

# 2013 Water Protection Report





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## **WATER PLANNING MISSION:**

Water planning is identifying what works best to protect and enhance Crow Wing County's water resources. As the LGU responsible for the development and implementation of the Local Comprehensive Water Management Plan, the Crow Wing County Land Services Department is committed to protecting, preserving & improving water resources in Crow Wing County by being proactive, efficient, customer focused, organized, and innovative while being good stewards of the county's resources. The Department is committed to providing excellent customer service while helping landowners make wise choices that protect Crow Wing County's extraordinary natural resources. This report outlines the steps taken by the Environmental Services Division of to accomplish this mission.

## **WATER PLANNING BACKGROUND:**

Water planning is a comprehensive analysis of water and related land resources and a recommended series of action strategies designed to achieve maximum water resource use and achieve water management goals. It is used to link many land-use decisions with local goals for surface and groundwater protection and management.

Water planning developed under the legislative authority and mandate of the Comprehensive Local Water Management Act (Minnesota Statutes, Chapter 110B). The purpose of Local Water Planning, by statute, is to:

- Identify existing and potential problems and opportunities for the protection, management, and development of water and related land resources
- 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 measurable outcomes. BWSR provides financial assistance to LGUs through the Natural Resources Block Grant.

In Crow Wing County, water planning is identifying what works best to protect and enhance the County's water resources. In administration of the water plan, Crow Wing County is committed to the following principals of action:

- Providing exceptional customer service that empowers landowners to manage and protect their land and water resources
- Coordinating funding, staff, and grass roots efforts to maximize effectiveness of public dollars and programs



- Managing, enhancing, and expanding the availability of educational materials and a network of resources and contacts
- Identifying existing and potential threats to surface and ground water resources with action plans to minimize them

### **2013-2023 WATER PLAN REVISION:**

The Crow Wing County Land Services Department has been delegated authority by the Crow Wing County Board of Commissioners to update and revise the Local Comprehensive Water Management Plan. This update and revision process included an identification of local priority water resources concerns (in 2012) which formed the framework for a new comprehensive water plan document that was approved in 2013.

The groundwork for this water plan update and revision process was laid with the changes to the County Land Use Ordinance in 2011 which sought to integrate many of the existing water plan priority concerns and action steps into the daily operations of the Land Services Department. The 2011 changes to the Crow Wing County Land Use Ordinance are a reflection of many of the 2008 priority concerns and action steps, which in turn are reflected in the priority concerns and action steps in the new 2013-2023 plan. This revision to the Water Plan further synchronizes the Water Plan with ongoing Department operations, which include ongoing activities including the Wetland Conservation Act, Shoreland Management, Septic System Management, and Wellhead Protection.

#### *Selection of Priority Concerns:*

After extensive public comment, this new plan identifies surface water, ground water, and aquatic invasive species as the three priority concerns along with the objectives listed below:

1. Priority Concern: Aquatic Invasive Species
  - Lake association coordination
  - Watercraft Inspection
  - Lake Improvement District (LID) management
  - Education & outreach
2. Priority Concern: Surface Water
  - Stormwater management and erosion & sediment control
  - Shoreline buffers
  - Wetland protection
  - Land use and development
  - Measure Water Quality Data & Access Trends
  - Agricultural Best Management Practices



### 3. Priority Concern: Ground Water

- Septic maintenance and inspection
- Testing for nitrates and other contaminants
- Wellhead and drinking water source protection
- Sealing of unused / abandoned wells
- Solid & hazardous waste disposal

#### Priority Resources:

Because Crow Wing County is blessed with a large number of water resources, further prioritization is often needed. Below are some examples of priority resources that the water plan focuses on:

#### Surface Water:

- Lakes
  - Large, deep, cold-water lakes that are major fisheries & recreational resources
    - Typically > 400 acres in size
    - Includes several border lakes
    - Includes a focus on the Shoreland Zone
  - Shallow, environmental / wild rice lakes
- Rivers
  - Mississippi
  - Nokasippi
  - Pine
  - Trout streams
- Impaired waters
  - Little Buffalo Creek
  - Kego
  - Platte
  - Crow Wing
  - Sibley
  - Mayo
  - Jail
- Waters with a declining water quality trend
- Waters with high impervious surface coverage
- Disturbed watersheds or watersheds with impaired waters
- Existing high quality watersheds to continue protection efforts in



Ground Water:

- Wellhead and drinking water source protection areas
- Shallow, surficial sandy aquifers
- Septic systems
- Agricultural / forested areas

Uniqueness of this plan:

This plan is a water resource “protection” based plan with a scope focused to the minor watershed level. Implementation strategies were developed from the priority concerns and tailored specifically for each of the 125 minor watersheds in the County. Analysis of existing, readily available data has revealed the details of these minor watersheds while showing where data-driven strategies can be implemented in a more targeted and efficient manner. This plan is unique from past versions because it:

- Focuses on Aquatic Invasive Species for the first time in plan history
- Targets specific surface and ground water resources to focus implementation efforts
- Includes an implementation plan for the Mississippi River (a first in CWC plan history)
- Uses a watershed-based, land protection model (the first of its kind in the state)
- Includes analysis and maps of all 125 minor watersheds in the county

Coordination with other plans:

During the scoping process, a request was made to other LGUs and stakeholders groups for relevant plans and information related to water resource planning. No specific plans were submitted. Crow Wing County was aware of the watershed monitoring and planning efforts of the Minnesota Pollution Control Agency and 30 Lakes Watershed District and had extensive conversations with each. No known conflicts exist. Also, incorporated by reference into this plan are the most current versions of the: Crow Wing County Land Use Ordinance, Wellhead Protection Plans for Baxter, Brainerd, Crosby (when available), Cuyuna, Deerwood, Ironton, Pequot Lakes, Riverton, and Trommald. The Crow Wing County Stormwater Packet, Crow Wing County Solid Waste Plan, Minnesota Stormwater Manual, Crow Wing County Geologic Atlas, and NRCS Soil Survey are also hereby incorporated by reference.

Quotes:

Crow Wing County has received high praise from many agencies and organizations with respect to the 2013-2023 Water Plan revision and its watershed protection model. Below are some quotes received from various state agencies during the revision process:

“The Crow Wing County Land Services office staff and County Board are to be commended for writing a plan that clearly presents the county’s water management goals, actions, and priorities. With continued implementation of your water plan the protection and management



of Crow Wing County's water resources will be greatly enhanced. The Board of Water & Soil Resources looks forward to working with you as you implement this Plan and document its outcomes."

-Board of Water & Soil Resources

"The County and its staff should be commended for the integration of a comprehensive and purposeful watershed management framework into the plan. This integration, especially efforts that drill down to the minor watershed level, will provide the County and its citizens with a solid foundation from which to develop effective partnerships that will better manage water and land resources."

-Minnesota Forest Resources Council

"The 2013 water plan bases implementation priorities on a watershed framework and demonstrates the continued leadership of Crow Wing County in designing performance-based outcomes that protect water resources in the county. This is an excellent venture in watershed-based planning."

-Minnesota Department of Natural Resources

## **2013 SUMMARY OF ACTIVITIES:**

### Significant Water Plan Events in 2013:

January 9, 2013 = Presented at the BWSR water plan sub-committee meeting

April 23, 2013 = Held a Public Hearing on the Proposed Water Plan

June 12, 2013 = Presented Water Plan to BWSR's Regional Subcommittee

June 19, 2013 = Presented Water Plan to Minnesota Forest Resources Council Regional Subcommittee

July 17, 2013 = Presented Water Plan / Geologic Atlas to Legislative-Citizen Commission on Minnesota Resources (LCCMR) field tour attendees

July 23, 2013 = Water Plan Approval by Crow Wing County Board of Commissioners

August 16, 2013 = Presented on Water Plan / Stormwater Management at International Low Impact Design Symposium in St. Paul

August 29, 2013 = Presented at Stearns County Workshop on Pervious Surfaces

October 29, 2013 = Presented Water Plan at BWSR Academy



Summary of 2013 Water Plan Activities (by priority concern/objectives):

Priority Concern: Aquatic Invasive Species (objectives listed below with bullets)

- Lake association coordination

In 2013, the Land Services Department hosted the 2nd annual Lake Association Open House. Participating organizations included: SWCD, 30 Lakes Watershed, DNR, and the Crow Wing Lakes & Rivers Alliance (LARA). Nearly 50 lake association representatives attended, representing 17 associations. Attendees received copies of the 2013 Lake Assessments, Crow Wing County factsheets, and a CD with presentations and resources that they could take back to their respective associations.

Also, updates about county news and grant opportunities are sent quarterly via the water plan newsletter. Lake association contact information is maintained by Crow Wing County and is available on the Lakes & Rivers section of the County website.

- Watercraft Inspection

2013 marked the 3rd year that Crow Wing County participated with the DNR and local lake associations and lake improvement districts (LIDs) to provide Level I AIS watercraft inspectors at public boat accesses. 2013 was the first year that the program was offered county-wide. The program relied on employees provided by the Employment Resource Center, Inc. (ERC). These temporary employees were trained by the DNR to be certified as Level I inspectors (who have the ability to deny access if AIS is found on the watercraft) and were scheduled and supervised by AIS program coordinator, Mike Smith, who was hired for the summer by the Crow Wing County Land Services Department. Mike worked with the ERC to supply inspectors to the participating lake associations / LIDs according to their needs and the inspectors' availability. ERC billed the lake associations directly for the inspection hours that they staffed. Crow Wing County assumed the following up-front costs: inspectors' wages to attend DNR training, vests, mirrors, ad placement / promotion, and payroll / mileage for Mike Smith. 70% of these administrative costs of the program were covered by a DNR grant and 30% were paid for by the participating lake associations / LIDs.

In 2013, 10 lake associations participated with inspectors conducting inspections at 17 lakes. All of the inspectors in the County program collected data from each boater entering or exiting the public water body. The data collected included the license plate of the vehicle (including state), type of watercraft, status of the drain plug, number of days the watercraft was in/out of the water, whether any plants, mussels, or water was found, the name of the previous lake the boater visited, and the name of the next lake the boater planned to visit. The DNR has not released the final data yet, but preliminary data indicate that County inspectors conducted



approximately 3500-4000 inspections during the season. The vast majority of boaters entering/exiting were found to be visiting the same lake repeatedly.

However, of the boaters not conducting repeat trips, there was a good percentage that were coming or going to larger, AIS-infested waters such as Gull, Mille Lacs, Minnetonka, or the St. Croix and Mississippi Rivers. The number of boaters coming and going from out-of-state waters was low (< 1%) but ranged from neighboring states/provinces all the way to the East Coast of the U.S.

Crow Wing County lakes had a couple of close calls in 2013. Over Memorial Day weekend, a Zebra mussel was found in a livewell of a boat prior to launching into Lake Hubert. Another apparent discovery occurred on Bay Lake with a zebra mussel being found stuck to live plants inside the boat. In previous years, County inspectors also prevented the launch of a boat with Eurasian Watermilfoil into the Whitefish Chain.

- Lake Improvement District (LID) management

Crow Wing County has 8 lake improvement districts (LIDs). All lake improvement districts are required to submit an annual report and a more in-depth 5-year report. In 2013, Sibley and Kimble LIDs submitted their 5-year reports. All of the reports and other LID information is available on the County website.

- Education & outreach

Most of the AIS outreach in 2013 was geared towards lake associations / LIDs. Crow Wing County did release a press release about the prevention of zebra mussels from entering Lake Hubert over the Memorial Day weekend.

#### Priority Concern: Surface Water

- Stormwater management and erosion & sediment control

The Crow Wing County Land Services Department started a stormwater permitting system that encourages landowners to implement their required stormwater plans within the first year following permit approval. The Department also developed policy and procedures to better track implemented plans (rather than just the number of plans) and to ensure compliance.

The Department worked with the Crow Wing Soil & Water Conservation District to promote a grant to assist landowners with the cost for implementing stormwater plans. Please see Appendix 3 for a summary map of all stormwater projects in Crow Wing County (by all entities).

The Department updated and further distributed the County's stormwater packet to better assist applicants with understanding the expectations for design and implementation of stormwater plans. A link to this packet was included in the



approval email for all County approved permits in the Environmental Services Department. The packet includes:

- Frequently asked questions (FAQs)
- Lot impervious surface coverage & landscaping for stormwater calculator
- Stormwater plan examples
- Best Management Practices (BMPs) factsheet for stormwater
- List of contractors who have attended a Crow Wing County workshop

The Department discussed the importance of stormwater management with every potential applicant that came through the Development Review Team (DRT) / Public Hearing process. Advised potential applicants that the Board of Adjustment typically requires that applicants implement a stormwater management plan as a condition of approving a variance request.

- Shoreline buffers

Crow Wing County Land Services Department, Crow Wing Soil & Water Conservation District (SWCD), 30 Lakes Watershed District, and the DNR were collectively involved in 30 shoreline buffer or stabilization projects in the County in 2013. From these, over 1/2 mile of shoreline was preserved or restored in Crow Wing County. Please refer to Appendix 3 for a map of shoreline projects.

- Wetland protection

See the Wetland Conservation Act Administration section of this report on page 14.

- Land use and development

In early 2013, Crow Wing County completed Phase II of its Lakeshore Impervious Surface Coverage Research Study, which mapped the impervious around many of the County's lakes over 500 acres and summarized this information by lake. The results of the study are available online at the County's website:

<http://www.crowwing.us/index.aspx?NID=925>

The County was also awarded a National Achievement Award for the study by the National Association of Counties (NaCo).

Phosphorus is a limiting nutrient in our lakes and rivers, the presence of which greatly affects our water quality. Reducing total phosphorus (TP) inputs by using effectively implemented storm water management practices, septic systems, and shoreline buffers, we can have a measurable impact on the quality of our surface and ground waters. In 2012, Crow Wing County implemented a model for determining the amount of phosphorous that is contributed by land use activities. It is based on the amount of impervious surfaces, which is tracked on every permit in the Shoreland Zone. In 2013, this model was expanded to calculate phosphorous reductions from actual implemented stormwater plans (vs submitted plans).



- Measure Water Quality Data & Access Trends

In 2013, Crow Wing County paid an environmental laboratory to conduct a 3<sup>rd</sup> round of assessments on County Lakes. The first round in 2008 focused on lakes >1000 acres and the last round in 2011-2012 focused on lakes 500-1000 acres. This 3<sup>rd</sup> round, which focused primarily on lakes 400-500 acres in size, was prepared for inclusion in the 2013 County Water Plan Update. Assessments were conducted on: Horseshoe, Ross, Upper Cullen, Gladstone, West Fox, Sibley, Mitchell, White Sand, and Middle Cullen. In addition, updates to the 2008 assessments on Bay, Cedar, Edward, Hubert, Mille Lacs, Pelican, Platte, Round, and Lower South Long were also conducted. These assessments (over 40 total) analyze all of the available water quality data that has been collected over the years by various groups and determine if a trend in the water quality exists. These reports, along with a County-wide summary and one-page factsheet for each lake, are available at:

<http://www.crowwing.us/index.aspx?NID=705>

- Agricultural Best Management Practices (BMPs)

There are a variety of BMPs that will work to protect water quality in agricultural areas, ranging from manure management systems, rotational grazing, buffer strips, and sedimentation basins. Crow Wing County works with the Natural Resources Conservation Service (NRCS) and Soil & Water Conservation District on these projects as these entities typically have available state and federal funds to assist landowners. In 2013, NRCS reported that they helped twelve agriculture producers implement grazing plans, one with a nutrient management plan, one with no-till practices, and one with an organic crop rotation.

#### Priority Concern: Ground Water

- Septic maintenance and inspection

Crow Wing County has long required a current compliance inspection for land use permits and for all property transfers. The Land Use Ordinance amendments in 2011 also required that prior to permit approval, all applicants with property in the Shoreland Protection Zone shall have a record of their septic system being maintained (i.e. pumped). In late 2013, Crow Wing and Cass Counties released a draft septic Ordinance which is planned for adoption in 2014. Below are the statistics for new installs, upgrades, and compliance inspections for 2013:

*Installations:*

- 240 = Residential type I systems (trenches, mounds, etc.) installed
- 17 = Residential type II systems (holding tanks) installed
- 40% of the above systems were replacements of pre-existing systems
- 7 = Commercial / other establishment systems installed (1 new, 6 upgrades)



*Inspections:*

- 688 = Compliance Inspections conducted (public and private sector)  
<5% of the above inspections were considered 'non-compliant'

Crow Wing County also received a grant from the Clean Water Fund and Minnesota Pollution Control Agency to assist low-income landowners upgrade their non-compliant septic systems. The grant is being administered by the Region 5 Development Commission. In 2013, one system was upgraded using these funds.

- Testing for nitrates and other contaminants

Crow Wing County conducted nitrate testing at a number of events in April 2013, including the Mid-Minnesota Builders Association Home Show in April and the Crow Wing County Fair in August. A map showing the results of the testing is included in Appendix 4.

- Wellhead and drinking water source protection

There are a number of local municipalities working with the Minnesota Department of Health to develop wellhead protection plans, including Brainerd, Baxter, Pequot Lakes, Deerwood, Cuyuna, Ironton, Riverton, and Trommald. Crow Wing County staff participate on a number of these Wellhead Protection teams as they work through developing and implementing their plan. The 2013-2023 Water Plan Revision incorporated by reference all of these local Wellhead Protection Plans.

- Sealing of unused / abandoned wells

Crow Wing County, through a grant from the Minnesota Clean Water Fund and Department of Health, provided financial assistance to assist with 2 well sealing projects in 2013. Funds remain to seal additional wells in 2014.

- Solid & hazardous waste disposal

The Crow Wing County Solid Waste Disposal Site located just north of Highway 210 between Brainerd and Crosby is for commercial businesses and residents of the County. The site is structured so residents have a one stop service to address their solid waste issues. A major aspect to the site is the sanitary landfill, but there is also a demolition landfill, compost facility, household hazardous waste facility, oil drop site, and recycling facility. The facility processes about 40,000 tons of landfill materials and 5000 lbs of recycling annually. About 1600 vehicles drop off household hazardous waste for disposal every year. More information can be found online at: <http://www.crowwing.us/index.aspx?NID=734>



## 2014 WATER PLAN GOALS:

In addition to continuing many of the successful endeavors conducted in 2013 and the measurable outcomes listed in the 2013-2023 Water Plan, the Land Services Department has identified the following specific goals for 2014 (by priority concern):

### Priority Concern: Aquatic Invasive Species

- Crow Wing County Land Services Department has scheduled the 3<sup>rd</sup> annual lake association open house for May 9.
- Crow Wing County Land Services Department plans to again offer the AIS inspection program to lake associations / LIDs. The County's 2014 program will again offer Level I inspectors similar to 2013. However, in order to keep the program tax levy neutral, Crow Wing County is again working with Brainerd's ERC to provide the inspectors needed by the lake associations / LIDs and has also established a tiered cost structure which sets an administrative cost based on the number of inspection hours, trained inspectors needed at a given time, and length of inspection season desired.
- Crow Wing County has just added an AIS webpage to the County's website. It can be found under Land Services, Environmental Services, Water & Wetlands.

### Priority Concern: Surface Water

- Crow Wing County plans to utilize the online permitting website's new dynamic reporting capabilities to track stormwater plan implementation / permit compliance.
- Crow Wing County plans to continue the award winning Lakeshore Impervious Surface Coverage Research Study by conducting a Phase III, which will include more lakes within municipal areas and other lakes between 400-500 acres.
- The Land Services Department will continue to build on the stormwater / phosphorous tracking model developed in 2012-2013. The County's goal is that the new dynamic reporting system (which is part of the online permitting system) will allow for real-time updates about the amount of phosphorous being reduced from implemented stormwater plans. In addition, the University of Minnesota has developed a septic system improvement estimator tool which can quantify the reduction in the amount of phosphorous being loaded into the subsoil (and ultimately the groundwater) below a septic system by the type of upgrades made to the system. The Minnesota Pollution Control Agency has also developed a calculator that can further quantify the benefits of a stormwater or buffer best management practice. These tools will hopefully be incorporated into Department's phosphorous tracking system.



- Since 2008, the Department has been using a booklet called the “Landowner’s Guide to Lake Stewardship” to communicate to landowners simple things they can do to help protect their lake. In 2014, the Department plans to explore the feasibility of creating a new, professionally-developed guidebook along with supplemental materials (such as factsheets) to distribute to landowners.
- Crow Wing County, in partnership with Douglas County, received a grant to develop sub-watershed prioritization tools for conservation practices. The grant will focus on identifying which parts of a lake’s watershed actually contribute nutrients and sediment to that particular lake and which areas may be the most suited for future water protection efforts. The analysis will focus on lakes that are over 500 acres in size.
- Crow Wing County plans to work with MPCA and others to gather water quality data by using strategically-placed monitoring/sampling locations. This will help identify potential stressors in our agricultural areas of the County so that agricultural BMPs can be implemented.

#### Priority Concern: Ground Water

- In early 2014, Crow Wing County plans to adopt the joint Cass-Crow Wing County septic Ordinance (Article 37 of the Crow Wing County Land Use Ordinance). On March 20<sup>th</sup>, Crow Wing County and Cass County will hold a joint workshop for septic professionals to update them about the new Ordinance and provide septic-related continuing education.
- The Crow Wing County Land Services Department plans to continue to offer in-house nitrate testing as well as nitrate clinics around the County, including in the Crosslake area. Crow Wing County is exploring the feasibility and costs of expanding the use of the water testing machine to be able to test for other contaminants.
- The Crow Wing County Land Services Departments plans to work with the City of Deerwood and other communities in the Crosby-Ironton area in developing their Wellhead Protection Plans.
- In 2014, the Crow Wing County Land Services Department plans to continue to offer the well sealing cost-share program to financial assist with the costs to seal unused/abandoned wells. Information about the program will be distributed to local well and septic contractors as well as to realtors, builders, and other stakeholders.



## WETLAND CONSERVATION ACT ADMINISTRATION

The Wetland Conservation Act (WCA) is a state regulatory law (source: Minnesota Rules Chapter 8420) designed to achieve no net loss of wetlands, increase biodiversity of wetlands, avoid impacts to wetlands, and replace wetland values where avoidance is not feasible and prudent. It is administered locally by local government units (LGUs). The Minnesota Board of Water & Soil Resources (BWSR) oversees WCA and provides Natural Resources Block Grants to help LGUs with the cost of administration.

In Crow Wing County, the Minnesota Wetland Conservation Act (WCA) is administered by the Land Services Department for all areas that have County land use permitting authority (plus the City of Baxter). Irondale and Crow Wing Township as well as most cities have Crow Wing Soil & Water Conservation District administer WCA for them.

Below is a summary of all WCA activity for 2013.

WCA ACTIVITY	2010	2011	2012	2013	% Change (12,13)
Approved Replacement Plans	12	10	7	6	-14.29%
Exemptions	20	25	28	21	-25.00%
No-Loss Determinations	18	17	16	9	-43.75%
Delineation Reviews (CWC)	37	36	26	29	11.54%
No wetland reviews submitted	N/A	3?	10	10	0.00%
No wetland reviews conducted	N/A	4	5	1	-80.00%
Potential Violations	38	29	36	37	2.78%
Calls for Service	153	156	175	133	-24.00%
Information Requests	136	96	123	155	26.02%
Violations (Closed, Open )	13,4	13,4	12,7	15,5	Closure rate is up 12%

77% of calls for service were in the Shoreland District.

68% of information requests were in the Shoreland District.

67% of potential violations were reported in the Shoreland District.

The numbers above are relatively similar from 2012 to 2013. There was a slight decline in the number of calls for services, approved replacement plans, exemptions, and no-loss determinations and an increase in the number of information requests and delineation reviews. Please see Appendix 5 for a map showing the number of calls for service (by township) for all Crow Wing County WCA areas. 88% of outstanding violations from 2013 were resolved in 2013 as well as 63% of new violations, most through voluntary restorations. In most cases, a shoreland alteration permit, no loss determination, or exemption was issued to document the restoration.



WCA Statistics for Cities of Baxter & Crosslake

As in 2012, Crow Wing County Environmental Services administered WCA for the City of Baxter. Starting in the fall of 2013, Crow Wing County began administering WCA for the City of Crosslake. Below are the statistics for each city:

*Baxter:*

Calls for service =	4
Information requests =	8
Delineation reviews =	4
Exemptions =	0
No-loss Determinations =	1
Replacement plans =	0
Potential violations =	0

*Crosslake:*

Calls for service =	4
Information requests =	0
Delineation reviews =	0
Exemptions =	0
No-loss Determinations =	0
Replacement plans =	0
Potential violations =	0

In addition to the above cities, Crow Wing County Environmental Services also handled 20 information requests that were in other cities or townships without County land use permit authority.

Additional WCA Activities

In addition to the items listed in the table above, Crow Wing County Environmental Services has conducted a number of other WCA-related activities in 2013:

- Developed an online permit system to include wetland activities
- Coordinated monthly Technical Evaluation Panel (TEP) meetings
- Gave a mini-presentation on wetlands at the annual shoreland contractor's workshop in April
- Developed and distributed educational factsheets
- Developed a wetland section on the County's new online permitting website.
- Updated the wetlands page of the Crow Wing County website
- Participated in continuing education to maintain Certified Wetland Delineator status
- Reported WCA activities to BWSR online using elink



*2014 Goals & Objectives:*

Our goal is to continue to build on the improvements made to WCA administration in 2013 in order to make the wetland permitting and review process as straightforward as possible, including:

- Host a forum for area wetland delineators and regulators with the goal to provide wetland continuing education credits.
- Update contractor / consultants about changes to wetland regulations at annual shoreland workshop



## Appendix 1:

### 2013-2023 Water Plan Factsheet



Land Services

**CROW WING COUNTY**

BRAINERD, MINNESOTA 56401

# Crow Wing County Water Plan 2013 - 2023

Water planning is identifying what works best to protect and enhance Crow Wing County's water resources. This revision of the Crow Wing County Local Comprehensive Water Management Plan:

- Identifies local priority water resource concerns, objectives, and actions
- Targets specific surface and ground water resources to focus implementation efforts on
- Uses a watershed-based, land protection model
- Includes analysis and maps of all 125 minor watersheds in the county
- Includes a section focused specifically on the Mississippi River



## Priority Concerns & Objectives:

- Aquatic Invasive Species (AIS)
  - Lake Association Coordination
  - Watercraft inspection
  - Lake Improvement District (LID) Management
  - Education & Outreach
- Ground water
  - Septic Maintenance & Inspection
  - Testing for Nitrates & Other Contaminants
  - Wellhead & Drinking Water Source Protection
  - Sealing of Unused / Abandoned Wells
  - Solid & Hazardous Waste Disposal
- Surface Water
  - Stormwater Management
  - Shoreline Buffers
  - Wetland Protection
  - Land Use & Development
    - Performance standards
  - Measure Water Quality Data
    - Track impervious surfaces & phosphorous loading
  - Monitor lakes & streams
  - Assess trends
  - Agricultural Best Management Practices

## Watershed Approach:

Crow Wing County is part of 5 major watersheds and has portions of 125 minor watersheds. For this plan, a watershed based model was used that classified each minor watershed by the amount of protected land as well as by various risk factors and water plan priorities.

*Protected land = public ownership, lakes, rivers, easements, & wetlands on private lands*

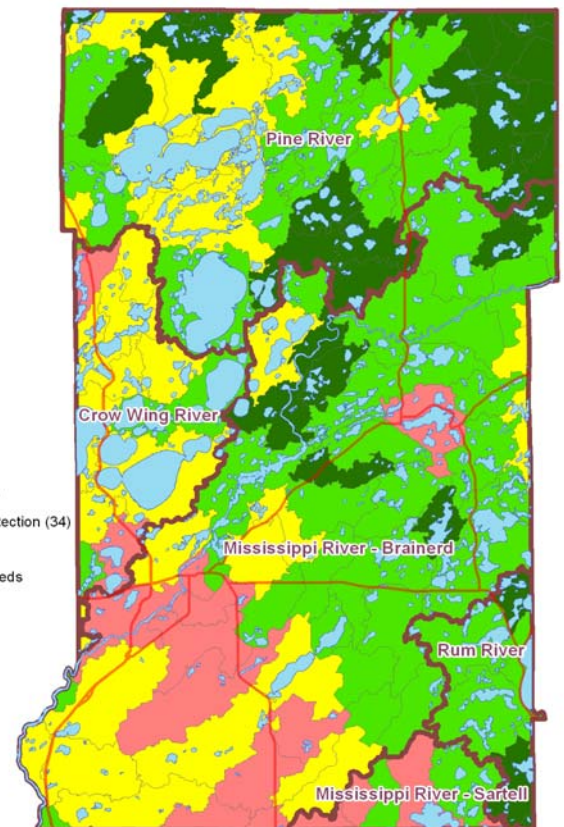
### Risk Classifications:

**Vigilance:** > 50 % protected lands, < 8 % land use disturbance, no risk factors such as agriculture, development, artificial drainage, or extractive uses

**Protection:** 40-65 % protected lands, 8-30 % land use disturbance, minimal risk factors, and water quality that is stable or improving, multiple high-quality resources could be protected

**Enhance / Protection:** < 40 % protected lands, 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:** < 40 % protected lands, >30 % land use disturbance, multiple / significant risk factors, limited resources to protect



All water plan information is available online: [www.co.crow-wing.mn.us/index.aspx?nid=241](http://www.co.crow-wing.mn.us/index.aspx?nid=241)

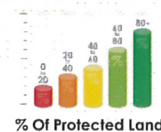
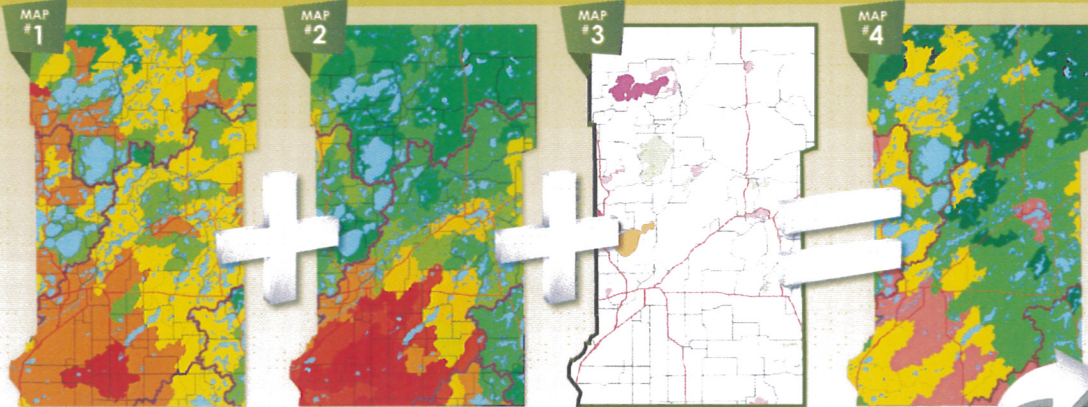


## Appendix 2:

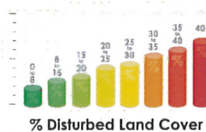
### 2014 Water Plan Poster & Supplemental Materials

# Our protection approach: Determining risk...

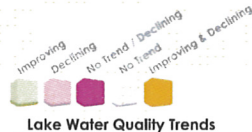
Protected Land Use + Disturbed Land Cover + Water Quality Trends = Risk Classification



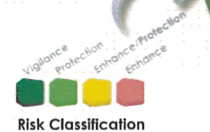
The distinction between public and private lands is important. From a planning perspective, watersheds with a high percentage of public land are not at risk for future water quality impacts and may not require the same level of focus as watersheds with a smaller percentage of public land. Public land is considered to be already in a protected state as are water bodies such as lakes, streams, and wetlands.



Map 2 shows the percentage of land that has been converted from a natural forested condition to other land uses, such as crop and pasture land and developed areas. Minimizing or managing these changes in a watershed is a good way to maintain high water quality.



In addition to protected areas and land use disturbance, watershed health is also influenced by the water quality of the lakes / streams that they contain. Watersheds with lakes with a declining trend in water quality based on data collected over many years were classified lower simply because of this declining trend.



The data from the three previous maps leads to our designation of risk classifications. Crow Wing County is part of 5 major watersheds and has portions of 153 minor watersheds. For this plan, a watershed based model was used that classified each minor watershed by the amount of protected land as well as by various risk factors and water plan priorities.

"This is an excellent venture in watershed-based planning!"

— Minnesota DNR

## Sample watershed: Lake Ossie

Lake Ossawinnamakee: Heavily forested | low "protected" lands | Cisco refuge lake

**Heavily Forested areas around the watershed**  
Lake Ossawinnamakee boasts one of the most heavily forested areas around a watershed in Crow Wing County. 92% of the area around the lake is still forested or undisturbed.

**Protection from development**  
Alarmingly, only 20 to 40% of the forested area is protected from development.

**Risk Classification**  
Enhance/Protection  
Although over 90% of the area around Lake Ossawinnamakee is carpeted in a relatively natural condition (forest and water), only about 33% of this land is protected from future development. This is one reason why this watershed was classified as having opportunities for further enhancement and protection. Because nearly half of the forests in this watershed are privately owned, one potential strategy is to work with landowners to develop and implement forest stewardship plans.

**What is the importance of Cisco?**  
The presence of Cisco or tullies in a watershed is simply a good indicator of the good health of that lake. These bait-fish thrive best in deep, well oxygenated, lakes. Cisco represent a great food source for a host of game fish.

### Forest Stewardship Plan

Forest stewardship management planning assistance for clean water protection.

Private forest landowners can look to Crow Wing County and the Crow Wing Soil & Water Conservation District to provide assistance for tree planting, forest stand improvement, invasive species control, forest habitat improvements, and erosion control near riparian areas. Various tax incentives exist to preserve forest lands in addition to programs that can offer up to 50% financial assistance for developing and implementing forest stewardship plans.

## Managing Risk

Some risk factors that can be detrimental to our lakes and watersheds

### Groundwater Pollution

Protecting our hidden lakes



We are blessed to have abundant, clean, and safe groundwater in Crow Wing County. However, the greatest risk to groundwater contamination is ourselves. Common causes of contamination range from improper disposal or use of hazardous materials, fertilizers, animal manures, herbicides, insecticides, and pesticides to poorly maintained septic systems and leachates from abandoned or abandoned water wells.

Crow Wing County coordinates regular routine testing and participates on local watershed protection planning teams. We also help to identify unused and abandoned wells in sensitive groundwater areas. We encourage and offer incentives for landowners to properly seal unused wells.

#### Abandoned wells

Crow Wing County participates on local watershed protection planning teams and also helps to identify unused and abandoned wells in sensitive groundwater areas. We encourage and offer incentives for landowners to properly seal unused wells.

#### Septic system maintenance.

Crow Wing County encourages landowners with septic systems to have their systems assessed for maintenance every three years. We promote proper septic and waste disposal practices. We also provide landowners with helpful information on available financial assistance programs for septic system upgrades.

### Land Development

Smart use of our resources



The County is committed to providing excellent customer service while helping landowners make wise choices that protect Crow Wing County's extraordinary natural resources. By conducting free on-site meetings before a permit is approved and having pre-application meetings for projects that require a public hearing, we are able to build relationships and help recommend ways to improve stormwater management or other aspects of their property, while in most cases still accommodating the desires of the landowner.

Two other proactive steps we take to manage new development is holding annual contractor training workshops and offering grant programs to improve riparian properties.

### Aquatic Invasive Species

Eliminate AIS



Zebra Mussels

Crow Wing County's waters are threatened by a number of invasive species such as zebra mussels and Eurasian water-milfoil. AIS or aquatic invasive species are species that are not native to our county that result in economic, health or environmental harm to us and our watersheds.

Crow Wing County supports the efforts of the DNR local lake associations, and others in stopping the spread of AIS using the best man-power, technology, resources, and regulatory solutions available.

## You can help protect our waters.

How to protect our waters — starting with your lake-shore property.

**Permeable solutions for impervious surfaces.**  
Permeable cover stones with a sub layer of compacted aggregate makes for a great solution for driveways or patio surfaces. Porous asphalt also provides an aesthetically low impact driveway option.

**Impervious surfaces**  
Impervious surfaces are anything that prevents H<sub>2</sub>O from entering the soil. Examples would be driveways, building roofs or patio surfaces.

**Rain Garden**  
Rain gardens are ideal solutions to treat runoff from impervious surfaces. They can be placed near roof lines or at the base of a slope or even at the outlet of a downspout. Primarily built to catch runoff and prevent erosion, these gardens also add beauty to a yard.

**Berm to catch run-off**  
A berm or a slightly raised ridge can be used to limit and store rain runoff from steep slopes and/or direct water to a rain garden.

**Benefits of a natural shoreline**  
Natural shorelines are essential to the ecosystems that sustain wildlife and fish. A natural shoreline also reduces runoff, erosion, and sedimentation. These plants provide shelter for songbirds, waterfowl and other animals. Natural shorelines will also minimize erosion from wave action and help to maintain lake water quality.

**Natural buffer to prevent run-off**  
A natural buffer can be the placement of shrubs, trees and other native plants along a lakeshore or simply an area that is not mowed or maintained. These buffers can reinforce the natural shoreline buffer as an additional filter for runoff and lawn pollutants before it reaches your lakeshore. The roots from larger shrubs and trees can absorb nutrients and serve to slow erosion. The leaves will also shade your shoreline keeping water temperatures cooler for amphibians, fish, and aquatic insects.

"The County and its staff should be commended for the integration of a comprehensive and purposeful watershed management framework into the plan."

— Minnesota Forest Resources Council

"(CWC) are to be commended for writing a plan that clearly presents the County's water management goals, actions, and priorities."

— Board of Water & Soil Resources

## Let's get started!

We're here to help you protect our waters.

<http://www.crowwing.us>

Visit our website at any time to find more useful info.

Notes: Department, Area, Land Services, Other, Environmental Services, Other, Water & Wetlands

Call 218-824-1125

Or call Crow Wing County Land Services to speak with one of our specialists. We're ready to help you manage your lakeshore or forested property.

Crow Wing County is committed to protecting, preserving & improving water resources in Crow Wing County by being proactive, efficient, customer focused, organized, and innovative while being good stewards of the County's resources.



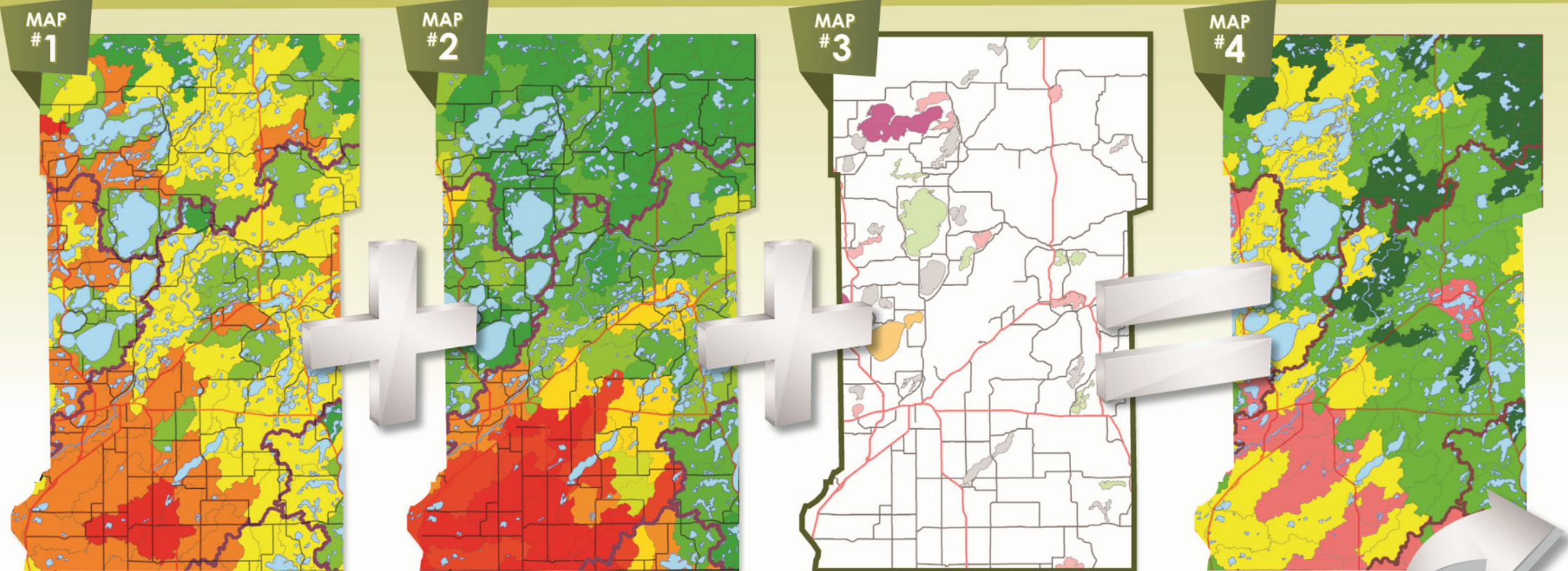
# CROW WING COUNTY 2013-2023 WATER PLAN

A Watershed Protection Approach to Local Water Management

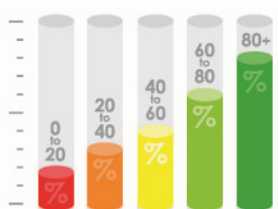


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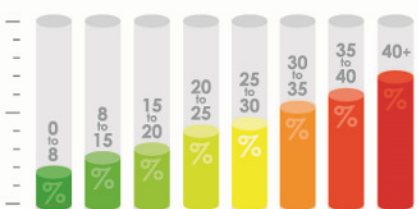


- Vigilance:**  
Less than 50 % protected lands, less than 8 % land use disturbance, no risk factors such as agriculture, development, artificial drainage, or extractive uses
- Protection:**  
40-65 % protected lands, 8-30 % land use disturbance, minimal risk factors, and water quality that is stable or improving, multiple high-quality resources could be protected
- Enhance / Protection:**  
Less than 40 % protected lands, 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:**  
Less than 40 % protected lands, greater than 30 % land use disturbance, multiple to significant risk factors, limited resources to protect



% Of Protected Land

The distinction between public and private lands is important. From a planning perspective, watersheds with a high percentage of public land are not as at-risk for future water quality impacts and may not require the same level of focus as watersheds with a smaller percentage of public land. Public land is considered to be already in a protected state as are water bodies such as lakes, streams, and wetlands.



% Disturbed Land Cover

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Lake Water Quality Trends

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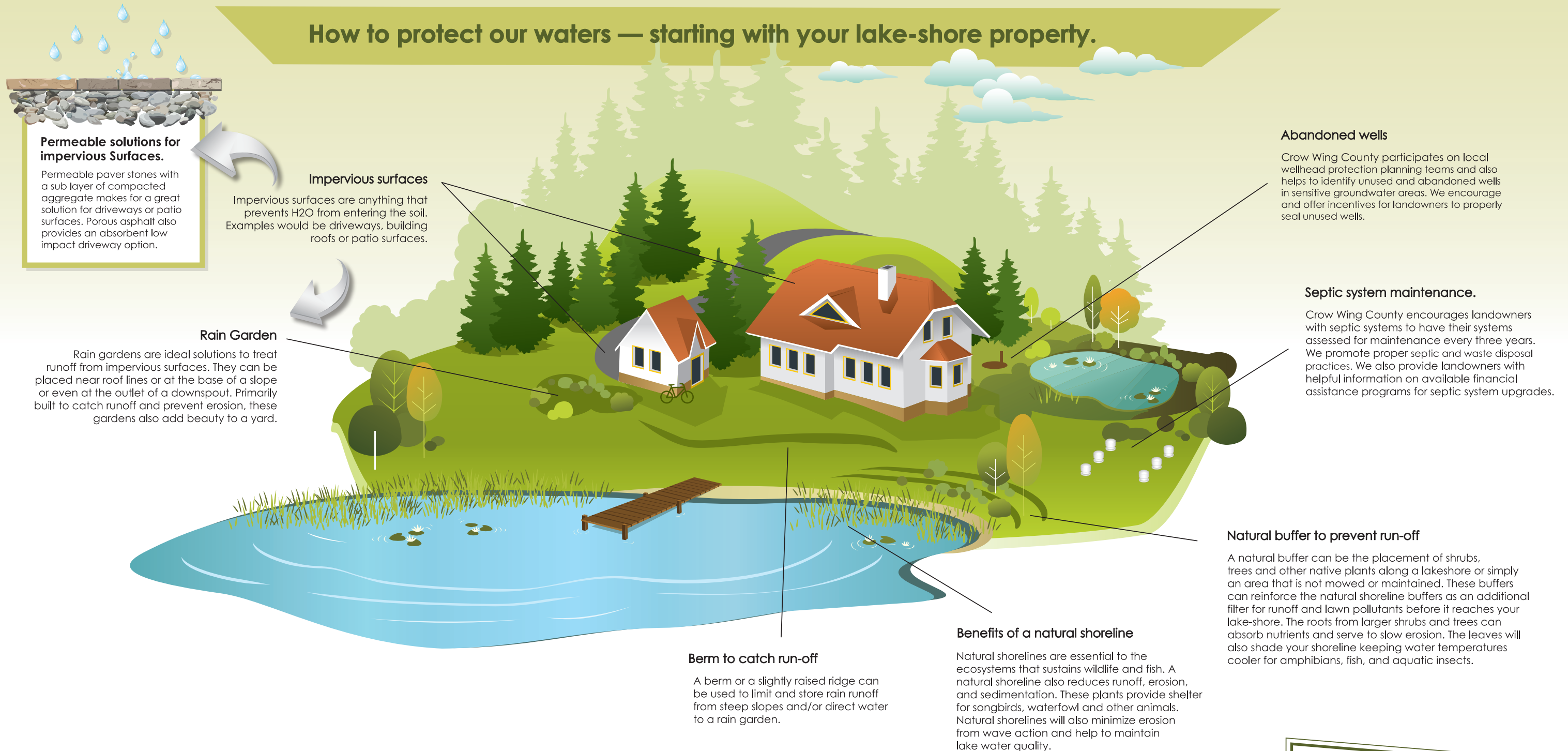
## CROW WING COUNTY 2013-2023 WATER PLAN

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# You can help protect our waters.

How to protect our waters — starting with your lake-shore property.



## CROW WING COUNTY 2013-2023 WATER PLAN

A Watershed Protection Approach to Local Water Management



## Make a difference for your lake

### 4 Simple Things you can do

#### 1 Manage runoff from impervious surfaces

Impervious surfaces are anything that prevents water from soaking into the soil. Since most of the unwanted sediment, nutrients, and contaminants is found in the first 1" of runoff from impervious surfaces, simply landscaping your property to direct this first flush of stormwater to rain gardens, berms, or natural depressions will make a huge difference for the water quality of our surface waters.

#### 2 Preserve vegetated shorelines and slopes

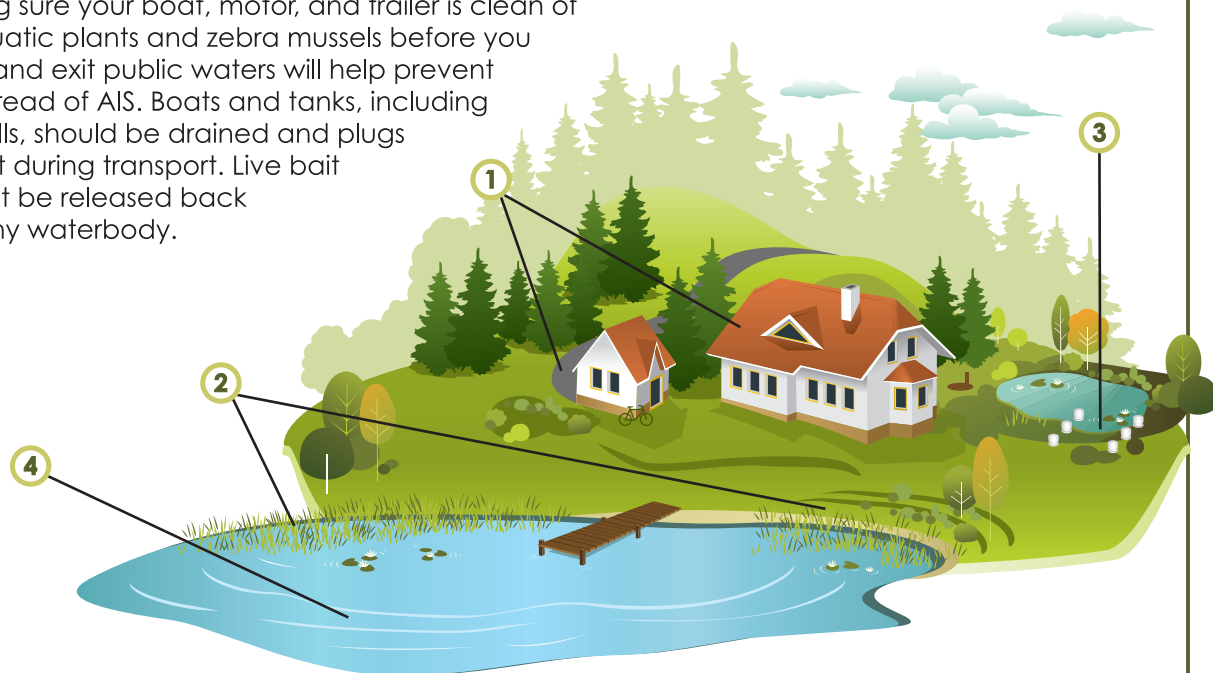
Not only do vegetated slopes and shoreline buffers prevent erosion from runoff and wave action, they also add value for fish and wildlife. Buffers can be as simple as a no-mow/maintenance buffer or planted with native grasses, wildflowers, shrubs, and trees from a local vendor or the Crow Wing Soil & Water Conservation District.

#### 3 Maintain your septic system

Routine maintenance for a septic system can not only protect our groundwater, but it can also extend the life of the system. Crow Wing County recommends having your septic tank pumped every three years and inspected periodically to ensure that it is functioning as designed.

#### 4 Prevent the spread of aquatic invasive species (AIS)

Making sure your boat, motor, and trailer is clean of all aquatic plants and zebra mussels before you enter and exit public waters will help prevent the spread of AIS. Boats and tanks, including livewells, should be drained and plugs left out during transport. Live bait cannot be released back into any waterbody.



More information can be found online at [www.crowwing.us](http://www.crowwing.us)

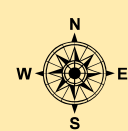
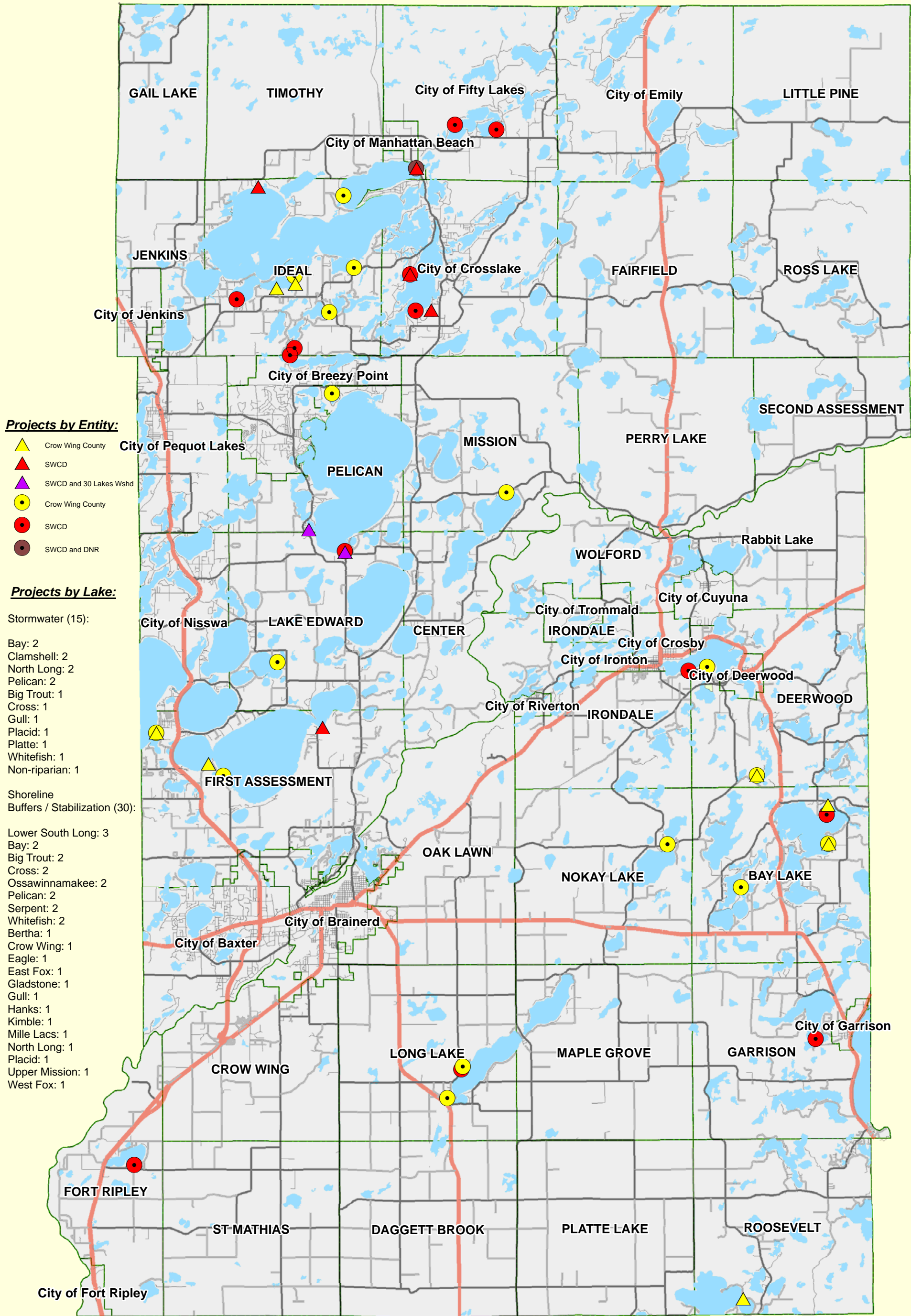
(Go to the Land Services Department, then to Environmental Services, then to Water & Wetlands)



## Appendix 3:

### 2013 Map of Stormwater & Shoreline Projects

# 2013 Projects: Stormwater & Shoreline Buffers



THIS DRAWING IS A COMPILATION OF RECORDS AS THEY APPEAR IN THE CROW WING COUNTY OFFICES AFFECTING THE AREA SHOWN AND IS TO BE USED ONLY FOR REFERENCE PURPOSES. THE COUNTY IS NOT RESPONSIBLE FOR ANY INACCURACIES HERIN CONTAINED.



## Appendix 4:

### 2013 Map of Crow Wing County Nitrate Testing Results

# 2013 Crow Wing County - Nitrate Testing Results

## Shallow, sand point wells

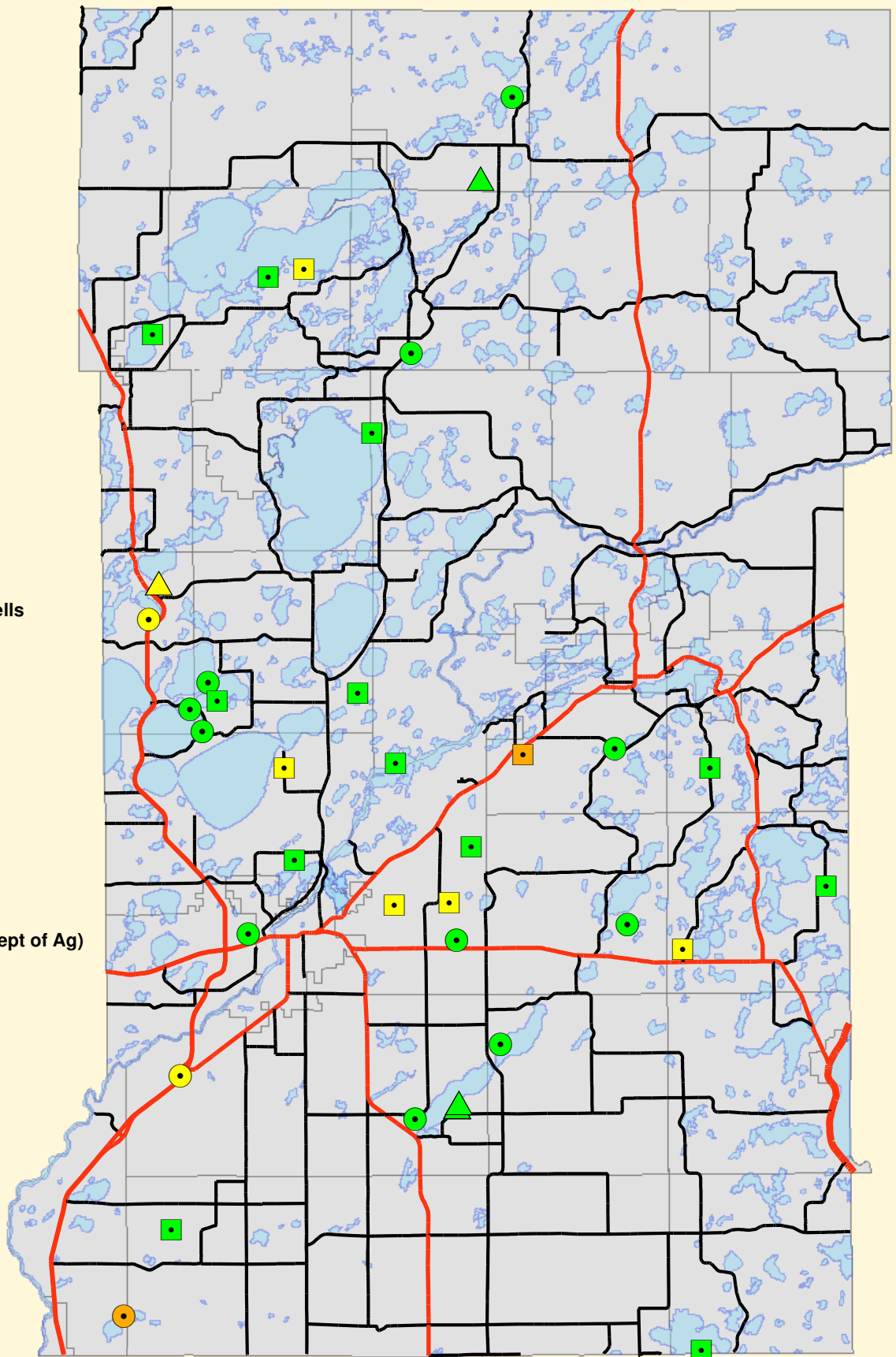
- ▲ 0 - 1 ppm
- ▲ 1 - 5 ppm
- ▲ 5 - 10 ppm
- ▲ 10+ ppm

## Deeper, drilled wells

- 0 - 1 ppm
- 1 - 5 ppm
- 5 - 10 ppm
- 10+ ppm

## Long Term Network (Dept of Ag)

- 0 - 1 ppm
- 1 - 5 ppm
- 5 - 10 ppm
- 10+ ppm



Nitrate results are measured in parts per million (ppm).

Anything below 10 ppm is safe according to  
U.S. Drinking Water Standards

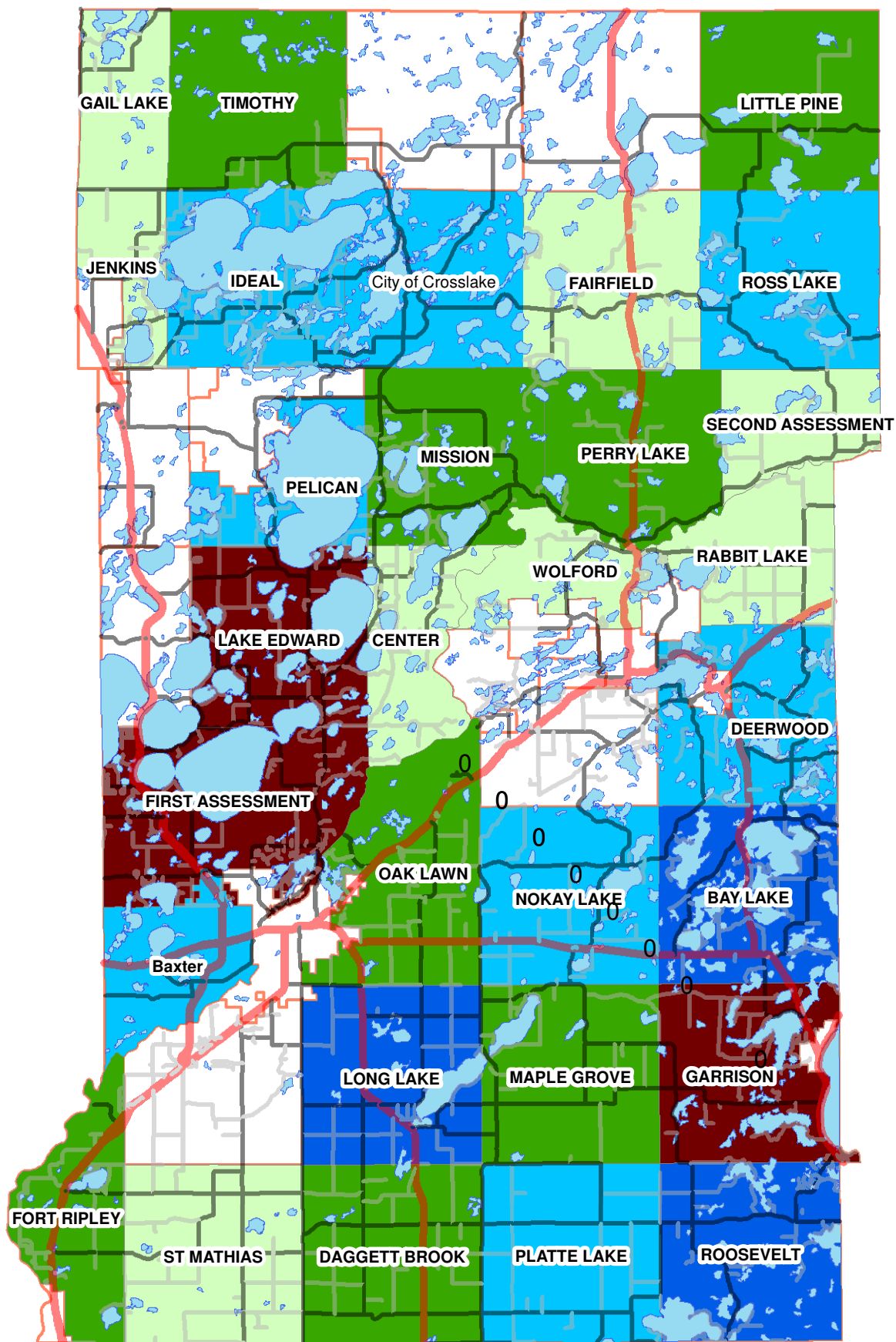
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## Appendix 5:

### 2013 Wetland Conservation Act: Calls for Service Map



## 2013 WCA Calls for Service



0-1 2-3 4-5 6-10 11+

Other Cities / Townships

