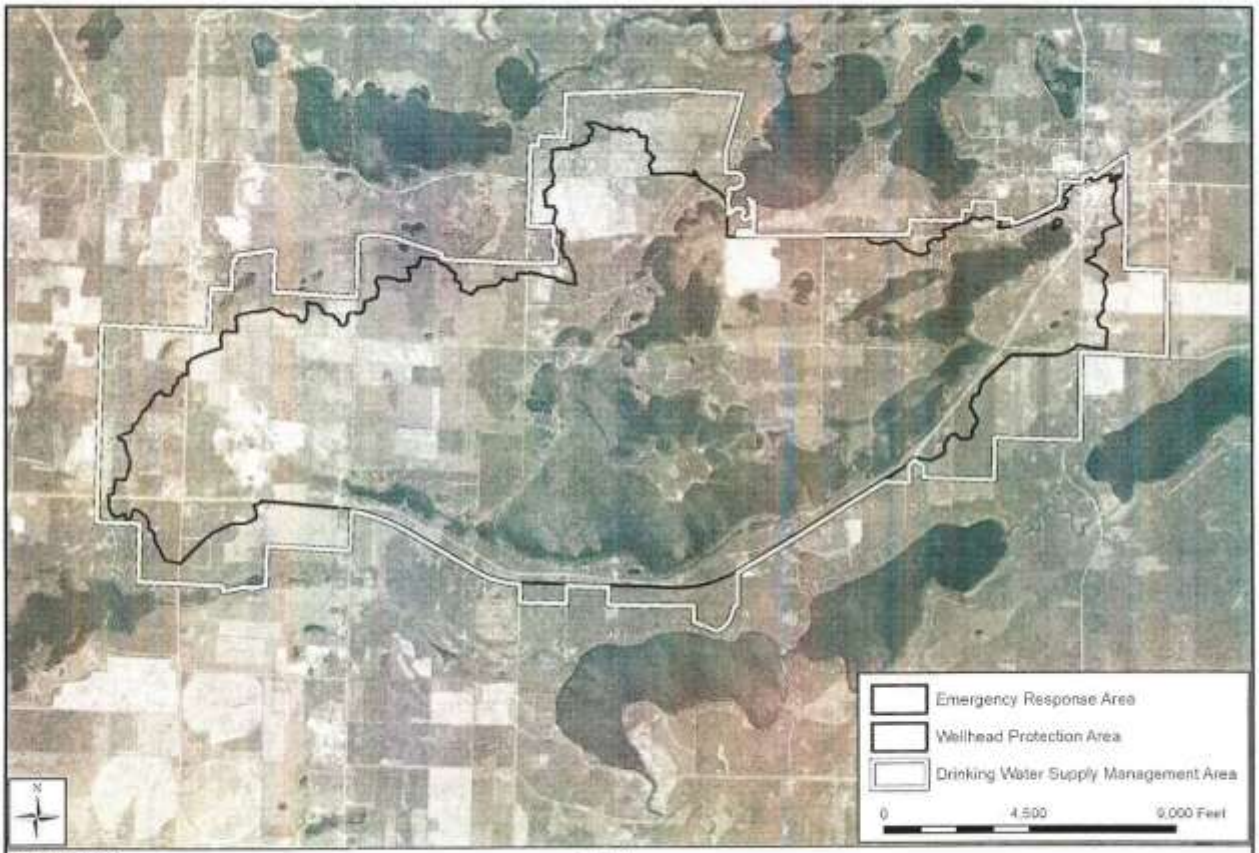


Figure 1
Map of the Wellhead Protection Area and Drinking Water Supply Management Area
City of Nevis

City of Akeley Wellhead Protection Map

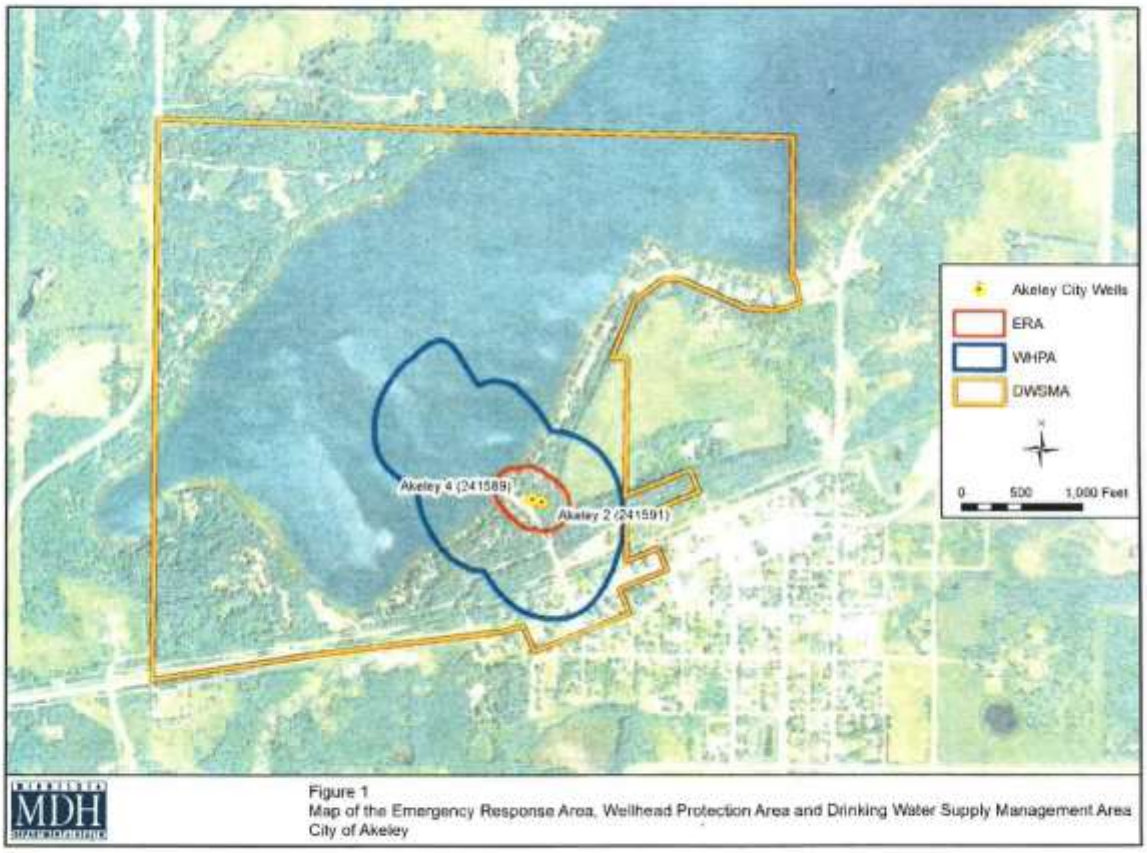


Figure 1
Map of the Emergency Response Area, Wellhead Protection Area and Drinking Water Supply Management Area
City of Akeley

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The City of Laporte has not generated a map of its Wellhead Protection Area as yet. When this is determined it will be included in the LWMP.

The Hubbard County SWCD is gathering well index data for the Geologic Atlas being developed by the University of Minnesota, Minnesota DNR and the Geologic Survey to map and determine Hubbard County's buried aquifers and geologic morphology. When this information is completed it will assist the County, MPCA, MDH, Department of Agriculture and BWSR to determine sensitive areas, define areas that need well head protection, and protect re-charge areas, all of which will help direct economic development, zoning, planning and septic placement.

Wise stewardship of the groundwater resource is of the utmost importance, since much of Hubbard County has sandy soils that allow water (and contaminants) to infiltrate from the surface to the groundwater relatively quickly.

Spills and leaks from buried crude oil and tar sand pipelines, underground petroleum fuel tanks, chlorinated cleaning solvents, high nitrogen fertilizers (ammonia), and agricultural pesticides, herbicides, and fungicides all are concerns and all have the potential to contaminate soils and groundwater. Poorly functioning septic systems can also contribute excess nitrogen and phosphorus, and untreated pharmaceuticals to the soil, groundwater, and private drinking water wells and to area lakes and rivers. There are many manmade or refined organic compounds, referred to as Volatile Organic Compounds (VOC's) which are common in commercial and household products. Hubbard County does contain one active superfund site the Fritz Craig Salvage site although it is not listed on the National Priorities List.

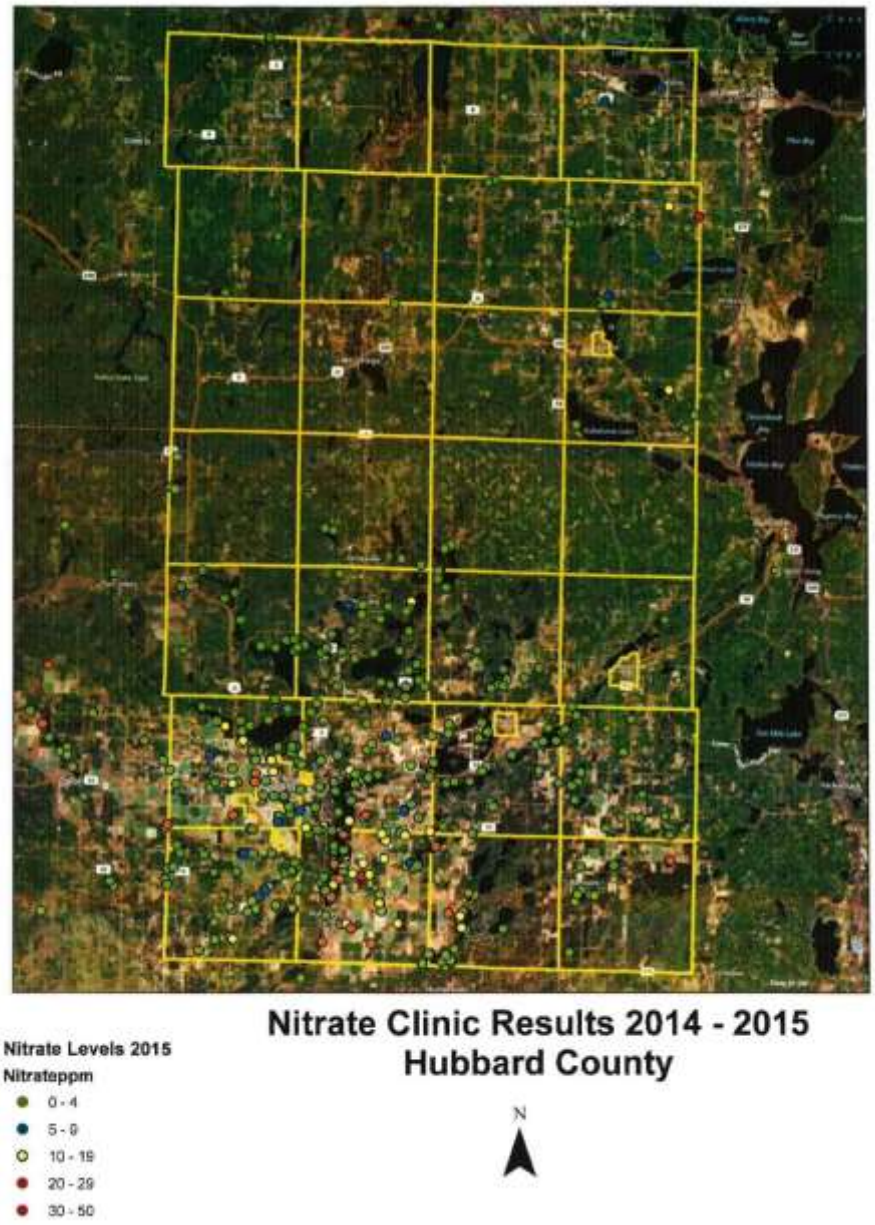
In the past Hubbard County SWCD has gathered data from annual nitrate testing of private wells within Hubbard County in cooperation with the MDH. The data generated from this previous work is available from the MDH. In 2014 the SWCD purchased nitrate sampling equipment and continues to do annual private well nitrate testing at the Shell River County Fair in Park Rapids, MN in July. The program has been expanded to include free nitrate sampling done the first Friday of every month at the SWCD office in Park Rapids. Outreach events will be held in areas of the county that are a distance from Park Rapids. The results of sampling for 2014 -2015 are mapped below.

The MDA has eight groundwater sampling wells in Hubbard County that test over 135 different pesticide, fungicides and herbicides. The 2014 Water Quality Monitoring Report by the MDA can be found at: www.mda.state.mn.us/~/media/files/chemicals/maace/wqm2014rpt.pdf
Also the MDA has Private Well Pesticide Testing Options that can be found at: www.mda.state.mn.us/protecting/waterprotection/pesticides/testinfo.aspx.

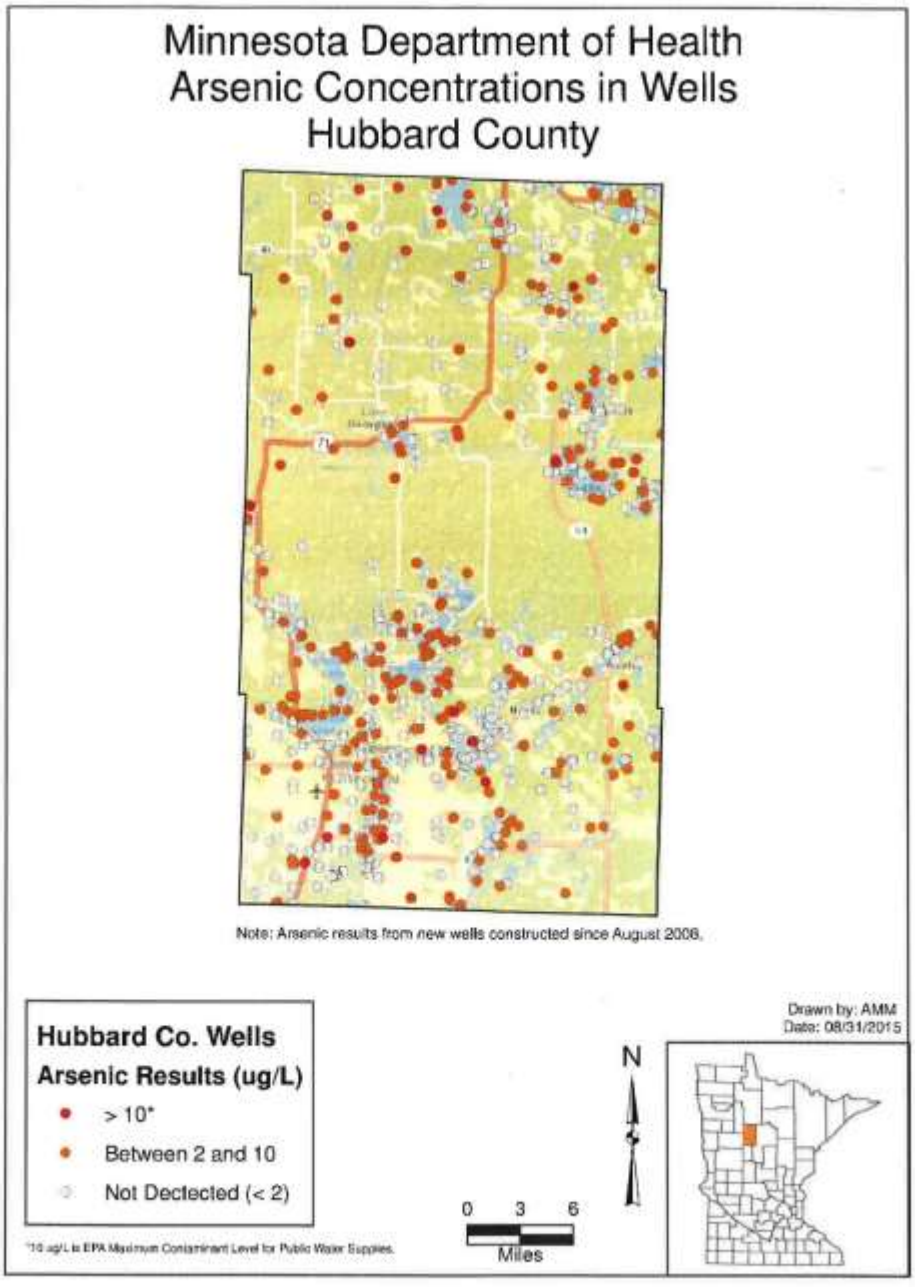
Arsenic is naturally occurring and "can occur in groundwater almost anywhere in Minnesota. Most arsenic is from geologic materials left by glaciers thousands of years ago. The most recent glaciation in Minnesota occurred 14,000 years ago, and left a clay – rich material called the Des

Moines lobe till." https://apps.health.state.mn.us/mndata/arsenic_wells#chart1. Public health maximum contaminant levels are set at 0.010 parts per million (ppm). Excess arsenic can cause skin damage or problems with circulatory systems and people may have an increased chance of getting cancer. Any wells constructed by a certified installer after January 23, 2006 will automatically be tested for arsenic. If a well was constructed by an individual the water needs to be tested once for arsenic by a certified lab.

Hubbard County Nitrate Sampling Results 2014 – 2015



Minnesota Department of Health Arsenic Concentrations in Wells



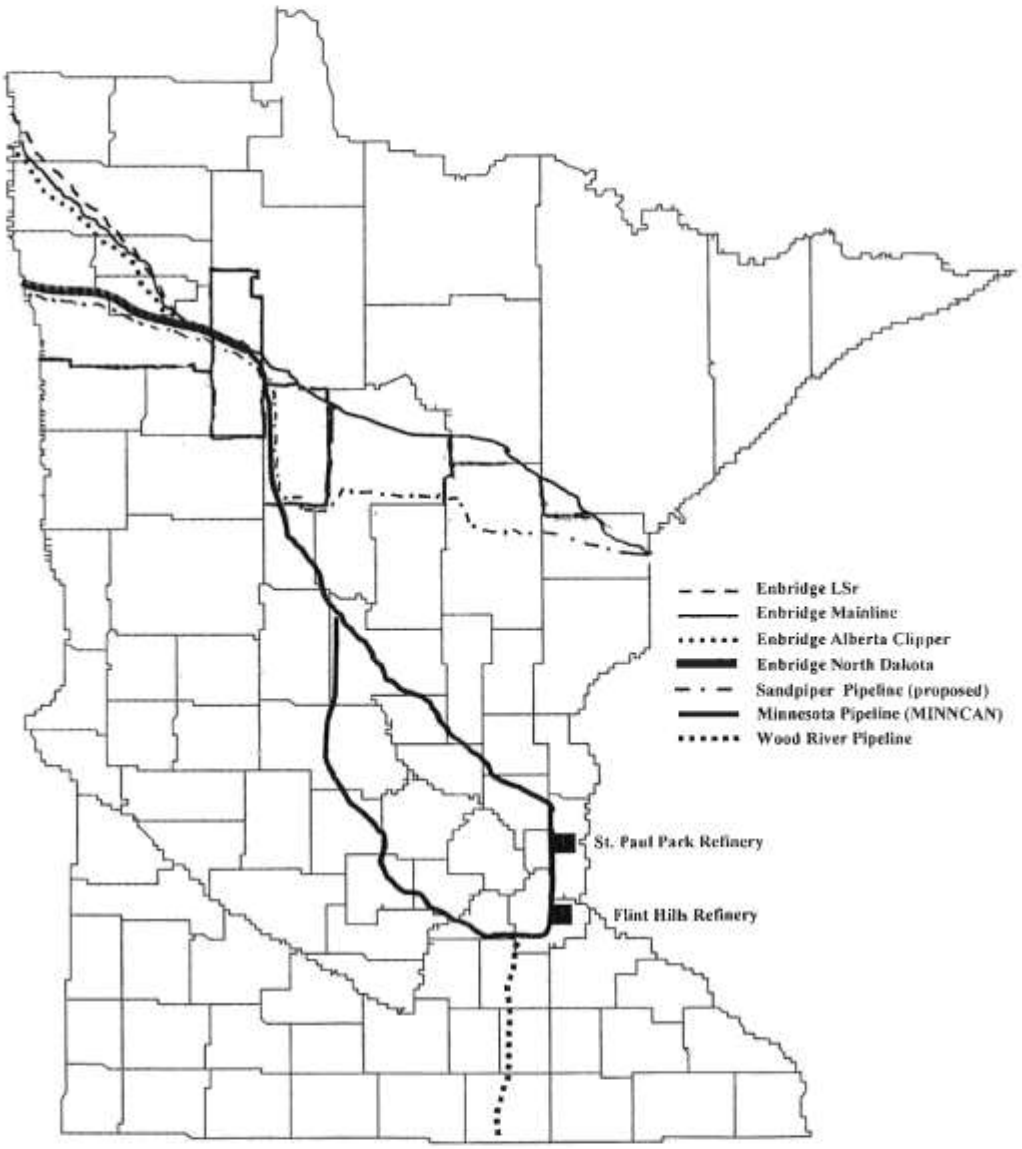
The majority of farming occurs in the southern one-third of the County. Most of the farmland consists of sandy soils, so numerous center-point pivot irrigation systems are used. Most irrigators have been converted from high pressure to low pressure systems. Users of over 10,000 gallons per day or 1 million gallons per year are required to obtain groundwater appropriation permits from the MN DNR. Most farmers continue to use BMPs in their field work. Some of the practices used are: monitoring by an Irrigation Specialist of water needs for specific crops to reduce unnecessary irrigation which can cause leaching into the ground water, buffer strips, crop residue management, crop rotation, nutrient management, pest management, and cover crops. Conservation programs, such as CRP and EQIP, implemented by NRCS are great incentives for the farmers, and are beneficial to the land and surrounding waters and should be continued and expanded.

In the past year there has been a large conversion of forested land to agricultural lands, most of which have center pivot irrigation systems. This is creating a major change within each watershed as to how groundwater flows, the amount of groundwater available and the use of pesticides, fertilizers, and herbicides in areas that were once forested. All of these are of great concern for the protection of groundwater.

Another county wide concern that could affect all the Priority Concern areas identified in the LWMP are the existing oil and gas pipelines in Hubbard County presenting the possibility of spills or ruptures in any of the lines that would affect the surface water, ground water, and land use. Getting to spill sites in remote areas and working in multiple water related environments has the potential for introduction of AIS to those waterbodies. At this time there are 5 buried oil pipelines that are on the northern and western borders of Hubbard County. These pipelines are owned by Minnesota Pipeline (MinnCan), Koch, and Enbridge carrying crude oil, natural gas and Alberta tar sands. Enbridge has a new proposed, Sandpiper pipeline that would follow the existing MinnCan pipeline corridor along the western border of Hubbard County then turn to the east just before the Hubbard/Wadena County line and would generally follow an existing powerline corridor across southern Hubbard County to Superior Wisconsin. Enbridge is also in the process of abandoning Line 3, on the northern pipeline corridor of Hubbard County, and installing a new Line 3 to follow the proposed Sandpiper route. The proposed Enbridge Sandpiper and replacement Line 3 would have multiple water and wetland crossings within the county.

To handle any pipeline related incidents the MPCA has environmental oversight of pipelines in Minnesota. Hubbard County has a Pipeline Emergency Response Procedure in place through the County's Emergency Management office. Hubbard SWCD does administration and enforcement of the Wetland Conservation Act (WCA) under the guidance of BWSR and the U. S. Army Corps of Engineers (USACE) who would have the overarching responsibility if there were incidents with any of the pipelines.

Figure 1: Crude Oil Pipelines and Petroleum Refineries



Objectives:	***Actions:***
1. Coordinate with State & Local entities on drinking water, well testing, wellhead & drinking water protection.	Hubbard SWCD will continue to do annual nitrate testing on private wells at the Shell River County Fair. Nitrate testing will also be done once a month at the SWCD office and if requested, go to different Townships to do testing. SWCD will map all nitrate samples within the county and share this information with MDH and MDA. SWCD will work with the MDA to implement the Hubbard County Township Nitrate-Nitrogen Sampling Program in 6 townships –Todd, Henrietta, Straight River, Hubbard, Crow Wing Lake and Badoura beginning in 2015. SWCD will have water testing kits available for the public to send water samples to a certified lab for evaluation. Work with state agencies to collect and analyze groundwater monitoring data for quantity and quality. Identify and seal unused/abandoned wells especially in sensitive groundwater areas. Cost share funding is available through the SWCD and BWSR. This is an ongoing program. Integrate wellhead protection priorities into the LWMP implementation strategies for the cities within Hubbard County. The Wellhead Protection Plans for the City of Park Rapids are being updated. The Akeley, Nevis, and Laporte plans are in the process of being developed and when that information and strategies are available, they will be integrated into this plan.
2. Support data collection Hubbard County Geologic Atlas.	Hubbard SWCD is gathering data for the Geologic Atlas that will be completed in 2016. Once complete the county Geologic Atlas can be used to determine wellhead protection, protect recharge areas, and help determine sensitive areas. This will assist with water planning strategies and help with county planning and zoning, economic

	development decisions, defining drinking water protection areas and septic placement.
3. Secure funding for studies on groundwater interactions	Secure funding for the priority watershed of Long Lake to do a study on the amount of groundwater contribution and its affects to the lake.
4. Work with the DNR and other agencies with strategies and implementation of identified programs and policies for the Straight River Groundwater Management Area.	This DNR plan is being completed at this time. Once it is complete this information, strategies and implementation projects will be reviewed and considered for inclusion into this plan.
5. Work with Federal, State and local agencies to provide information, education and technical assistance to irrigation users.	Hubbard SWCD will continue to work with multiple counties and the MDA to continue the Irrigation Scheduler program, nitrogen management programs, and an array of agricultural nutrient assessments. Hubbard SWCD will continue to collect precipitation totals county - wide from volunteers and report to MN DNR. Hubbard SWCD will promote and monitor the MDA weather station to provide producers with real - time evapotranspiration information. Hubbard SWCD will cooperate with DNR Hydrologists on permitting of new and existing irrigation permits.
6. DNR observation wells	Hubbard SWCD will continue to do groundwater level readings from March through November annually on DNR observation wells. This may be expanded in the future to cover data logger uploads and water quality sampling.
7. Septic maintenance and inspection	County, Hubbard COLA and Hubbard SWCD will encourage landowners and lake associations to have their members with septic systems have their systems accessed for maintenance and pumping every two to three years following University of Minnesota's Septic Tank Pumping Frequency Guidelines.

	http://septic.umn.edu/prod/groups/cfans/@pub/@cfans/@ostp/documents/asset/cfans_asset_126408.pdf.
	The MPCA has assistance for small communities with wastewater treatment options.
	Hubbard County will provide leadership in administration of the Minnesota septic rules (Minnesota Rules Chapter 7080 - 7083).
8. Solid & Hazardous Waste	The County, SWCD, Hubbard COLA and Extension Service will promote county - wide proper disposal of household hazardous waste, electronic waste, old and unused pharmaceuticals, and petroleum products. They will focus on the economic value in waste recovery and recycling in addition to environmental protection.
9. Pipelines within Hubbard County	Provide information and educational materials for Emergency Management Response to any pipeline spills or ruptures within the county.

Priority Concern: Land Use and Habitat Protection for Water Quality

Hubbard County contains numerous wetlands. Many of these wetlands are adjacent to rivers, streams and lakes that are being developed for residential use. Since wetlands play an important role in the environment, Hubbard County is taking an active role in the protection of this diverse and unique natural resource. The Water Resources Advisory committee (WRAC) will promote the development of a Comprehensive Wetland Protection and Management Plan as part of the county's ordinances.

Local governments have the authority to develop Comprehensive Wetland Protection and Management Plans as an alternative to following parts of the Minnesota Wetland Conservation Act (WCA) rules. These plans allow sequencing flexibility, replacement site flexibility, and the integration of wetland protection into local land-use controls.

Discussions held in cooperation with all levels of government will determine the adequacy of existing wetland policies. Additional protection measures will need to be developed to achieve the "no net loss of wetlands requirement in WCA." The continuing education of landowners will teach them what wetlands are and their unique functions and values. Hubbard County SWCD now holds the responsibility for administering and enforcing WCA.

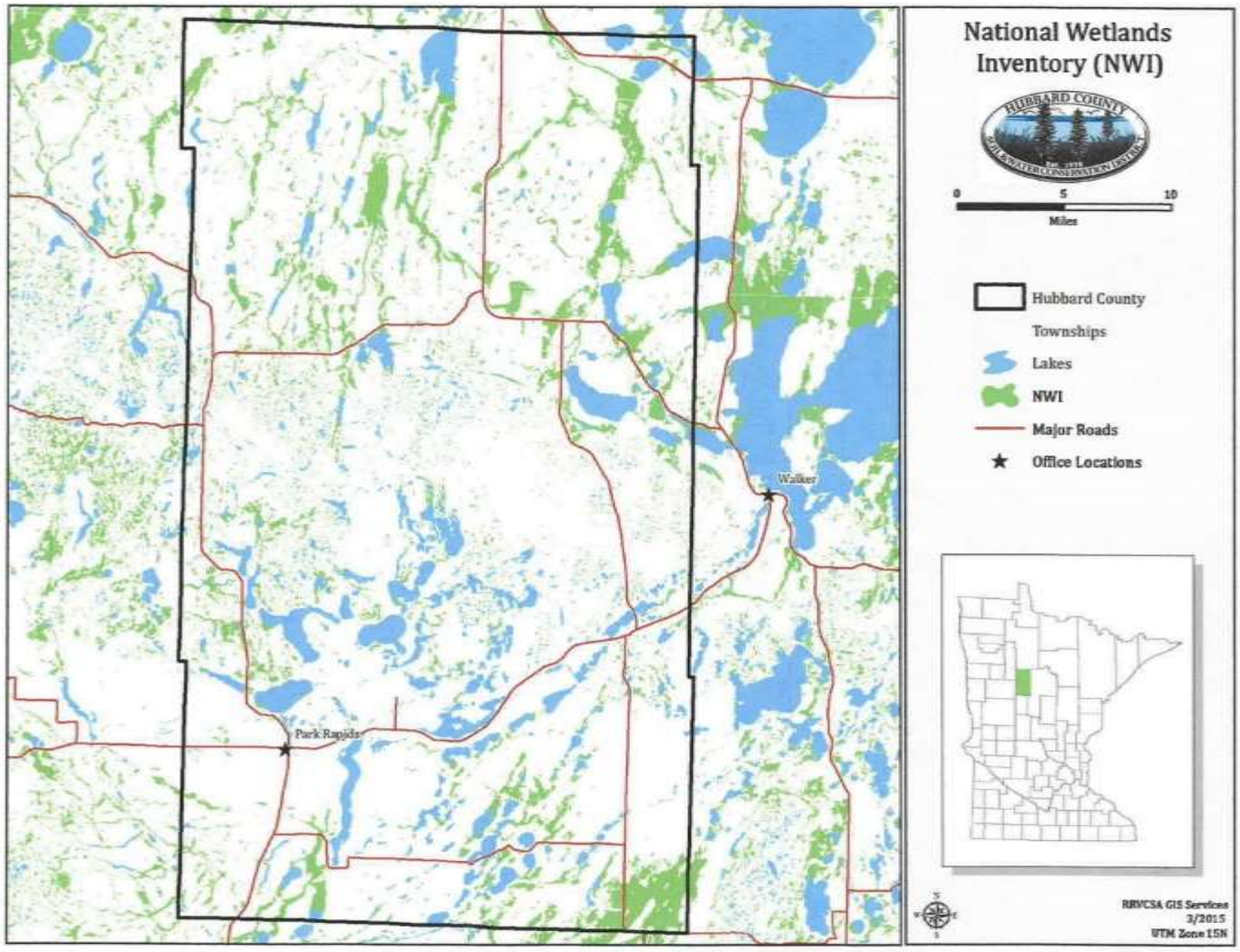
Enacted in 1984 the Minnesota Soil Erosion law (103F.401 -.455) set forth a broad public policy regarding excessive soil loss. It simply states that "A person may not cause, conduct, contract for, or authorize an activity that causes excessive soil loss".

Excessive soil loss is defined as meaning soil loss that is greater than the soil loss limits. Soil loss limits is defined as meaning the maximum amount of soil loss from water or wind erosion, expressed in tons per acre per year, that is allowed by local regulations on a particular soil.

Agricultural soil loss limits, often referred to as "T" are set forth in the United States Department of Agriculture, Natural Resources Conservation Service, Field Office Technical Guide. In Minnesota "T" ranges from 3 to 5 tons/per acre/year." http://www.bwsr.state.mn.us/news/announcements/SLL-paper-Feb-2014-final.pdf.

Revised 2015 Minnesota Statute 301F.431- .455 can be found at: http://www.revisor.mn.gov/statutes/?id=103F&view=chapter#sta.103F.431.

National Wetlands Inventory (NWI) for Hubbard County



Habitat protection encompasses the entire spectrum of native plant and animal species' needs for survival. Development pressures in the urban areas, recreational use of public lands, noxious weed control and invasive species are some of the ongoing issues that will continue to be addressed in the future. When doing any pollinator plantings or grass seed mixture plantings native seed mixtures approved by DNR, NRCS or BWSR will be used. Also if in prairie areas approved native prairie seed mixtures will be utilized. The types of products used for mulching will also be wildlife compatible according to MN DNR guidelines.

Objectives:	***Actions***
1. Wetland Protection	Hubbard SWCD is authorized by the County to Administer, implement and enforce the Wetland Conservation Act within Hubbard County. Hubbard SWCD will provide education and outreach throughout the county with presentations, news articles, newsletters, and brochures on wetlands and wetland regulation. Hubbard County Emergency Response office, MPCA, Hubbard SWCD, BWSR, USACE and other agencies as necessary have a coordinated and tested rapid response plan for any pipeline spills or ruptures.
2. Land Use and Development	The County, and Hubbard SWCD will encourage common sense mitigation measures such as shoreline buffers, stormwater management and BMPs for variances granted through the Shoreland Ordinance. Hubbard County SWCD along with, but not limited to, MN DNR, other state agencies, Leech Lake Area Watershed Foundation, MN Land Trust, Pheasants Forever, MN Deer Hunters and others will participate in acquiring conservation easements, fee title acquisitions or tax incentives for sensitive lands, priority forested lands, lands with rare and endangered species, School Trust Lands and high priority lands as identified from WRAPS and from the LWMP risk assessment for minor watersheds.

MDA with the Hubbard SWCD will measure phosphorus inputs from land use activities and promote “no net increase in phosphorous” from development activities or land use changes.

Hubbard County with the help of Hubbard SWCD will use BMPs for low impact development within municipalities, for stormwater and erosion control, for agricultural drainage practices, for rotational grazing, for pasture management, and controlling the amount of land being converted from forested to irrigated crop land. Use BMPs to mitigate the conversion to help protect the watersheds by using, but not limited to, buffer strips, cover crops, residue management, and sedimentation basins to prevent soil loss.

Work with the County, MN DNR and neighboring counties and townships to secure funding to correct culvert issues within shared watersheds which will improve identified dissolved oxygen problems, and re-establish fish connectivity.

Hubbard SWCD will work with agencies and neighboring counties to develop nutrient management practices to be consistent within watershed boundaries to reduce nitrogen leaching.

Hubbard SWCD will develop a method to prioritize important forest habitats for protection and for connected forested corridors. Recognize habitat needs for threatened or endangered species such as the Gold Winged Warbler.

Hubbard SWCD and NRCS will focus on assisting private landowners with forestland management practices through EQIP and promote the MN DNR SFIA program.

Hubbard SWCD and NRCS will continue to hold an annual Grazing workshop for producers.

Hubbard SWCD will implement the Agriculture Water Certification Program from the Department of Agriculture, and BWSR.

Hubbard SWCD, DNR and other agencies will provide technical and financial assistance for shoreland protection and restoration.

Hubbard SWCD, NRCS, BWSR and Hubbard County will implement the 2015 Soil Loss legislation and develop a local soil loss procedure and provide cost share monies to correct identified problem areas according to MN Statute.

Hubbard County Emergency Response office, MPCA, Hubbard SWCD, BWSR, USACE and other agencies have a coordinated and tested rapid response plan for any pipeline spills or ruptures. Provide up to date information and educational materials on pipeline incidents, spills and ruptures.

IMPLEMENTATION SCHEDULE

~ Crow Wing Lake ~

Implementation Schedule

Priority Concern: Aquatic Invasive Species

GOAL: Form a county - wide AIS Task Force and develop an annual AIS plan for Hubbard County to address the concerns of Aquatic Invasive Species.

Objective 1: Form a county - wide AIS Task Force to develop and implement a Hubbard County AIS Action Plan.

	Action	Lead/Supporting Agency	Timeframe	Cost annually
1	Annual AIS plan	County, Hubbard AIS Task Force	2016 – 2026	In - Kind
2	Updated list of task force members	Hubbard AIS Task Force	2016 – 2026	In - Kind
3	Develop a budget for annual plan	Hubbard AIS Task Force	2016 - 2026	In - Kind
4	Establish a county wide Rapid Response plan for AIS	Hubbard AIS Task Force	2016-2026	$2,000.00
5	Be an AIS mentor to other counties	Hubbard AIS Task Force, Hubbard SWCD	2016 - 2026	In - Kind
6	Develop and implement a comprehensive education/outreach & information program using multiple media sources	Hubbard AIS Task Force, Hubbard County COLA	2016 - 2026	$10,600.00
7	Develop and implement early detection program for AIS sampling	Hubbard AIS Task Force, Hubbard County COLA	2016 - 2026	$9,440.00
8	Review of infested waters determine if state funding used for treatment of AIS	County, AIS Task Force	2016 – 2026	In - Kind
9	Administration of AIS program	Hubbard County and Hubbard SWCD	2016 - 2026	$64,398.00
			Cost:	**$86,438.00**

Objective 2: County - wide AIS watercraft inspection and decontamination program

	Action	Lead/supporting Agency	Timeframe	Cost Annually
1	Develop and implement a county - wide AIS watercraft inspection & decontamination program	Hubbard AIS Task Force, Hubbard County & Hubbard SWCD	2016 - 2026	$251,345.00
			Cost:	**$251,345.00**

Priority Concern: Surface Water Quality and Quantity Improvement and Protection

Goal: Protect Hubbard County surface water quality and quantity by maintaining existing levels or improving those levels through stormwater management, shoreland management, river and near shore area monitoring and assessments and by taking special notice of impaired and prioritized waters within the county.

Objective 1: Stormwater management, erosion and sediment control

	Action	Lead/Supporting Agency	Timeframe	Cost
1	Encourage Cities of Park Rapids, Nevis, Akeley & Laporte create Stormwater Task Forces to do strategic planning and prioritization	Cities Park Rapids, Nevis, Akeley, & Laporte, Hubbard SWCD, MPCA	2016-2021	$4,000.00/ year ($1,000.00 each city)
2	Find funding to evaluate each cities stormwater system, eliminate direct discharge of stormwater to lakes and rivers. Work toward zero runoff of a 1 inch storm event in the next 5 years	Cities Park Rapids, Nevis, Akeley & Laporte, Hubbard SWCD, MPCA	2016 - 2026	$4,000.00/ year ($1,000.00 each City)
3	Promote proven methods of stormwater mitigation that provide minimal impact	Cities of Park Rapids, Nevis, Akeley, Laporte	2016 - 2026	$4,000.00/year ($1,000 each City)
4			**Costs**	**$12,000.00**

Objective 2: Shoreland, near shore, and river corridor protection

	Action	Lead/Supporting Agency	Timeframe	Cost
1	Implement Minnesota Buffer Initiative	MN DNR, BWSR, Hubbard County & Hubbard SWCD	2016 - 2021	$10,000.00/year
2	Identify areas of sensitive shoreline, shoreline with	Hubbard SWCD, MPCA, BWSR,	2016 - 2026	$2,000.00/year

	ecological significance, large undeveloped parcels to focus conservation easements, fee title acquisitions on a watershed basis	LLAWF, MN Land Trust, Nature Conservancy, Ducks Unlimited, MN Deer Hunters		
3	Continue to include conservation implementation requirements into the Hubbard County Shoreland zoning and variance process for development along Trout streams, wild rice and Tullibee lakes	County, Hubbard SWCD, County Board of Adjustment	2016 - 2026	$1,000.00/year
4	Work with neighboring counties, agencies and townships to identify, prioritize and develop projects to correct problems in areas of altered hydrology on a watershed basis and to provide connecting shoreland corridors	Counties, Townships, Hubbard SWCD, DNR, MPCA, BWSR	2016- 2026	$1,000.00/year
			Costs:	**$14,000.00/year**

Objective 3: Measure water quality, quantity data and assess trends.

	Action	**Lead/Supporting Agency**	**Timeframe**	**Cost**
1	Promote & support water quality monitoring, Hubbard LWP subsidize COLA monitoring program	Hubbard COLA, lake associations, Hubbard SWCD	2016 – 2026	$1,500.00/year
2	Determine future water monitoring assessment needs	MPCA, RMB Labs, Hubbard SWCD, BWSR	2016 -2026	$1,000.00/year
3	Water monitoring for dissolved oxygen and temperature profiles	Hubbard SWCD, lake associations	2016 - 2026	On a per visit charge
4	Continue work on MPCA WRAPS process, fill in data gaps, prioritize projects and implement recommended TMDL projects, seek funding	MPCA, Hubbard SWCD	2016 - 2026	$5,000.00/year
5	Create a prioritized list of lakes and streams for all minor	Hubbard SWCD	2016 - 2018	$1,000.00/year

	watersheds for protection strategies for lakes of biological significance, declining WQ trends, lakes with data gaps or no information			
6	Generate minor watershed maps including implementation toolbox to visually show each lake's Watershed Vulnerability Index	Hubbard SWCD	2016 - 2018	$1,000.00/year
			Costs	**$9,500.00**

Objective 4: Lake and Stream assessments

	Action	Lead/Supporting Agency	Timeframe	Cost
1	Collect, collate, trend analysis, locate data gaps to determine water quality trends	Hubbard SWCD MPCA	2016 - 2026	$40,000.00
			Costs	**$40,000.00**

Objective 5: Impaired Waters

	Action	Lead/Supporting Agency	Timeframe	Cost
1	Hubbard SWCD will continue to work with MPCA on Intensive Water Management for TMDL work, public input, prioritize and implement projects and secure funding	RMB Labs, Hubbard SWCD MPCA	2016 - 2020	$4,000.00/year
			Costs	**$4,000.00**

Objective 6: Prioritized waters

	Action	Lead/Supporting Agency	Timeframe	Cost
1	Secure funding for waters identified as needing more monitoring to determine actual site problems, Kabekona River	Hubbard SWCD, RMB Labs, MPCA	2016 - 2026	$64,450.00/year

	coliform problems, more monitoring on Hart, Garfield Lakes, Lake Alice			
2	Restore natural meanders to Fish Hook/Shell River from Hwy 87 south to Upper Twin Lake	MN DNR, Hubbard SWCD, MPCA, Corps of Engineers	2016 - 2026	$500,000.00
			Cost	**$564,450.00**

Priority Concern: Groundwater Quality and Quantity Improvement and Protection

Goal: To determine Hubbard County's groundwater quality and quantity and provide safe drinking water for Hubbard County residents. To protect those sources of groundwater and to determine water quantity sustainability.

Objective 1: Coordinate with State and local entities on drinking water, well water quality testing, well head and drinking water protection.

	Action	Lead/Supporting Agency	Timeframe	Cost
1	Annual nitrate testing for private wells at County Fair	Hubbard SWCD	2016 - 2026	$ 1,200.00/year
2	First Friday of the month do private well nitrate testing at SWCD office	Hubbard SWCD	2016 - 2026	$ 1,800.00/year
3	Generate maps of all private well nitrate sampling and share with appropriate agencies	Hubbard SWCD, MDH, MDA	2016 - 2026	$ 600.00/year
4	Implement MDA Nitrate Nitrogen Township sampling program	MDA, Hubbard SWCD	2016 - 2018	$ 13,000.00/year
5	Water sampling kits available for certified lab testing	RMB labs	2016 - 2026	$ 120.00/year
6	Collect groundwater samples to be analyzed for water quality	DNR, MDA, MDH, RMB Labs, Hubbard SWCD	2016 - 2026	$ 10,000.00/year
7	Identify and seal unused and abandoned wells	Hubbard SWCD	2016 - 2026	$ 2,000.00/year
8	Integrate wellhead protection priorities in the LWMP from Park Rapids, Nevis, Akeley & Laporte	Cities of Park Rapids, Nevis, Akeley, Laporte, Hubbard SWCD, County	2016 - 2018	$ 1,000.00/year
			Costs	**$ 29,720.00**

Objective 2: Support data collection for Hubbard County Geologic Atlas

	Action	Lead/Supporting Agency	Timeframe	Cost
1	Finish collecting private well data from the county	Hubbard SWCD	2016 - 2017	$ 3,000.00

2	Completed Atlas will provide guidance on wellhead protection, water recharge area protection, location of sensitive areas, identify areas for development.	Hubbard County, Economic Development, Hubbard SWCD, MN DNR	2016 - 2017	$ 250.00
			Cost	**$ 3,250.00**

Objective 3: Secure funding for priority Long Lake Watershed to do a study on groundwater contributions and its effects on Long Lake.

	Action	**Lead/Supporting Agency**	**Timeframe**	**Cost**
1	2 - year study on groundwater contribution and influence on Long Lake in Hubbard County	USGS, Hubbard SWCD, Long Lake Association	2016 - 2026	$108,850.00
			Cost	**$108,850.00**

Objective 4: Work with MN DNR and other state agencies to implement identified strategies, programs and policies for the Straight River Groundwater Management area.

	Action	**Lead/Supporting Agencies**	**Timeframe**	**Cost**
1	Review the completed DNR Straight River Groundwater Management Plan and where appropriate incorporate into the Hubbard LWMP	MN DNR, Hubbard County, Hubbard SWCD	2016 - 2021	$ 500.00/year
			Cost	**$ 500.00**

Objective 5: Work with Federal, State and local agencies to provide information, education and technical assistance to irrigation users.

	Action	**Lead/Supporting Agencies**	**Timeframe**	**Cost**
1	Continue the Irrigation Scheduler program	Hubbard SWCD, MDA, Todd, Wadena, E. Ottertail counties	2016- 2021	$ 2,500.00/year
2	Collect precipitation total county wide with volunteers for MN DNR	Hubbard SWCD, MN DNR	2016 - 2026	$ 360.00/year

3	Promote and monitor the MDA weather station for real - time evapotranspiration information	Hubbard SWCD, MDA	2016 - 2026	$ 225.00/year
4	Work with MN DNR on permitting new and existing irrigation wells	MN DNR, Hubbard SWCD	2016 - 2026	$ 500.00/year
			Cost	**$ 3,585.00**

Objective 6: Collect data from MN DNR observation wells for the months of March through November each year and submit monthly data. In the future this may include uploading data logger information and water quality sampling.

	Action	**Lead/Supporting Agency**	**Timeframe**	**Cost**
1	Collect data from MN DNR observation wells around the county for water level and in the future may upload data logger information and do water quality sampling	Hubbard SWCD, MN DNR	March – November 2016 - 2026	$ 900.00/year
			Cost	**$ 900.00**

Objective 7: Septic maintenance and inspection

	Action	**Lead/Supporting Agency**	**Timeframe**	**Cost**
1	Encourage homeowners with septic systems to have their systems pumped following UMN guidelines	Hubbard SWCD, UM Extension, Hubbard COLA	2016 - 2026	$ 1,000.00/year
2	Assist communities and new developments in identifying potential centralized wastewater treatment options	County, Hubbard SWCD, MPCA	2016 - 2026	$ 1,000.00/year
3	MPCA provide landowners information on financial assistance for septic system upgrades	County, and Hubbard SWCD	2016 - 2026	$ In-Kind
4	Provide leadership in administration of MN Rule Chapter 7080 - 7083 (septic).	Hubbard County	2016 - 2026	$ 500.00/year
			Cost	**$ 2,500.00**

Objective 8: Solid and Hazardous waste disposal

	Action	Lead/Supporting Agency	Timeframe	Cost
1	Promote county - wide proper disposal of household hazardous waste, electronic waste, old and unused pharmaceuticals and petroleum products encouraging waste recovery and recycling for environmental protection	Hubbard County	2016 - 2026	$ 1,000.00
			Cost	**$ 1,000.00**

Objective 9: Hubbard County Pipelines

	Action	Lead/Supporting Agency	Timeframe	Cost
1	Provide information and educational materials on Emergency Response to pipeline spills and ruptures	Hubbard County, Hubbard Sheriff Emergency Management office, MPCA, MDH, USARE	2016 - 2017	$1,000.00/year
			Cost	**$1,000.00**

Priority Concern: Land Use and Habitat Protection for Water Quality

Goal: Protect Hubbard County wetlands from "No Net Loss" and administer and enforce the Wetland Conservation Act. Identify and protect Hubbard County soils, forests, lakes, rivers and streams from erosion using BMPs, implement the Minnesota Buffer Initiative, work with neighboring counties in watersheds rather than being limited by county boundaries, promote cover crops, easements or/or fee title acquisition, and implement 2015 Minnesota Statute Chapter 304F.401 on Soil Loss.

Objective 1: Wetland protection

	Action	Lead/Supporting Agency	Timeframe	Cost
1	Administer and enforce the Wetland Conservation Act	Hubbard SWCD, Hubbard County	2016 - 2026	$ 25,103.00/year
2	Provide education & outreach county - wide with presentations, brochures, news articles, website and other media sources	Hubbard SWCD, County	2016 – 2026	$ 1,000.00/year
			Cost	**$ 26,103.00**

Objective 2: Land use and development. Provide support and input for the County-wide Land Use Planning process and update the Land Use Plan of 2005.

	Action	Lead/Supporting Agency	Timeframe	Cost
1	Encourage common sense mitigation measures (shoreland buffers, stormwater management) for Variances granted through the Shoreland Ordinance	County, Hubbard COLA, Hubbard SWCD	2016 - 2026	$ 5,000.00/year
2	Promote and participate in acquiring conservation easements, fee title acquisitions or tax incentives, and forest stewardship plans for sensitive lands, priority	LLAWF, MN Land Trust, Nature Conservancy, MN Deer Hunters, Ducks Unlimited, Hubbard SWCD	2016 - 2026	$ 5,000.00/year

	forested lands, lands with rare and endangered species, high priority lands as identified from WRAPS, targeted land within watersheds that contain but are not limited to wild rice and tullibee			
3	Measure phosphorous inputs from land use activities and promote “No net increase in Phosphorous” from development activities or land use changes.	MDA, Hubbard SWCD, BWSR	2016 - 2026	$ 1,000.00/year
4	Use BMPs for low impact development, for drainage practices, for rotational grazing, pasture management, stormwater and erosion control practices, control the amount of land being converted from forested to irrigated row crops	MDA, Hubbard County, Hubbard SWCD, NRCS, FSA	2016 - 2026	$ 2,500.00/year
5	Work with Townships, and neighboring counties to secure funding to locate and correct culvert issues within shared watersheds to improve DO problems, and re-establish fish connectivity	MN DNR, Townships, Counties, Hubbard SWCD	2016 - 2026	$ 2,500.00/year
6	Work with agencies and neighboring counties to develop nutrient management practices to be consistent within watershed boundaries to reduce nitrogen leaching.	MDA, NRCS, FSA, Hubbard SWCD	2016 - 2026	$ 2,000.00/year
7	Develop a method to prioritize important forest habitats for protection, for connected forested corridors recognizing wildlife needs and providing habitat for threatened or endangered species such as the Gold Winged Warbler	FWS, NRCS, MDA, MN DNR, Hubbard SWCD	2016 - 2026	$ 2,500.00/year
8	Focus on assisting private landowners with forest BMPs and promote MN DNR’s SFIA	MN DNR, Hubbard SWCD	2016 - 2026	$ 8,000.00/year

9	Hold annual Grazing Workshop in Hubbard County	Hubbard SWCD, NRCS	2016 – 2026	$ 3,500.00/year
10	Participate in the MN Agricultural Water Quality Certification Program	Hubbard SWCD, BWSR, MDA USDA/NRCS, MPCA	2016 - 2026	$ 4,000.00/year
11	Provide technical and financial assistance for shoreland protection and restoration	Hubbard SWCD, NRCS, MN DNR	2016 - 2026	$ 2,500.00/year
12	Implement the new 2015 Minnesota Soil Loss statute and provide Cost Share assistance for remediation	Hubbard SWCD, NRCS, BWSR, Hubbard County	2016 - 2026	Unknown at this time
13	Provide information and education regarding Hubbard County's Rapid Response Plan for pipeline incidents, spills and ruptures	Hubbard County Emergency Response Office, USACE, MDH, BWSR, Hubbard SWCD and other agencies.	2016 - 2026	$1,000.00/year
			Cost	**$39,500.00**

Hubbard County LWMP Budget for 2015

2015	Local Water Management Plan	Levy
$ 2,500.00	Freshwater Festival	
$ 4,000.00	Administrative	
$ 3,745.00	Geologic Survey	
$ 1,300.00	Lake Quality Water Monitoring	
$ 1,200.00	Water Education	
$ 500.00	Nitrate Testing	
$ - 0 -	LWMP Coordinator	$ 8,566.00
$ 13,245.00	**TOTALS**	**$ 8,566.00**

Total Costs for Implementation of the Hubbard County LWMP 2015

Costs have been applied on both a per year basis and on a project basis which may cover multiple years. Those costs that exceed the annual Hubbard County LWMP budget funding will be sought with grants, special projects, public and private contributions, some of which may come from, but are not limited to, Clean Water Legacy funds, Lessard Sam's funding, MPCA, MDA, MDH, MN DNR, lake associations, MN Land Trust, LLAWF, private citizens, and many more.

If funding is not found then those listed actions will not be able to be completed.

Priority Concern	Objective	Objective Costs	Total Objective Costs
AIS	Objective 1	$ 86,438.00	
	Objective 2	$251,345.00	**$ 337,783.00**
Surface Water	Objective 1	$ 12,000.00	
	Objective 2	$ 14,000.00	
	Objective 3	$ 9,500.00	
	Objective 4	$ 40,000.00	
	Objective 5	$ 4,000.00	
	Objective 6	$564,450.00	**$ 643,950.00**
Groundwater	Objective 1	$ 29,720.00	
	Objective 2	$ 3,250.00	
	Objective 3	$108,850.00	
	Objective 4	$ 500.00	
	Objective 5	$ 3,585.00	
	Objective 6	$ 900.00	
	Objective 7	$ 2,500.00	

	Objective 8	$ 1,000.00	
	Objective 9	$ 1,000.00	**$ 151,305.00**
Land Use & Habitat	Objective 1	$ 26,103.00	
	Objective 2	$ 39,500.00	**$ 65,603.00**
		TOTAL PLAN	**$1,198,641.00**

The discrepancy between the annually budgeted amount and the total plan amount shows the large amount of work that could be done and the need for additional funding to “Protect” Hubbard County.

APPENDICES

~ Showy Lady's Slipper ~

Appendix 1: Sources of Information

1. **Hubbard County Local Water Management Plan – Scoping Document**

2. **Hubbard County Land Use Plan**; June 1, 2005

3. **Hubbard County Large Lake Assessment**; Hubbard County Soil & Water Conservation District; 2012.

4. **Crow Wing River Watershed Restoration and Protection Strategy**; MN Pollution Control Agency, 2014. www.pca.state.mn.us/water/watersheds/crow-wing-river.

5. **Watershed-based PRAP Performance Review for the Crow Wing River Watershed**; May 12, 2015; Board of Water and Soil Resources.

6. **Mississippi Headwaters Board Plan**; Mississippi Headwaters Board; 2011-12.

7. **Preliminary findings of the Leech Lake River Watershed Restoration and Protection Strategy**; MN Pollution Control Agency. www.pca.state.mn.us/water/watersheds/leech-lake-river.

8. **Preliminary Findings of the Mississippi Headwaters Watershed Restoration and Protection Strategy**; MN Pollution Control Agency. www.pca.state.mn.us/water/watersheds/mississippi-river-headwaters.

9. **Straight River Ground Water Management Area;** Department of Natural Resources; 2015, www.dnr.state.mn.us/gwmp/index.html

10. **Rapid Watershed Assessment – Mississippi Headwaters (MN) HUC: 7010101;** United States Department of Agriculture Natural Resources Conservation Service

11. **2014 Water Quality Monitoring Report,** Minnesota Department of Agriculture, 2014, www.mda.state.mn.us/~/media/files/chemicals/maace/wqm2014rpt.pdf

12. **Private Well Pesticide Testing Options,** Minnesota Department of Agriculture, 2014, www.mda.state.mn.us/protecting/waterprotection/pesticides/testinfo.aspx.

13. **Lakes of Phosphorus Sensitivity Significance;** July 17, 2015; Minnesota Pollution Control Agency, Minnesota DNR and Minnesota Board of Water & Soil Resources.

14. **Hubbard County Emergency Management,** *Pipeline Emergency Response Procedure,* Brian Halbasch Hubbard County Sherriff, telephone: 218-732-2583, email: bhalbasch@co.hubbard.mn.us.

15. **University of Minnesota,** *Septic Tank Pumping Frequency Guidelines,* http://septic.umn.edu/prod/groups/cfans/@pub/@cfans/@ostp/documents/asset/cfans_asset_126408.pdf

16. **Photographs:** Julie Kingsley

Appendix 2: Lakes of Phosphorus Sensitivity Significance

Minnesota Pollution Control Agency

MNDNR

Minnesota Board of Water & Soil Resources

Lakes of Phosphorus Sensitivity Significance

July 17, 2015

A ranked priority lake list based on sensitivity to additional phosphorus loading and the significance of that sensitivity.

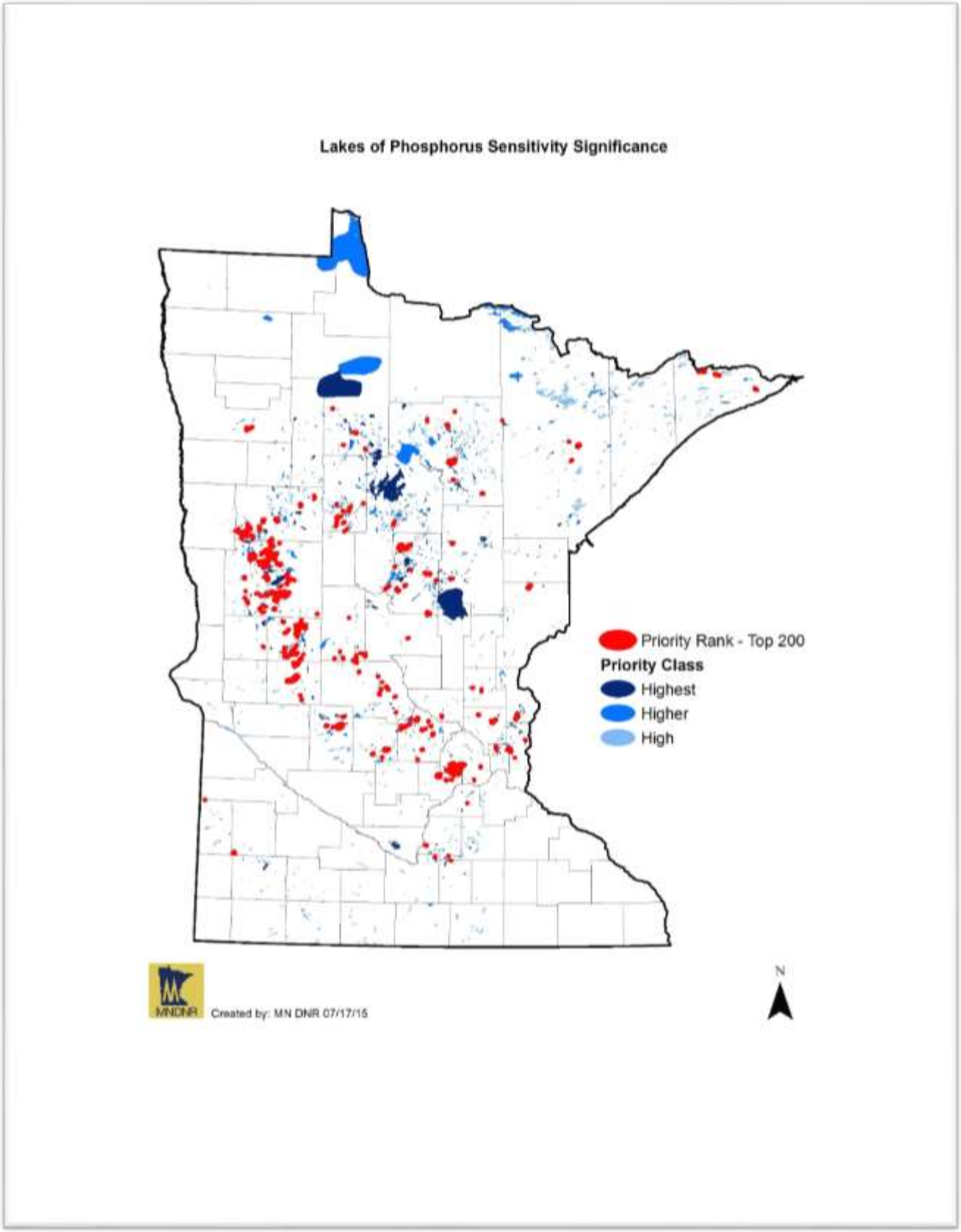
Criteria: Phosphorus sensitivity was estimated for each lake by predicting how much water clarity would be reduced with additional phosphorus loading to the lake. A phosphorus sensitivity significance index was formulated to rank lakes as they relate to the policy objective of focusing on "high quality, unimpaired lakes at greatest risk of becoming impaired." The phosphorus sensitivity significance index is a function of phosphorus sensitivity, lake size, lake total phosphorus concentration, proximity to PCA's phosphorus impairment thresholds, and watershed disturbance.

The phosphorus sensitivity significance index generally produced high values for large, oligotrophic lakes that were vulnerable to phosphorus loading and near their estimated loading threshold, and low values for small, hypereutrophic lakes with high estimated phosphorus loading and watershed disturbance. Lakes were ranked and grouped based on phosphorus sensitivity, the significance of that sensitivity, and the presence of any negative trends in water clarity, and then assigned to one of three priority classes (**high, higher, or highest**). Large, sensitive or vulnerable lakes near a phosphorus tipping point may be the focus of immediate conservation efforts.

This list includes 2717 lakes and was based on the latest information. Many Minnesota lakes have not been sampled for lake phosphorus, and this list will be periodically revised as additional data become available.

Analysis and Purpose: First, a statistical model was used to estimate a lake's phosphorus load. The model was a statistical log-log regression model, with lake phosphorus concentration, lake volume, and hydraulic inflow rate as input variables (the data set used to develop the model included 305 temperate lakes from North America and Europe). For each of the 2717 lakes, a phosphorus loading reduction target was computed based on the 25th percentile of the summer mean phosphorus concentration estimated using the standard deviation of annual data. Local governments might find these estimates useful for various lake conservation efforts.

Second, a mass-balance limnological model was used to estimate a lake's phosphorus sensitivity. The goal was to identify lakes that were not resilient to additional phosphorus loading; the most sensitive lakes identified would most likely see substantial declines in water clarity with increasing nutrient pollution load. In addition, the significance of water clarity changes due to eutrophication included lake size and other factors related to the importance of focusing immediate protection or restoration efforts. This list can be used to identify lakes that may benefit from well-designed phosphorus reduction projects in their watersheds.


Lakes of Phosphorus Sensitivity Significance
Priority Rank - Top 200
Priority Class
Highest
Higher
High
N
MNDNR
Created by: MN DNR 07/17/15

Appendix 3: Scoping Document for Hubbard County LWP 2011

Scoping Document

Hubbard County Local Water Management Plan

2011

Scoping Document

Table of Contents

County Background

Hubbard County is located in North Central Minnesota and the county seat is in the City of Park Rapids. The county is rich with lakes, wetlands, and rivers along with huge tracts of publicly administered land. Population densities are quite low during the winter, but the seasonal population makes the area feel much more inhabited from May through September. Population is centered around Park Rapids and the Highway 34 corridor,but northern Hubbard County is seeing growth associated with the City of Bemidji.

The southern one third of the county is home to many of the area's largest and most popular lakes along with a great deal of irrigated agricultural land. The central one third is made up almost entirely of public land filled with pine, aspen, wetlands, and small lakes. The northern one third has a few large lakes,but is largely made up of cattle grazing operations and rural residences. It is also home to several trout streams.

The local economy relies heavily on tourism and agriculture. Many people in Hubbard County are from families that have lived here since settlement and have never seen a reason to leave, others have come for the peaceful quality of life, yet many others come for the beautiful summers and escape each year before winter takes a grip on the region.

Hubbard County is split between three watersheds.

Mississippi River Watershed

This watershed lies north of the Itasca moraine with lakes and streams mostly bordered by forested swamps and other wetland types such as shrub swamps and sedge covered marshes. The topography is mostly gently rolling to rolling. Extreme slopes can be found around the LaSalle lakes and isolated areas around Beauty Lake. Approximately 40% of the land area is privately owned. There are about 10,000 acres of open water in this watershed. Agricultural use of land in this area is mainly limited to grazing and perennial hay crops.

Leech Lake Watershed

This watershed contains the steepest slopes in the county. These slopes are most evident in the western portion of the watershed known as the Gulch Lakes. These slopes are on the south slope of the Itasca moraine and are dominated by glacial till soils. The remainder of the watershed has gently rolling to rolling slopes with some bluffs and wetlands adjacent to lakes and streams. Land use is forested, public, private and lakeshore development with some grazing and perennial hay crops.

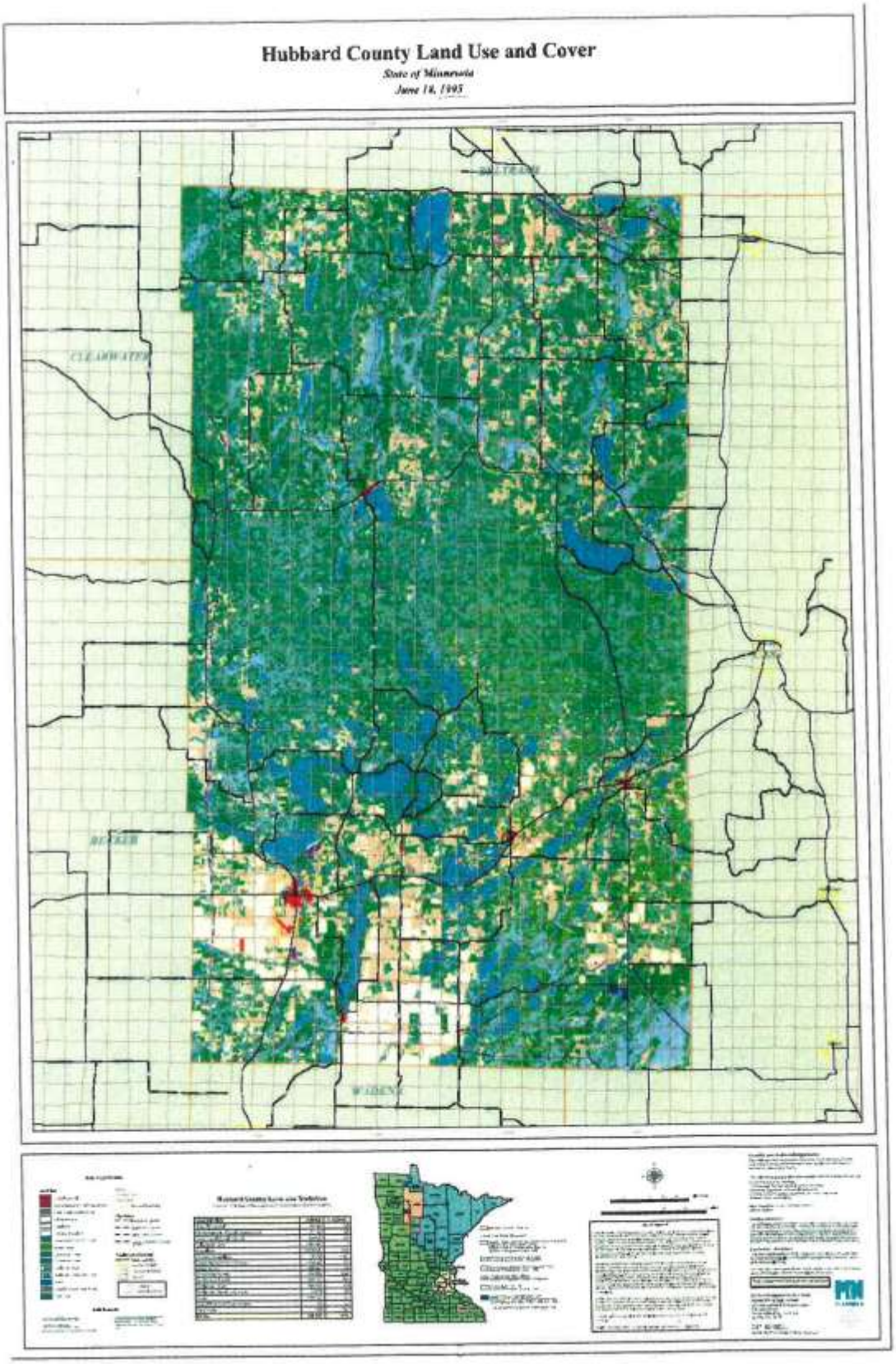
Crow Wing Watershed

About 20% of the land in this watershed is cultivated with center pivot irrigation comprising most of that acreage. Crops grown under irrigation are predominantly potatoes, corn, dry edible beans and small areas of alfalfa. The soils in the watershed are mostly made of flat outwash sands on the south side of the Itasca moraine. This watershed encompasses the southern one- third of the county and contains the highest amount of recreational lakes and population. There is one large bog area in the southeast portion known as the Badoura area.

Population

The population of Hubbard County according to the 2010 census is 20,428 an 11% increase over the population in 2000 of 18,371. The county population is estimated to increase by 15% by 2020 to 23,550.

Hubbard County Population 1920 to 2010									
1920	1930	1940	1950	1960	1970	1980	1990	2000	2010
10,136	9,596	11,085	11,085	9,962	10,583	14,098	14,939	18,371	20,428


Hubbard County Land Use and Cover
State of Minnesota
June 18, 1995

Plan information

The Hubbard County Soil & Water Conservation District, with authority delegated by Hubbard County, is responsible to administer the local water management plan. The original local water plan date was 1990; the plan has been updated in 1995, 2000, 2007, and now in 2012. The expiration date of the current plan is January 2012. A Local Water Plan Task Force oversees the Hubbard County Local Water Plan. This task force is a diverse group of individuals from private and government sectors that establish the goals and objectives of the plan and oversee the implementation of local projects and plans.

List of Priority Concerns

The purpose of the Priority Concerns Scoping Document is to provide Hubbard County with direction for water planning over the next ten years. Several agencies provided feedback about water quality in the county, including the Hubbard County Local Water Plan Task Force, state agencies, and citizen groups. A citizen survey was conducted through the SWCD newsletter and online to give the general public a chance to voice their opinions. Common themes emerged from the public engagement process.

The Local Water Plan Task Force met on July 28, 2011 to develop the List of Priority Concerns for the 2012 Hubbard County Comprehensive Local Water Management Plan. The following are the Key Points of the Priority Concerns Scoping Document.

Priority Concern: Surface Water Protection and Improvement

Hubbard County is widely known as an "up-north" recreational destination. Seasonal visitors and retirees come from all over the country to enjoy the crystal clear waters found in Hubbard County's 313 lakes. This influx of "outside money" stimulates much of the local economy and over 60% of the county's property tax base comes from water influenced parcels.

Objective A: Reduce Urban Stormwater Run-off

Hubbard County has four incorporated cities; Park Rapids, Nevis, Akeley, and Laporte. All four of these cities dispose some if not all of their untreated urban stormwater run-off directly into surface waters. The City of Park Rapids discharges into Fish Hook Lake and the Fish Hook River, Nevis into Lake Belle Taine, Akeley into 11th Crow Wing Lake, and Laporte into Garfield Lake.

Implementation Goals:

- Work with City Managers/Councils to review, create, or update each city's stormwater management plan.

- Identify and prioritize potential locations for large stormwater retention areas and secure funding to install the most cost effective options.
- Work with each city to develop an on-site treatment plan working with individual landowners willing to treat stormwater before it leaves their own property.
- Achieve zero stormwater runoff in each city during a 1 inch rain event.

Objective B: Crow Wing Chain

The Crow Wing River Chain is one of Hubbard Counties most well known water features and attracts many canoeists and boaters each summer. The lake chain consists of 11 lakes connected by short sections of river. The Crow Wing River eventually flows into the Mississippi River just south of Brainerd, MN. Of the 11 lakes in the chain, two are listed by the Minnesota Pollution Control Agency as having impairments due to excess nutrients; 8th and 1st Crow Wing. The furthest upstream lake, 11th Crow Wing, was recently discovered to have curly leaf pondweed, an aquatic invasive species (AIS), which will likely have future implications for the rest of the downstream chain.

Implementation Goals:

- Work with 8th - 11th Crow Wing Lakes to implement activities identified in their current lake management plans.
- Assist 1st - 7th Crow Wing Lakes with participation in the Northwest Minnesota Foundation's Healthy Lakes and River Partnership which results in each lake developing a lake management plan.
- Assist the City of Akeley to plan and secure funding for stormwater and shoreline management, specifically shoreline management on the city campground which has 2,700 feet of shoreline on 11th Crow Wing.
- Work with the Minnesota Pollution Control Agency to develop the required Total Maximum Daily Load (TMDL) analyses for 1st and 8th Crow Wing Lakes. Work on projects identified in the resulting TMDL plan.
- Work with the MN DNR AIS Specialist and local AIS Task Force to protect the chain from further AIS infestations.

Objective C: Shoreland and River Corridor Protection

The riparian areas of Hubbard County lakes and rivers have become much more developed over the last two decades. Many large tracts of shoreline property have been subdivided, small environmental lakes and wetlands have become housing projects, many resorts have turned into planned unit developments, and seasonal cabins have become year round homes. These developments are good for the local economy and tax roles. They also cause more people to take a vested interest in local surface water quality. Unfortunately, the additional development also creates environmental concerns with increased run-off, habitat loss, and declines in water quality. This objective will seek to partner

development with conservation by protecting the most sensitive riparian areas while assisting landowners to make wise modifications to their development projects that will reduce environmental impacts while still serving their purpose.

Implementation Goals:

- Implement management recommendations from lake protection tools that have been by created for several area lakes and provide specific management recommendations for each lake based on trend lines found in water quality data, watershed land use, and several other environmental considerations. Lakes will be grouped into three categories: those having exceptional water quality, those with declining trends in water quality, and those with not enough data. The groupings will allow for several lakes with similar needs to work together on projects focused on meeting each group's needs.
- In partnership with the MN DNR, create a map that identifies areas of sensitive shoreline and shoreline with special ecological significance in order to prioritize a list of parcels to focus on for future projects and programs.
- Install BMP's (buffers, rain gardens, etc.) on residential riparian properties using a screening tool that takes existing vegetation, slope, run-off potential, soil type, and contiguous linear distance of protection into account to prioritize.
- Support a Reinvest in Minnesota (RIM) type easement program as a protection strategy for high value shoreline in northern Minnesota. Implement on high priority sites when a program becomes available.
- Work to include conservation implementation requirements into the shoreland zoning variance process and new subdivisions in the shoreland zone.
- Work with the County to develop a framework for a tax incentive program used to encourage exceptional shoreline management.

Objective D: Impaired Waters

Hubbard County currently has 4 lakes and one river on the Environmental Protection Agency's list of impaired waters. Portage, 1st Crow Wing, 8th Crow Wing, and Upper Twin Lakes are all listed as impaired due to nutrient/eutrophication biological indicators. The Mississippi River from the headwaters to the Schoolcraft River is impaired due to a lack of dissolved oxygen. No TMDL's have been developed to date.
The Crow Wing River Watershed along with the Leech Lake River watershed are currently going through the MPCA's Intensive Watershed Monitoring (IWM) program which assesses surface water for impairments on a watershed scale. Additional impairments may be found as a result of the study.

Implementation Goals:

- Assist MPCA with IWM's when they take place in Hubbard County.
- Participate in the TMDL writing and public input process.
- Implement recommendations from the completed TMDL's

Objective E: Water Quality Monitoring

Hubbard County SWCD and Hubbard COLA have been monitoring lake water quality (total phosphorus, chlorophyll-a, and transparency) for 15 years on most of the large lakes in Hubbard county. Hubbard COLA on its own samples 30 lakes per year.

Implementation Goals:

- Continue to collect water quality data.
- Assess water quality data
- Base management decisions on data assessments utilizing tools such as the lake protection tool challenge grant.
- Continue to subsidize COLA monitoring program.
- Continue to submit water quality data to the state database.
- Provide training for and use of the SWCD Hydrolab for lake associations wanting to collect dissolved oxygen and temperature data for their lake.
- Utilize the MPCA Surface Water Assessment Grant program hen applicable.

Priority Concern: Ground Water Quality and Quantity Protection and Improvement

High nitrate levels are well documented in the groundwater across much of the southern one third of Hubbard County. The high levels are due in part to the coarse soil texture found in the region which allows for rapid infiltration of water applied to the surface. Irrigated land makes up a large part of the region and is closely correlated with the elevated levels. The city of Park Rapids has recently had to remove city wells from production due to nitrate levels that exceeded the state maximum set by the MN Department of Health.

Implementation Goals:

- Work with The Minnesota Department of Agriculture (MDA) to continue long term monitoring of groundwater nitrate levels.
- Develop long term solutions to address areas of high nitrates.
- Work with the MDA and the Natural Resources Conservation Service to encourage and assist landowners to implement management steps that will reduce the amount of nitrates that leads into the groundwater. This may be accomplished through studies, crop rotational changes, fertilizer

application adjustments, irrigation water management, and /or land use changes.
- Seal unused wells to eliminate the potential for groundwater contamination.
- Focus protection efforts on defined wellhead protection areas.
- Continue to monitor ground water levels in partnership with the DNR to assure an adequate supply of groundwater for human uses and recharge of our surface waters, namely the Straight River.
- Seek funding to map groundwater and geology.
- Work to improve septic system efficiencies through education, inventories, and/or development of sewage districts for lakeshore property owners.

Priority Concern: Education

The Hubbard County Local Water Plan Task Force along with surveyed residents of Hubbard County felt that the educational component of the Local Water Plan has been well received in the county in the past, has produced positive results, and should continue to be a priority.

Implementation Goals:

- Continue to put on the annual Hubbard County Freshwater Festival
- Provide youth education within local schools when the opportunities arise.
- Provide adult education on the topics of groundwater contamination, shoreline BMP's, lake monitoring, and aquatic vegetation surveys.
- Partner with University of Minnesota Extension, the Hubbard Coalition of Lake Associations, the Northwest Minnesota Foundation, and other citizen groups to publicize and conduct educational events.

Priority Concern Identification

The Hubbard County Local Water Plan Task Force met on July 28th, 2011. Members present included: Kathy Grell (County Commissioner), Dan Steward (BWSR), Sally Shearer (U of MN Extension) Tim James (MPCA), Don Sells (SWCD), Dan Kittilson (COLA), Marvel Haynes (Real Estate), and Shane Foley (SWCD).

The agenda for the meeting included:
- Overview of the LWP update process, timelines, and motivation for the new plan.
- Reviewed previous water plan initiatives.
- Reviewed agency comments and recommendations and the results of the citizen survey.
- Selection of priority concerns.

Selection of Priority Concerns

After a thorough review of the citizen surveys and public agency recommendations the task force brainstormed priorities for the new plan while keeping public input in mind. All ideas were written on a flip chart and after a period of time the ideas were reviewed and considered. Discussion took place until a unanimous decision was reached on the list of priorities. The list of priorities was made and is as follows: Stormwater, Crow Wing River and Lake Chain, Education, Lake Quality, Ground and Surface Water.

Summary of Agency Input:

MPCA
Priority Concern #1
Impaired Waters, 1st Crow Wing, Upper Twin, 8th Crow Wing, Portage
List impaired waters and identify the priority the County places on addressing the impaired waters also include actions the county intends to take to reduce the pollutants
Priority Concern #2
Lakes
Include an inventory of lakes significantly better than the state standards, training for contractors and lakeshore residents

DNR
Priority Concern #1
Groundwater protection (Quality and Quantity)
Continue Well head protection, establish low flow recommendations for major tributaries, continue monitoring groundwater and come up with a long range plan for nitrate reductions
Area of concern: nitrate hot spots, dense lakeshore developments, Straight River
Priority Concern #2
Surface Water Protection (Shoreland and River corridor protection)
Point and non-point source run-off (municipal stormwater, developed shoreline), identify problem areas of discharge design treatment systems, assist lake associations to integrate water quality protection based on Lake Protection Challenge Grants, support lake testing, assist with erosion control projects
Area of concern: municipalities, lakes participating in lake protection grants, undeveloped large tracts of shoreline
Priority Concern #3
Education
Continue Freshwater Festival, Envirothon, and other youth education programs, education programs for local units of government, lake residents and developers on the importance of water resources

MDH
Priority Concern 1:
Ground water based drinking water
Work with public water suppliers, and cities working on wellhead protection plans.
Priority Concern 2:
Sealing unused wells
Priority Areas, wellhead protection areas.
Priority Concern 3:
Maintain local water quality database
Data could be used to show distribution of problems, characterize aquifers, and identify contributing factors

MDA
Priority Concern 1:
Groundwater Quality for pesticides and nitrates.
Include information on BMPs and invite ag groups to sit in on plan update process

SWCD
Priority Concern 1:
Nitrate well contamination.
Area of concern: southern Hubbard County
Priority Concern 2:
Surface Water Quality
Address stormwater run-off for municipalities and private land.
Area of Concern: cities
Priority Concern 3:
Habitat loss in lakes

BWSR
Priority Concern 1:
Protection of water quality during and after development
Map areas of sensitive areas, conservation easements, develop strong working relationship between the county and lake associations, and develop new voluntary and regulatory tools
Priority Concern 2:
Erosion and sediment control
Erosion on non-riparian area can easily travel to impact surface waters
Training for government and citizens
Priority Concern 3:
Trend towards developing marginal lands
Protect sensitive areas with conservation easements, use sensitive shoreline map as a tool in plat and development reviews. Get lake associations to develop conservation committees.
Priority Concern 4:
County Lake Water Protection Action Plans
Define a small subset of high priority lakes and form action plans for those lakes to access clean water funds

City of Park Rapids
Priority Concern 1:
Safe Clean Drinking Water
Identify ways to improve water quality and partner with actions identified in the wellhead protection plan
Priority Concern 2:
Stormwater management
Maintain and improve current stormwater facilities and extend services to other areas of town, P.R. recently enacted stormwater utility to handle stormwater management.

Summary of Citizen Survey

Local Water Plan Citizen Survey

The Local Water Plan is administered by the Hubbard County SWCD and is being re-written this year. The new plan will be in place for five years and will be used to guide local decisions about land use in Hubbard County. The plan will also be used to secure funding from state and federal sources to leverage our local dollars. Please complete the following survey and mail it to the Hubbard County SWCD at 212 ½ 2nd St W Park Rapids MN 56470, or email your responses to shane.foley@mn.nacdnet.net . Thank you for your input.

Rank the three local resources you value the most (1 was the highest)

Surface Water	2
Ground Water	1
Public recreation land	5
Wildlife	3
Agricultural land	4

Residency:

Seasonal	20%
Permanent	80%

Rank your top three resource concerns: (1 was highest)

Reduction of lake water quality	1
Increased nitrates in public wells	5
Agricultural run-off	2
Run-off from increased lakeshore development	6
Failing septic systems	9
Forestland habitat destruction	4
Increased nitrates in private wells	3
Destruction of aquatic habitat	7
Parcel Fragmentation	8

(Continued on back)

How do you feel resource issues could best be resolved? (1 was highest)

Increased enforcement of existing rules	1
Create new, more stringent rules	5
Education sponsored by government	4
Education sponsored by community groups	2
Incentive payments for sound management	3

Identify the top three categories you would like to see funded: (1 was highest)

Youth education	4
Adult education	3
Brochures/Information distribution	5
Shoreline protection projects	2
Improved agricultural practices	1

Minnesota Board of Water & Soil Resources

1601 Minnesota Drive, Brainerd, MN 56401

September 28, 2011

Hubbard County Commissioners
C/O Melissa Kobernick, Hubbard County
Soil and Water Conservation District
212 ½ 2nd Street West
Park Rapids, MN 56470

RE: Official Comments Pertaining to the State Review of the Hubbard County Priority Concerns Scoping Document

Dear Hubbard County Commissioners:

Pursuant to M.S. section 103B.313, subdivision 5, this letter communicates the State's official comments pertaining to the priority concerns Hubbard County has chosen to address in the update of their Comprehensive Local Water Management Plan. The Board of Water and Soil Resources, along with the state review agencies, were sent the Hubbard County Priority Concerns Scoping Document (PCSD) on August 10, 2011, and asked comments be sent by September 7, 2011, to Ron Shelito, BWSR Regional Supervisor.

Several water resources concerns were submitted to the Hubbard County Water Plan Task Force. Many of these concerns had similar themes which allowed the Task Force to arrange them into the following priority concerns that will be addressed in the Water Plan Revision.

1. Surface Water Protection and Improvement
2. Ground Water Quality and Quantity Protection and Improvement
3. Education

The Minnesota Pollution Control Agency and the Minnesota Department of Health concurred with the priority concerns identified.

The Minnesota Department of Natural Resources in its comments on the PCSD strongly recommended, but did not require a revision related to variances to the county shoreland ordinance and impacts to water quality.

The Minnesota Department of Agriculture in its comments to the PCSD strongly recommended, but did not require a revision related to agricultural run-off and elevated nitrate levels in wells.

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Marshall
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New Ulm
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Rochester, MN 55906
phone (507) 281-7797
fax (507) 285-7144

Saint Paul
520 Lafayette Road N.
Saint Paul, MN 55155
phone (651) 296-3767
fax (651) 297-5615

On September 14, 2011, the Northern Regional Water Resources Subcommittee (hereinafter referred to as the subcommittee) met with the Hubbard County/SWCD representatives to discuss local water management activities within Hubbard County, the process used to gather public input, the content of the PCSD, the state review agency comments and recommendations for the content of the final plan.

Based on the subcommittee's recommendations, the Board of Water and Soil Resources commends Hubbard County for the process used to select the concerns. The priority concerns to be addressed in the plan were deemed to be appropriate, and do not require any changes to the PCSD as submitted. BWSR encourages Hubbard County to continue to take advantage of opportunities to play the coordination role that is often key to improved local water management.

Sincerely,

Brian Napstad, Chair
Board of Water and Soil Resources

cc: Brian Napstad, BWSR
Quentin Fairbanks, BWSR
Gene Tiedemann, BWSR
Paul Brutlag, BWSR
Keith Mykleseth, BWSR
Lori Dowling, DNR
Ron Shelito, BWSR
Dan Steward, BWSR

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A TRANSCRIPT OF THE PROCEEDINGS OF THE REGULAR MEETING OF THE HUBBARD COUNTY BOARD OF COMMISSIONERS HELD ON NOVEMBER 3, 2015, AT 9:00 0'CLOCK A.M.

The regular meeting of the Hubbard County Board of Commissioners was held on November 3, 2015, at 9:00 a.m. with all the Commissioners and County Coordinator, Debbie Thompson present.

The Pledge of Allegiance was said by all.

The meeting was called to order by Chairman, Dan Stacey.

On motion of Mr. Johannsen, seconded by Mr. Massie and carried unanimously, the agenda was approved, as modified.

On motion of Mr. Dotta, seconded by Mr. Massie and carried unanimously, the following consent agenda items were approved, as submitted:

- Approved the minutes of the October 20, 2015 Regular Meeting;
- Approved the bills & Auditor's Warrants dated October 23 & October 30, 2015;
- Approved the Social Services bills;
- Referred the review of a Shoreland Management Ordinance violation to the County Attorney for litigation, if necessary;
- Approved the following license applications: Tobacco-City of Akeley; PR Tobacco Superstore; Hugo's; Lakes Area Coop, Park Rapids Cenex Store; Lakes Area Coop, Akeley Cenex; Orton's East; Orton's West; Itasca Junction Inc.; Rapids Spirits; and Walmart;
- Reviewed the Departmental Overtime Report, October, 2015;
- Adopted the following resolution:

RESOLUTION NO. 11031501

WHEREAS, Minnesota Statutes §465.03 provides for acceptance of gifts by the County by resolution of the County Board adopted by a two-thirds majority of the Board and expressing the terms of the gift, and

WHEREAS, Hubbard County's Sheriff's Department has received gifts as follows:

Name	Amount	Donation
Dale Fischer	$420.00	STS Firewood

NOW, THEREFORE, BE IT RESOLVED, that the aforesaid gifts are hereby gratefully accepted.

- The creation of a 5% cap on annual CPA losses; ensuring no county will lose more than5% of its funding each year.

Auditor/Treasurer, Kay Rave provided the MCIT Annual Report for Board review with no action required.

Coordinator: Coordinator, Debbie Thompson presented a draft resolution for Board review regarding Public Utilities tax court litigation. Discussion followed. By consensus of the Board, the resolution was tabled pending further contact with the Association of Minnesota Counties (AMC).

By consensus of the Board, the Hubbard County AMC Silent Auction contribution was determined to be a basket of local county products including wine; honey; wild rice; and maple syrup to name a few.

By consensus of the Board, the attendance of the AMC Conference to be held in December was approved to include the following in addition to the Commissioners: Public Works Coordinator; Solid Waste Administrator; Auditor/Treasurer; Community Services Director and the Coordinator.

The Board re-affirmed the agenda for the Board Work Session to be held on November 10, 2015, scheduled to begin at 9:00 a.m. as follows: Nemeth Art Center representative; Review of the County Attorney and Land Record Department 2016 proposed departmental budgets; and review of Shell Prairie Ag Association rental agreement.

By consensus of the Board, the following commissioners will attend the Mississippi Headwaters Board (MHB) Annual Meeting to be held on November 20, 2015, beginning at 10:45 to 3:00 p.m. at the Chase on the Lake in Walker, MN: Mr. Johannsen, Mr. Smith and Mr. Stacey.

A review of the services provided to the county through its membership of the National Association of Counties (NACO) was completed with no action taken.

On motion of Mr. Johannsen, seconded by Mr. Smith and carried unanimously, the following resignations were accepted, with regrets and the provision of a service award for the respective employees was authorized: Information System Specialist Sr., Pete Skadberg, effective November 3, 2015, and Bailiff, Allen Bruns effective October 30, 2015.

Public Hearing regarding the proposed Local Water Plan: The public hearing was called to order at 11:00 a.m. On motion of Mr. Dotta, seconded by Mr. Massie and carried unanimously, the reading of the public notice was waived.

Soil & Water Conservation District (SWCD), District Manager, Julie Kingsley provided a brief history of the work completed by the Water Management Task Force to draft the proposed Local Water Plan currently before the Board. She also reported

that the plan under consideration would be a ten year plan with a five year review vs the five year plan that is currently in place. Ms. Kingsley also provided a review of several of the tables included and the data that was used to complete them.

Public comment was received from Daniel Kittleson who was a member of the committee that developed the proposed Local Water Plan. Mr. Kittleson spoke to the work completed over the last two years and the need for this plan as a strategy for the protection of the water as well as forests and the buffer zones established per recent legislation. He spoke to the importance of septic system impacts on the water table and the efforts extended by the Coalition of Lake Association (COLA) over the past twenty plus years. He spoke to the need to develop "triggers" to continue the inspection of septic systems. He also referenced the presence of "impaired lakes" and "declining water quality" and encouraged the Board's continued monitoring of septic systems with specific outcomes to be developed.

Ms. Thompson read four letters received from the public as follows: Maurice Spangler; Hubbard County Coalition of Lakes (COLA); the Long Lake Area Association; and Friends of the Headwaters.

Sharon Natzel addressed the Board citing specific suggestions for updates to be included in the Local Water Plan. (A copy of the presentation was provided for the record.)

Chairman Stacey asked for any further public input. There being none the public hearing was concluded at 11:27 a.m.

Ms. Kingsley deferred to Board of Water and Soil (BWSR) Conservationist, Chad Severts as to the procedures to be followed. Mr. Severts explained that no action was necessary at this meeting however BWSR is expecting to send the plan to the State of MN in January and a sixty (60) day review period must be provided prior to the submission.

Mr. Charles Andress, Badura Township addressed the Board encouraging the Board to consider the effects of the Local Water Plan in the long term and expressed concerns of the effects on the county's infrastructure over time.

Chairman Stacey acknowledged that the comments received will need to be considered and the continued review of the Local Water Plan was added to the Agenda of the Work Session to be held on November 10, 2015.

County Attorney: County Attorney, Donovan Dearstyne provided information regarding a courthouse security committee he has been serving as a representative on. The group is exploring sources of funding for the provision of courthouse security. The Board requested the County Attorney draft correspondence to AMC seeking legislative support of the cause and authorized the signature of same by the Board Chairman, as discussed.

LONGLAKELIVING.ORG | Long Lake Area Association
P.O. Box 808
Park Rapids, MN 56470

Long Lake Area
ASSOCIATION

November 2, 2015

Subject: Comments to Hubbard County Commissioners on the Hubbard County Draft Local Water Management Plan, November 2015 to November 2025

The Board of Directors for the Long Lake Area Association (Hubbard County) Inc. discussed the Draft Hubbard County Local Water Management Plan (LWP) and has the following comments:

- Based on 2013 Hubbard County GIS data, Long Lake has 500 unique lakeshore parcel owners. There are 622 parcels on this 1926.07 acre lake. There are 136 residential parcels (full homestead) and 364 non-homestead or "seasonal" residents. There are 5 resorts and 1 campground plus 2 public accesses with parking. County assessor data from 2013 shows Long Lake is the most valuable lake in the county.

- We support and recommend Objective 3 on page 82 to secure funding for priority Long Lake Watershed to do a study on groundwater contributions and its effects on Long Lake. Long Lake is a unique spring-fed lake. There are not visible streams or rivers that flow into the lake as water sources. Yet there is a continuous flow of water over the dam and down the stream at the south end of the lake at Hubbard, MN. Long Lake is part of the Straight River Groundwater Management Area.

- The LWP states on page 66, "Poorly functioning septic systems can also contribute excess nitrogen and phosphorus, and untreated pharmaceuticals to the soil, groundwater and private drinking water wells and to area lakes and rivers." The map of Nitrate Clinic Results 2014-2015 on page 67 confirms that there are private wells on Long Lake which have nitrate problems. The minor watershed mockup on page 60 highlights some of the reasons for the "Enhance / Protection" categorization of Long Lake. Excess nutrients flowing into the lake can cause declining water quality and also lower the dissolved oxygen available for fish. It appears there may be an opportunity for specific objectives in the LWP to determine if there are septic systems failing. One potential way to determine this may be to utilize Environmental Assessment Overflight technology http://minnesotawaters.org/lakevolney/flyover-lake-analysis/ .

Sincerely,
The Long Lake Area Association Board of Directors
The Board of Directors, Long Lake Area Association (Hubbard County), Inc.

CC: Henrietta and Hubbard Township Supervisors

HUBBARD COUNTY HC COLA
P.O. BOX 746
PARK RAPIDS, MN 56470

STOP AQUATIC HITCHHIKERS!™

www.HubbardCOLAmn.org HCCOLAmn@gmail.com

November 2, 2015

Hubbard County Commissioners
c/o
Debbie Thompson
Hubbard County Coordinator
dthompson@co.hubbard.mn.us
301 Court Avenue
Park Rapids, MN 56470

Re: Comments on the Draft Hubbard County Local Water Management Plan, Nov 2015 to Nov 2025 for the 11/3/15 Hubbard County Commissioner Meeting

Dear Hubbard County Commissioners,

The Hubbard County Coalition of Lake Associations ("HC COLA") is a coalition of 29 lake associations and their approximate 2,100 members that represent 37 lakes in Hubbard County

HC COLA supports and recommends the adoption of the Hubbard County Local Water Management Plan (LWP) November 2015 to November 2025 because the LWP is consistent with HC COLA's mission to protect and enhance the quality of our lakes and rivers, preserve the economic, recreational and natural environmental values of our shore lands and promote the responsible use of our waters and related habitats. The LWP and our mission will both enhance, promote, and protect the interests of lake shore property owners, lake associations, local government, the general public and future generations.

HC COLA's comments / recommendations are not limited to just the items listed below. Hubbard County's healthy water resources will require ongoing participation, engagement and dialogue to achieve the recommended actions presented in the Hubbard County Local Water Management Plan. HC COLA commits to actively support the LWP by taking the actions recommended in this living document.

- Opportunities exist for measurable action items for example in the LWP related to identifying septic system failure which can affect both surface water quality and groundwater degradation.
  - For example, objectives could be set related to the Crow Wing Watershed Restoration and Protection Report and septic systems on lakes referenced on page 24.
  - Another example is that objectives could be set for the priority resource concern of failing septics in the Mississippi Headwaters Board Water Plan, 2012 referenced on page 32.
  - Objectives could be set for wise stewardship of the groundwater resource related to septic maintenance as referenced on page 66.
- Buffer initiatives, better sewage treatment, sediment control and stormwater management will help protect water quality.
- Action items on each of the objectives for surface water quality and groundwater could potentially be prioritized by risk classification by minor watershed with goals measured in 3 years and in 5 year increments, for example.
- The use of the minor watershed mapping will be an excellent educational tool to help demonstrate impacts of even minor modifications on our waters. This will enable even better engagement by the public in the LWP.

Thank you for considering HC COLA's comments and recommendations.

Hubbard County Coalition of Lake Associations

Lynn Goodrich, President

Sharon Natzel
13623 County 20
Park Rapids, MN 56470

November 3, 2015

Hubbard County Commissioners
Park Rapids, MN 56470

Subject: Hubbard County Draft Local Water Plan – Comments from Private Citizen for 11/3/15

The Draft Hubbard County Local Water Plan was a wonderful starting point for me as a private citizen to begin to understand the various opportunities involving our Hubbard County extensive water resources. I view the LWP as an educational tool. I have the following suggestions based on my reading impressions – please see below.

Thank you for the opportunity to provide public comment on this draft Local Water Plan today.

Sincerely,
Sharon Natzel

Comments:
On page 2, under Balance, I would suggest that the word "competing" be replaced with "synergistic" because effective economic development in Hubbard County need not be at the expense of protecting our extensive water resources which is the base for the tourism industry, our largest "employer" in the area. When the term "competing" is used throughout the document, it sets up an emphasis on minimizing cooperation along with a win / lose attitude. With synergy, the creation of a whole is greater than the simple sum of its parts. So please consider "synergistic" terminology throughout.

On Page 15, the Hubbard County "landscape" is laid out with the townships, cities and smaller communities. It would be helpful to include on this page a table that lists these entities clearly. Currently the map displayed and the key to the map doesn't coincide with the "4 cities" and "11 smaller communities" sentence. The key shows 5 cities and 8 towns. The map could have the entities in the table displayed too. Then on other pages in the document related to towns and cities, a reference can be made back to the table, for example page 20. Consistency is important.

As our area continues to grow and change, the plan should be able to adapt and add protection / mitigation planning easily for our water resources. Some areas to consider are what happens if there is an ice house meth lab contamination, road salt changing the ph level, or pump stations and pipelines leaking.

There are areas of the plan that require punctuation and spelling corrections that will be caught in the final version.

FRIENDS of the HEADWATERS

November 3, 2015

Hubbard County Board of Commissioners
Park Rapids, Minnesota 56470
Attn: Debbie Thompson (for the Commissioners)

To the Hubbard County Board of Commissioner:

While the LWMP Task Force members and Minnesota Government Agencies should be commended for their effort in drafting the Hubbard County Local Water Management Plan, it must be pointed out the draft report has a grievous omission. It is inconceivable this draft report could be compiled without any consideration of the two new Enbridge crude oil pipelines proposed to traverse Hubbard County. If approved the Sandpiper and Line 3 pipelines will move 1,145,000 barrels of oil per day through the county's critical watersheds and important Straight River aquifer. That is nearly 50 million gallons of flammable North Dakota Bakken oil and sinking Alberta tar sands oil passing through Hubbard County's pristine lakes and streams, its wild rice wetlands, its drinking water aquifer, plus America's second oldest state park and national treasure, Itasca State Park, headwaters to one of the world's great rivers, the Mississippi.

To quote from the Executive Summary in the draft report.

"The purpose of this plan is to identify existing and potential problems and opportunities for the protection, management and development of water and related land resources, to develop objectives and carry out a plan of action to promote sound hydrologic management of water and related land resources, effective environmental protection, and efficient management of Hubbard County water resources."

The lack of any reference to these proposed pipelines in the draft report is a serious flaw and a failure of the purpose and mission as described in the Executive Summary. Without the inclusion and a full assessment of the potential threats of an oil spill in and to Hubbard County's valuable water resources and water-based economy, tourism and agriculture, this report cannot be considered a comprehensive, accurate and responsible management plan.

Sincerely,

Richard Smith
President
Friends of the Headwaters

Friends of the Headwaters
P.O. Box 583
Park Rapids, MN 56470
www.friendsoftheheadwaters.org

Thompson D.

From: Maurice Spangler <mauricespangler@gmail.com>
Sent: Sunday, November 01, 2015 8:22 AM
To: dthompson@co.hubbard.mn.us; sorgwweh@aol.com
Subject: Hubbard County Local Water Management Plan

Ms. Thompson: I don't know if I'll be able to attend the November 3 Commissioners' meeting and wanted to comment on one aspect of the LWP. In the second paragraph on page 66 the issue of spills and leaks from underground petroleum storage tanks is mentioned. As the Commissioners know, there is a concerted effort by Enbridge and its affiliated corporations to place a system of huge oil pipelines (Sandpiper and line 3 revision) through the western and southern portions of Hubbard County. These lines would transport Bakken crude oil and Alberta tar sands oil in massive amounts. Enbridge is known for having significant leaks of its pipelines, notably the spill of millions of gallons of tar sands oil into Talmadge Creek near Kalamazoo, MI, in 2010 as well as other leaks (Line 9 Communities.com lists 804 spills between 1999 and 2010 gathered from Enbridge's data).

Other companies using current pipeline monitoring technology have experienced massive leaks in Alberta (CBC News Edmonton July 16, 2015: Nexen pipeline leak in Alberta spills 5 million litres) and significant pipe erosions in Missouri (Dakota Free Press 7/28/2015: TransCanada's Keystone Pipeline Showed Significant Corrosion in Third Year of Operation) recently. The Minnesota MPCA expressed concerns about what happens after pipelines are abandoned and said that pinholes of 1/32 inch in diameter from pipelines can leak up to 28 barrels of oil per day that would not be detected by current pipeline monitoring technology ((http://mn.gov/commerce/energyfacilities//resource.html?Id=34296) MPCA comments page 3.)

It would be devastating for our lake, rivers, wild rice beds and aquifers as well as our economy to suffer massive or cumulative oil spills from pipelines. Abandonment of pipelines after they've gone through their 50-60 year estimated lifetimes is another issue. I feel these issues must be addressed in the LWMP.

Thank you, Maurice Spangler, 15995 Freedom Drive, Park Rapids, MN 56470

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