ITASCA COUNTY
LOCAL WATER MANAGEMENT PLAN

2012-2017 UPDATE

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Adopted May, 2012

Prepared by:

Itasca County Soil and Water Conservation District
And
Itasca County Water Plan Implementation Committee

ITASCA COUNTY WATER PLAN

2012 Revision of 2007-2017 UPDATE

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ACKNOWLEDGEMENTS

ITASCA COUNTY WATER PLAN IMPLEMENTATION COMMITTEE

The Itasca County Water Plan Implementation Committee (WPIC) is responsible for overseeing the implementation of the Itasca County Local Water Management Plan. WPIC was primarily responsible for overseeing the 2007-2017 Itasca County Water Plan Update and its 2012 revision. The members of that committee also were actively involved in holding public meetings in the county to receive input from citizens, local units of government, other organizations and state agencies. The eleven members of the committee are listed below.

Norley Hansen,	Commissioner District 1
Stephanie Kessler	Commissioner District 2
David Bachman	Commissioner District 3
John Persons	Commissioner District 4
Tom Boland	Commissioner District 5
Richard Lacher	Itasca County Township Association
Tom Ryan	Itasca County Coalition of Lake Associations
Karen Senger	Itasca County Resort and Tourism Association
Don Simons	Itasca County Soil and Water Conservation District
Duane Ranger(2007)	Itasca County Planning Commission
Wes Libbey (2007)	Izaak Walton League
Norm Miranda (2012)	Commissioner District
Peter Lotti (2012)	Commissioner District

ITASCA COUNTY BOARD OF COMMISSIONERS

County Water Planning has been active in Itasca County since its start in 1990. The recent County Comprehensive Plan, adopted in 2000, contains almost all of the water resource items that were previously contained in the local water plan. The comprehensive plan served as the basis for the 2007-2017 Local Water Plan Update. Itasca County Commissioners have been strong supporters of local water planning.

District 1 Davin Tinquist, Lori Dowling, Russ Klegstad
District 2 Catherine McLynn
District 3 Leo Trunt, Karen Burthwick, John Dimich
District 4 Rusty Eichorn
District 5 Mark Mandich

ITASCA COUNTY SOIL AND WATER CONSERVATION DISTRICT

The Itasca Soil and Water Conservation District (SWCD) is the Local Government Unit (LGU) responsible for the local water management plan/program. The SWCD has administered the local water plan and coordinated water plan activities since the plan's beginning in 1990. Many individual volunteers, local, state and federal groups have been active participants during the past decade. The current Board of Supervisors for the SWCD are:

Charles Isaacs, Chair	District 1
Ted Lovdahl, Jr., Vice-Chair	District 2
Darrell Lauber, Reporter	District 3
Don Simons, Treasurer	District 4
Terry Tillotson, Secretary	District 5

Itasca SWCD and NRCS Staff:

Jim Gustafson, District Manager and County Water Plan Coordinator
Kathy Loucks, Office Administrator
Noel Griese, Watershed Analyst
Andy Arens, Forestry/Shoreland Specialist
Matt Johnson, Wetland Specialist

Marge Sella, NRCS District Conservationist
Kyle Asplund, NRCS Soils Conservation Technician
Joey LeBlanc, NRCS Civil Engineering Technician

I. EXECUTIVE SUMMARY

The purpose of this plan is to address the water related issues across the entire county, regardless of jurisdictional, political, municipal or watershed boundaries. This plan should provide a means of consistency across the county and is not inconsistent with other state, regional or local planning processes. It will look at ground and surface water and those activities that may influence water quality or quantity. The plan will look specifically at the top six priority concerns that were developed through our scoping process. The concerns that were identified are addressed as county wide, however, when necessary or applicable they will be implemented on a watershed wide basis. This plan was written under the delegated authority of the Itasca County Board of Commissioners and is designed to cover the period from March of 2007 to March of 2017, with a review and update of the goals and implementation strategy scheduled for 2012. Much progress has been made over the last two decades to protect and restore water resources, and it is the intent of the county water plan to actively continue these efforts.

County Background

Itasca County is the third largest county in the state of Minnesota. It is located in the northern part of the Central Lakes Region. Dominant land uses are forest management, recreation, and private and corporate development. The county seat is located in the city of Grand Rapids.

Itasca County is very large and contains an abundance of surface water. There are over 1,000 lakes in the county, with about 950 lakes over ten acres in size, covering almost 9 percent (170,000 acres) of the total area of the county. Over 1,853 miles of streams drain the county's watersheds, including 119 miles of the Mississippi and 71 miles of the Big Fork Rivers. Itasca County is comprised of portions of 6 major watersheds the Mississippi River (Headwaters), Mississippi River (Grand Rapids), Upper and Lower Red Lake, Little Fork River, Big Fork River and St.Louis Rivers. There are 2,630 miles of lakeshore within the County; in comparison the state of California has just over 1,100 miles of coastline. Wetlands are present on over 550,000 acres, about one-third of the total land surface. Approximately 95 percent of pre-settlement wetlands still remain.

Surface and ground water quality and land use issues relating to surface water have become increasingly important to the people who live and recreate in Itasca County. Development, industry, agriculture, forestry and lake use issues are the primary factors that can affect water quality, fish and wildlife habitat, recreation and aesthetics.

The population of Itasca County has been fluctuating since the 1960's due to local economic conditions. Between 1980 and 1990, population declined about 5% from 43,069 to 40,863, mostly due to decreases in iron mining employment. Since then, however, that decline has been made up. The 2000 census put the population of Itasca County at 43,992, an increase of nearly 8% in the past decade. Most of the increases have been in the southern part of the county and are probably due to increases in commercial activity and development of lakeshore properties. The 2010 census showed an additional 2.4% growth in population to 45,058. The population is expected to grow by 22 percent by 2030.

Other nearby counties, notably Aitkin and Cass, have seen even greater increases in population. Much of the increase in these three counties has been attributed to new shoreland development and conversion of seasonal to permanent residences, especially in shoreland areas. Shoreland values on some of the county's more desirable lakes have increased dramatically in the last ten years. This trend is expected to affect Itasca County as well.

Itasca County Comprehensive Land Use Plan, 2000

A major effort to develop a comprehensive land use plan was initiated by the county in 1998. Following many public meetings, reviews and revisions by a large citizen's committee and technical advisory panel, the Itasca County Board of Commissioners adopted the plan on May 23, 2000.

Many existing plans, including the county water plan, were incorporated into the county comprehensive plan. Because of the detailed attention that was paid to water resource issues in the county comprehensive plan, many of the "Implementation Tools" in the comprehensive plan are updated versions of "Action Items" of the 1995 update of the county Water Plan. It is the recommendation of the Itasca County Water Plan Implementation Committee (WPIC) that the "Implementation Tools" listed in the year 2000 County Comprehensive Land Use Plan again be considered in the 2007 Itasca County Local Water Plan Update. The public meetings conducted by WPIC have confirmed this decision. A summary of Implementation Tools considered in the water plan is listed in Attachment A.

Water Plan Strategies

Water quality monitoring has been a primary focus of the Itasca County Water Plan since its beginning in 1990. The original water plan was adopted in 1990. It was updated in 1996, 2002, 2007and 2012. This update will be the fifth revision and will be completed in 2012.

Between 1990 and 2006, detailed one-year water quality assessments were completed by the county and volunteers on more than 62 lakes and 3 major rivers. Between 2000 and 2006, an additional 73 lakes have had their water quality surveyed. Many of these lakes are small to medium in size. A summary of the lake and river data shows generally very high water quality. This information has provided an important base for lake and river management decisions, such as development, land use and fisheries projects. Collection of surface water data will continue to be a priority area of focus for the county water plan.

A major goal of the water plan will be to assist local units of government, landowners and other interested groups to make wise land and water use decisions regarding potential impacts to water quality as a result of land use changes. In conjunction with water quality and lake/watershed information, computer modeling is being used and developed to make predictions and answer questions regarding the impact to surface waters from land and water use changes.

Through the continued monitoring and data collection on Itasca County's surface waters, the county will continue to strengthen its lake and river management program. In the early 1990s, the focus was on large watershed studies of impacted lakes, including Lake Winnibigoshish, Cass Lake and Trout Lake. Proactive lake management was accelerated in the late 1990s with the inclusion of Deer Lake as one of five lakes in the state's pilot "Lake Sustainability" program. Following that project, in 2001, nine of the county's 27 lake associations have completed lake management plans that also incorporates leadership training, through the "Healthy Lakes" program of the McKnight Foundation.

Shoreland and watershed management activities will focus on the most significant factors that affect lake conditions. These are primarily septic systems, near-shore land use activities, development, silvicultural practices, erosion control and water levels.

More groundwater-related projects have been completed between 2001 and 2006 than in the first years of county water plan implementation. A joint Minnesota Geological Survey (MGS), Minnesota Department of Health, Mississippi Headwaters Board and Itasca County well location verification survey has been incorporated into the new County Well Index and includes detailed well log information. The Minnesota Department of Natural Resources is heading up additional groundwater studies on the Mesabi Iron Range. Specific groundwater-related studies have also been undertaken to increase understanding of groundwater-surface water quality.

Beginning in late 2001 and completed in 2004, the surficial geology and gravel resources of Itasca County was mapped. The three-year project is a combined effort of the county highway department, MDNR and MGS. The primary goal of the project was to delineate areas favorable for road building material; however, another major benefit of the mapping will be significantly increased knowledge of groundwater resources.

In June 2003 Bemidji State University (BSU) in coordination with the Mississippi Headwaters Board completed a study, funded by the Legislative Commission on Minnesota Resources, on the relationship between property and water titled "Lakeshore Property Values and Water Quality". The major finding of this research shows that water clarity significantly affects prices paid for lakeshore properties located on Minnesota Lakes within the Mississippi Headwaters Board region, and that the relationship is positive. Their recommendations state that: 1) changes in lake water clarity will result in millions of dollars in property values—lost or gained—in this lake region of Minnesota and 2) for economic reasons alone—not to mention the ecological health and social benefits at stake—it is important to protect the water quality of all Minnesota's lakes.

Since 2008 an intensive lake assessment program has developed with the partnership of the Itasca SWCD, the Itasca Water Legacy Partnership (IWLP), Itasca Community College, Itasca County and the Minnesota Pollution Control Agency (MPCA). Through this partnership a state of the art water quality analysis lab has been established at ICC, Through successful grant funding the SWCD and IWLP have been able to obtain funding from the MPCA to asses water quality according to state standards on 250 lakes in 4 years within the county

Table 1.

PRIORITY CONCERNS
Summary of Actions to be Taken

Surface Water Quality
A. Update and expand data collection and monitoring by stabilizing funding through the 1000 Lakes and Rivers Fund and other grants B. Identify point and non-point sources of pollution from existing and future projects C. Support the Lake Sensitivity Project by providing data and begin implementation within three years D. Coordinate with cities on storm water management plans E. Be the first point of contact regarding water quality concerns
Land Use and Development
A. Develop a proactive approach to major developments B. Promote the enforcement of current shoreland ordinances and restoration of non-compliant development C. Encourage the use of Central Lakes or other Alternative Shoreland Standards D. Promote mitigation for improved water quality E. Promote riparian buffer zones F. Discourage the use of variances in shoreland impact zones and wetlands G. Support the Lake Sensitivity Project by providing data and begin implementation within three years H. Forest Management Practices
Ground Water Quality
A. Support sealing of abandoned wells B. Encourage municipal wellhead protection plans C. Develop a ground water quality and quantity database D. Increase awareness and education E. Promote certified well water testing in Itasca County F. Support ground water data collection
Septic Systems
A. Encourage system inspections, awareness, and education B. Promote current ordinance enforcement C. Identify and increase funding sources for upgrades, including cluster systems D. Promote incentives for upgrading old systems E. Promote research to identify system alternatives that work in Itasca County's climate and soil
Fish and Wildlife Habitat
A. Promote the importance and value of fish and wildlife habitat (including wild rice areas) to our residents and recreational users and to the economic viability of the county B. Increase monitoring C. Promote riparian buffer zones D. Aquatic Invasive Species (AIS) education/ID/monitoring to slow the spread of AIS E. Help to develop cooperative weed management areas within the county
Education
A. Develop presentations and/or brochures that focus on providing solutions and the positive aspects of being good land and water stewards B. Promote the development of new lake and watershed organizations C. Continue partnerships and support of IWLP, Water Summits, and educational opportunities

Itasca County Water Plan Accomplishments and Partners, 2002-2012

1. Completion of approximately 263 lake assessments: SWCD , IWLP, ICC, MPCA

2. Established 22 Long Term Monitoring Lakes: SWCD/USFS/MDNR

3. Completion of the Big Fork River Management Plan: Bigfork River Board

4. Continuation of Jessie Lake Watershed Clean Water Partnership: SWCD, Jessie Lake Association, USFS, MPCA, U of M, MDNR

5. Initiation of the Jessie Lake TMDL study

6. Groundwater Monitoring at the Shallow Lake Horse Riding Arena: SWCD, Office of Environmental Services

7. Continuation of "Arrowhead Currents" newsletter (last issue in 2005): Various SWCDs, Sea Grant

8. Administration of countywide low-interest (Ag BMP) septic upgrade loan program, 2000 to present: SWCD, BWSR

9. Installation of more than 150 lakeshore erosion control projects

10. Continuing support for a University of Minnesota Extension specialist in shoreland revegetation, with the position located in Grand Rapids of Itasca County

11. Support and Utilization of the Joint Powers Board engineering assistance program

12. Expansion of volunteer water resource monitoring:
    - 201 lakes (through MPCA's Citizen Lake Monitoring Program); an increase of 103 lakes since 2001
    - 100 lake level gauge readers (MDNR's Lake Level monitoring program)
    - 23 Precipitation volunteers (SWCD's Rain Gauge Program)
    - River Watch high school volunteers (Bigfork, Grand Rapids, Deer River, Little Fork/Big Falls high schools)
    - Exotic species watch volunteers (Purple Loosestrife, Eurasion Water Milfoil, and Zebra Mussel)
    - MDNR Obwell program, 5 monitoring wells

13. Continued support of the Itasca County Coalition of Lake Associations, which involves approximately 30 lake associations and some other interested lake groups

14. Assisted the University of Minnesota in a cooperative study of Itasca and St. Louis County lakes, titled "Monitoring Diatom Algae in Northeastern Minnesota: A Tool for Measuring Past and Present Water Quality in Lakes", with funding assistance from MDNR (60 lakes are being monitored; 40 in Itasca, 20 in St. Louis)

15. Initiation of Lake Sensitivity Project (formerly Carrying Capacity study), 2001- 2008: SWCD, MDNR

16. Implementation of Itasca County Shoreland Alteration permit system: Office of Environmental Services, SWCD

17. Administered the Wetland Conservation Act: SWCD

18. Participant in the North Central Lakes Pilot project

19. Support and development of conservation partnerships (IWLP, ICC, MPCA, BWSR, USFS)

Grants Related to the Water Plan

The Water Plan has resulted in several projects. In order to fund and maintain these projects, the SWCD has successfully obtained numerous grants. These grants are used to implement and conduct various projects and have been instrumental in maintaining high quality water resources in the county.

Active GRANTS as of 2012

1. Water Quality Monitoring Database (2004-2006) $ 35,013
2. Develop Lake Carrying Capacities (2004-2006) $ 51,763
3. Historical Water Quality Trends $ 55,035
4. Natural Shoreland Revegetation $ 87,000
5. Native Shoreland Buffer Incentives $ 78,500
6. CWP: State: $249,986.00 Inkind: $544,808.00 Total: $ 794,794
7. LCCMR Sensitive Shoreline Identification $ 160,000
8. Jessie Lake Total Maximum Daily Load Study: $ 97,786
9. Bigfork Surface Water Assessment Grant (2009-11): $ 131,300
10. Bigfork Surface Water Assessment Grant (2010-12): $ 31,656
11. Bigfork Event Based Monitoring Grant (2012-14): $ 25,595

Active Itasca County GRANTS as of 2012

1. Long Term Citizens Lake Monitoring Program $ 23,001
2. ETF Project Implementation Grant $202,000
3. NSBI $ 10,000

1000 Lakes and Rivers Fund

The 1000 Lakes and Rivers Fund is an endowment fund started by the Itasca County Water Plan Implementation Committee to protect and enhance the quality of Itasca County's lakes, rivers, and groundwater for future generations. Interest income generated by this fund makes it possible to provide financial grants to local organizations, schools, and citizens to support both new and ongoing water-quality programs and projects.

The 1000 Lakes and Rivers Fund is invested by the Grand Rapids Area Community Foundation. Locally directed by SWCD and guided by the recommendations of WPIC, the 1000 Lakes and Rivers Fund provides grant money for programs and projects that best work toward the goals of the Itasca County Local Water Management Plan. The fund is uniquely poised to respond to important established programs and new innovative projects.

The 1000 Lakes and Rivers Fund provides grants to enhance local water resources by funding a variety of projects including but not limited to those listed below.

Water-quality monitoring:
- laboratory analyses
- equipment
- database management
- watershed planning and modeling

Pollution-reduction projects:
- sediment control basins
- shoreland stabilization and revegetation
- projects to reduce nutrient loading from farms
- septic-system repairs and high-priority well sealing

Educational programs:
- Shoreland Volunteer workshops
- school-based monitoring activities
- volunteer water-quality monitoring and activities

II. ASSESSMENT OF WATER RESOURCES

High Priority Assessment Ranking

The Itasca County Water Plan Implementation Committee reviewed the water resource assessments at their regularly scheduled meeting on May 11, 2006, and ranked the 21 major categories that are found in Attachment C. That assessment also shows the priority rankings as they were determined in 2001 and 1995. The assessment rankings were also reviewed at subsequent public water plan update meetings. Participants at those meetings recommended no significant changes to the rankings. The relative priority ranking of most categories remained the same, but there are some interesting changes.

Many surface water rankings were unchanged. Quality, land use, and ordinances all remain the highest priority concerns, but they are now joined by pollutant sources, recreational lands and fish and wildlife habitat. The adequacy of recreational lands has steadily increased in priority since 1995, while fish and wildlife recently jumped in concern. Floodplain protection has steadily fallen to low priority since 1995.

Groundwater ranking remained largely unchanged. Pollutants rose slightly in ranking, while land use changes fell in ranking. All three wetland rankings changed. Present and future uses rose close to its originally high ranking, while fish and wildlife has steadily rose to reach a high priority. Floodplain protection rose slightly, after a consistently low ranking.

Implementation Plan

The development of the Itasca County Water Plan addresses the local priority concerns. The newly enacted Clean Water Legacy Act recognizes the importance of Minnesota's water resources. The Act will provide a new source of potential funding for water quality/quantity related enhancement, protection and prevention projects. As applicable, the Itasca County Water Plan will incorporate the use of Clean Water Legacy guidance and funding into its implementation strategy. Table 2 of our implementation strategy identifies potential uses of CWL act funding. The WPIC is committed to help define the role of the CWL in the protection of Itasca County's water. This water plan will attempt to access CWL funds directly or indirectly through and with other agencies.

III. PRIORITY CONCERNS

The following sections of the 2007 Water Plan Update discuss in more detail the priority concerns identified by the Water Plan Implementation Committee. They have been grouped into six categories that are described in the following sections. The six priority concerns are listed below (not in order of priority)

1. **Surface Water Quality**
2. **Land Use and Development**
3. **Ground Water Quality**
4. **Septic Systems**
5. **Fish and Wildlife Habitat**
6. **Education**

1. Surface Water Quality

Surface water quality relates to both lakes and streams and is variable depending on the local watershed conditions, shoreland vegetation, development increasing impervious areas (roofs, driveways, compacted ground) and effective septic systems. Additional variables include re-industrialization of Western Mesabi Iron Range.

Some major industrial sites are potentially going to be located in the area. These plants should meet all current State and Federal pollution guidelines but have the potential to significantly impact water quality and impervious surfaces as well as requiring large water usage. These impacts are a concern needing review and evaluation by the permitting agencies. WPIC will provide input during the review process.

Progress continues to be made on the major rivers in the County. The River Watch Program has expanded beyond the Mississippi River to include the Big Fork River for over ten years. The High Schools of Grand Rapids, Deer River, Bigfork, Little Fork/Big Falls all have students that have participated in the River Watch Program on these rivers and do excellent work. Itasca Community College students monitor the Prairie River.

Water levels are currently monitored on nearly 100 lakes throughout the county by volunteers who take periodic readings on gauges provided by the Department of Natural Resources. Gauge readings are normally obtained throughout the open-water season. Recorded water levels are accessible under the LakeFinder tab on the MDNR's website: www.dnr.state.mn.us.

Generally, Itasca County Lakes have water clarity exceeding other recreational lake counties and this quality recreational asset needs protection. Use of the recommended Alternative Shoreland Standards for new development needs serious consideration and adoption where appropriate. Currently developed shoreland needs to be protected through the enforcement of State and County regulations, particularly the minimization of impervious surfaces, inspection of septic systems, and consistent native shoreland vegetation area to filter water runoff of phosphorous and other chemicals.

Currently several stretches of the Mississippi and Swan rivers, as well as Jessie Lake, have been added to the MPCA's list of impaired waters (Table 3). This water plan will identify mitigation measures that may be used to help improve these and other threatened waters.

Factors to gauge quality:

- Clarity
- Nutrient levels
- Erosion/sedimentation
- Public health (recreational safety)

Actions to be taken:

A. Update and expand data collection and monitoring by stabilizing funding through the 1000 Lakes and Rivers Fund and other grants
   - Coordinate with the MPCA to formally access the water quality in an additional 10 percent of the lakes and streams within the County
   - Apply for and receive funding through external sources to accomplish desired testing
   - Continue to coordinate and promote the Citizens Lake Monitoring Program (CLMP) and CLMP+ programs
   - Coordinate the development of a monitoring program on the Swan and Bowstring rivers

B. Identify point and non-point sources of pollution from existing and future projects
   - Coordinate with the Minnesota Pollution Control Agency to ensure that condition monitoring and effectiveness monitoring is included with all significant projects being conducted within the County, then acquire data from this monitoring for local use
   - Encourage the use of the "Voluntary Site level Forest management Guidelines"

C. Support the Lake Sensitivity Project by providing data and begin implementation within three years
   - Provide the specific data, financial support and manpower to implement the project and promote its county wide use

D. Coordinate with cities on storm water management plans
   - Encourage all municipalities to develop new or update existing storm water management plans.
   - Promote educational awareness of current National Pollution Discharge Elimination System (NPDES) regulations and encourage its compliance

E. Be the first point of contact regarding water quality concerns
   - Provide sound technical advice direct to appropriate agencies

2. Land Use and Development

In May 2000 the Itasca County Board of Commissioners adopted the Itasca County Comprehensive Land Use Plan. In the land use plan it defines certain natural resources goals. The purpose of this update of the Water Plan is to expand on some of these natural resource goals specifically related to water, define the current priority concerns, and to develop a course of action to address these concerns.

Current patterns of development are shifting to the "Lakes" region of the state. Itasca County, having about 1,000 lakes, is definitely experiencing this development pressure. Lake shore property that was deemed unbuildable or marginal in the past is now being sought after for potential future development. Large tracts of land that have been held by various public and private entities are now being subdivided and sold into much smaller land holdings. This action increases the difficulty of conducting sound land management practices.

This section identifies some of the most pressing land use and development concerns and outlines various actions that can be taken to address them.

<u>Factors impacting local water resources:</u>

- Wetlands
- Increased rate of development
- Runoff and sedimentation

<u>Actions to be taken:</u>

A. Develop a proactive approach to major developments
   - Be involved with the design of major projects from an environmental review stand point and how can it be managed to correspond with the County Water Plan
   - Look at the storm water run-off design as well as reclamation plans
   - Look at total watershed cumulative impacts

B. Promote the enforcement of current shoreland ordinances
   - Increase educational awareness of current regulations to property owners, contractors, developers
   - Continue coordination with regulating agencies
   - Develop guidelines for satisfactory restoration, targeting native species

C. Encourage the use of Central Lakes or other Alternative Shoreland Standards
   - Encourage the development of minimum buildable area for lots and incorporate into zoning permitting process
   - Coordinate with county, municipal, and other zoning entities in the update of ordinances

D. Promote mitigation for improved water quality
   - Continue to develop mitigation actions for variance consideration

E. Promote riparian buffer zones
   - Continue to provide shoreland revegatation workshops
   - Promote no mow zones on waterfronts and wetlands
   - Continue to support the use and sale of native plants

F. Discourage the use of variances in shoreland impact zones and wetlands
   - Improve the permitting process by requiring site drawings to scale that include: elevations, ordinary high water mark, wetlands and water bodies, property boundaries, and onsite pictures
   - Promote the use of mitigation strategies by all zoning entities

G. Support the Lake Sensitivity Project by providing data and begin implementation within three years
   - Start utilizing existing information
   - Continue to support the project through securing ongoing funding sources and expanding databases
   - Support this project to implementation

H. Forest Management Practices
   - Encourage the use of the "Voluntary Site Level Forest management Guidelines"

3. Ground Water Quality

Maintaining and protecting the quality of Itasca County's ground water resources is essential to provide long term potable water for human and livestock consumption as well as providing for a healthy natural environment. Ground water is a major component to maintaining surface water volumes.

There is little detailed knowledge about ground water in Itasca County. This plan will start assembling what is known and then start addressing some areas where data collection will advance our knowledge. We know that sealing of old unused water wells provides valuable insurance that pollution or any other problems are not transferred from surface water to ground water or between water tables. We are reasonably confident that new water wells meet the requirements for safety, but further education on the importance of this issue should lead to more diligence on the part of owners, both new and old, real estate agents and well drillers to locate any old wells or old septic fields. We will consider producing a brochure for land owners to highlight this issue.

An effort will be made to search existing databases, both from the testing of new wells and from well drilling data to get an initial assessment of the quality of ground water in the county. We will also start working with local communities that have city water supplies to develop a working municipal well head protection plan or update their current plan if needed. It is far easier to protect a resource than to try to fix a broken one. It will also be necessary to monitor any new projects that intend to use a significant amount of ground water and ensure that due diligence is followed to ascertain any effects on the ground water. When sufficient data and other

information is collected, we should provide this information in a format that is useable for both decision makers and home owners.

Factors to gauge quality:

- Mineral content
- Nutrient levels
- Adequate supply
- Public health

Actions to be taken:

A. Support sealing of abandoned wells
   - Increase the awareness and the importance of hazards associated with abandoned wells
   - Research current regulations and update as needed
   - Encourage compliance and recommend enforcement

B. Encourage municipal wellhead protection plans
   - Work with municipalities to develop and/or update well head protection plans

C. Develop a ground water quality and quantity database
   - Obtain existing ground water data from other agencies, then determine if there is a need for additional information
   - Develop testing criteria and plan for acquiring additional data
   - Secure funding and implement plan

D. Increase awareness and education
   - Update materials available to landowners and well drillers

E. Promote certified well water testing in Itasca County

F. Promote the establishment of a certified lab within Itasca County to test well water

G. Support ground water data collection
   - Promote the establishment of a certified lab within Itasca County to test well water

4. Septic Systems

Septic systems can have a major influence on the adjacent surface and ground water quality. Properly functioning systems can prevent degradation of surrounding water resources. Conversely improperly installed, inadequate, non compliant systems can threaten the local health of the environment and those associated with it. Excess nutrients in surface water can lead to the promotion of algae growth, lower water quality, and pose a health risk to recreational users. Ground water can also be effected and pose health risks specifically in areas where shallow wells

are present. This section will try to address some of the current specific concerns related to septic systems.

Factors to consider:

- Nutrients from systems impact both ground and surface water quality

Actions to be taken:

A. Encourage system inspections, awareness, and education
   - Take a proactive approach to encourage the need for septic inspections, awareness, and education
   - Look at recommendations being generated by South Central Itasca County Planning Board District for county-wide application
   - Develop and implement a strategy for disseminating the existing University of Minnesota *Septic System Owner's Guide* folder and maintenance record for septic care
   - Encourage septic pumping and installing firms to provide the U of M *Septic System Owner's Guide* packet to their clients

B. Promote current ordinance enforcement
   - Support personnel development to adequately meet the enforcement needs
   - Identify and record Individual Septic Treatment Systems (ISTS) information on location, condition, and maintenance to develop a septic maintenance database that complies with Minnesota Pollution Control Agency Chapter #7080

C. Identify and increase funding sources for upgrades, including cluster systems
   - Promote the development of a no- or low-interest fund to be available for the upgrade of non-compliant systems
   - Explore other grant options for upgrades in shore impact zones

D. Promote incentives for upgrading old systems
   - Research the possibility of waving permitting costs for upgrades and tax incentives

5. Fish and Wildlife Habitat

High quality fish and wildlife habitat are some of the natural resources that make this County stand out in the upper Midwest as a premier destination for recreation and tourism. This recreation and tourism is a very important component to our local economy and as referenced before through the BSU study can have a dramatic effect on our property values. This section will outline some of the concerns related to maintaining or improving the County's fish and wildlife habitat.

No detailed assessments could be found of fish and wildlife habitat in Itasca County. However, there is widespread concern that shoreland development in the riparian zone, both in and out of the water, may have serious long-term affects on those resources. There have been extensive studies and new Alternative Shoreland Standards written by a five county collaborative effort of government agency representatives and citizen groups comprised of the MDNR, MPCA, University of Minnesota Extension Service, the U.S. Forest Service, political leaders, Itasca County SWCD, resort owners, business owners, land developers, and other stake holders. This effort was initiated in response to Governor Pawlenty's Fresh Water Initiative. These Standards

address long term concerns of preserving and revegetating riparian zones both on and off shore 2nd and 3rd tier development to minimize the natural resource impacts and preserve forested and open land for habitat. This type of collaborative effort demonstrates the increasing awareness, concern, and need to accommodate development along with preserving natural resources including fish and wildlife. Specific attention is given to the concerns of development in the watershed of smaller lakes and wetlands that will likely be the next area targeted for development. Recognition is given to the specific character of these areas as their biology, habitat offering, and response to development differ significantly from large general recreation lakes.

The Itasca County Coalition of Lake Associations (ICOLA) has sponsored an annual Shoreland Stewardship Award to recognize shoreland owners who have made a significant effort at restoration of their riparian area with native vegetation to filter water runoff, prevent erosion, and provide habitat for on-land and water creatures. In conjunction with the SWCD, this award is displayed at the County Fair and the formal presentation made during a County Commissioners' meeting which is broadcast on local television.

Factors to consider:

- Surface water
- Wetlands
- Endangered species
- Invasive species
- Riparian and littoral (aquatic) zones

Actions to be taken:

A. Promote the importance and value of fish and wildlife habitat to our residents and recreational users and to the economic viability of the county
   - Continue to publish and distribute educational materials
   - Increase awareness of current and new landowners, contractors, realtors and others on the importance of maintaining and improving fish and wildlife habitat
   - Continue to co-sponsor shoreland restoration programs and stewardship awards
   - Increase the awareness of the important role that shallow lakes have in regards to waterfowl and other habitat, recreation, and wild rice production.

B. Increase monitoring
   - Develop a plan for lake users to evaluate the presence/absence of invasive and endangered species, then use this data as a baseline for ongoing monitoring
   - Monitor new development to encourage use of riparian and littoral (aquatic) best management practices

C. Promote riparian buffer zones
   - Encourage the use and development of buffer zones in shoreland areas
   - Continue to support shoreland restoration workshops and secure funding for its continuation and on the ground project completion
   - Coordinate with the Department of Natural Resources to increase dissemination of the *Restore Your Shore* CD to local landowners and developers
   - Promote the use and re-establishment of native vegetation along shorelines
   - Encourage the SWCD and local nurseries to provide and promote native vegetation

6. Education

Education is a major component of all of the previous priority concerns. It was felt that in order to raise the awareness of the role that environmental education plays in maintaining and improving our water resources and other associated natural resources that it warranted a priority of its own. We have identified many target audiences for the information contained in this water plan, from landowners and contractors to policy and ordinance development. In all cases education pertaining to the cause and effects of our actions on the surrounding environment is essential to maintaining or improving the quality of Itasca County's water and related environments. This section further identifies some of audiences that will benefit from additional information, education, and regulation awareness.

Some target audiences are:

- Current and seasonal residents
- New property owners
- Recreational users
- Lake and river associations
- Contractors
- Realtors
- Schools

Actions to be taken:

A. Develop presentations and/or brochures that focus on providing solutions and the positive aspects of being good land and water stewards
   - Actively pursue opportunities to conduct meetings, training sessions, and professional development
   - Promote the quality of Itasca County and the need to protect and enhance its natural resources

B. Promote the development of new lake and watershed organizations
   - Continue to seek out interested groups willing to take an organized approach to watershed management
   - Continue to support and foster the development of existing associations that exemplifies the best management practices implemented at the grass roots level

Table 2.

Implementation Schedule
of Priority Concerns Actions

Surface Water Quality				
A. Update and expand data collection and monitoring by stabilizing funding through the 1000 Lakes and Rivers Fund and other grants				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
Ongoing	SWCD	DNR, BWSR MPCA, SWCD Lake Assoc.	10,000 yr.	DNR, McKnight, CWF, MPCA, Other, CWL
B. Identify point and non-point sources of pollution from existing and future projects				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
2009-12	MPCA	SWCD, WPIC	5,000	MPCA, CWF, Other,CWL
C. Support the Lake Sensitivity Project by providing data and begin implementation within three years				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
2007-10	SWCD	DNR, I Co., U of M	25,000	I Co., BWSR
D. Coordinate with cities on storm water management plans				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
2008-11	SWCD	MPCA, DNR Municipalities	3,000 yr.	BWSR, I Co., MPCA
Land Use and Development				
A. Develop a proactive approach to major developments				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
Ongoing	SWCD	I Co., MPCA, DNR	Unknown	BWSR, I Co., CWF, CWL
B. Promote the enforcement of current shoreland ordinances				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
Ongoing	I Co.	SWCD, DNR Lake assoc.	Unknown	I Co.
C. Encourage the use of Central Lakes or other Alternative Shoreland Standards				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
2007-10	SWCD	I Co., DNR	Unknown	BWSR, CWF
D. Promote mitigation for improved water quality				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
Ongoing	SWCD	I Co., DNR, Lake Assoc.	Unknown	I Co., CWL, CWF
E. Promote riparian buffer zones				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
Ongoing	SWCD	I Co.	3,000 yr	I Co.
F. Discourage the use of variances in shoreland impact zones and wetlands ***				
Timeline	Lead Agency	Partners	Expenses	Funding Sources

Ongoing	SWCD	WPIC, I Co., Lk Assoc.	2,000 yr.	BWSR
G. Support the Lake Sensitivity Project by providing data and begin implementation within three years				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
Ongoing	SWCD	DNR, U of M USFS	5,000 yr	BWSR, I Co., CWL, CWF
Ground Water Quality				
A. Support sealing of abandoned wells				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
Ongoing	SWCD	MDH, BWSR	5,000 yr	BWSR, MDH, Other
B. Encourage municipal wellhead protection plans				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
2007-2010	SWCD	MDH, MPCA	3,000 yr	BWSR, Other
C. Develop a ground water quality and quantity database				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
2008-2011	SWCD	MDH, DNR	10,000 yr	BWSR, I Co.
D. Increase awareness and education				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
Ongoing	SWCD,	MDH, Schools, WPIC	3,000 yr	BWSR, CWL, Other, CWF
Septic Systems				
A. Encourage system inspections, awareness, and education				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
Ongoing	SWCD,	WPIC, I Co., DNR, Lake Assoc.	1,500 yr	I Co., Other
B. Promote current ordinance enforcement				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
Ongoing	SWCD	I Co. WPIC Lk. Assoc.	Unknown	BWSR, I Co.
C. Identify and increase funding sources for upgrades, including cluster systems				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
2007-10	SWCD	I Co., BWSR	50,000 yr	I Co., BWSR
D. Promote incentives for upgrading old systems				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
2008-11	I Co.	SWCD, BWSR	Unknown	I Co., BWSR, CWF

Fish and Wildlife Habitat				
A. Promote the importance and value of fish and wildlife habitat to our residents and recreational users and to the economic viability of the county				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
Ongoing	SWCD	I Co. U of M, DNR, Lk Assc.	3,000 yr	I Co. Other
B. Increase monitoring				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
Ongoing	SWCD	U of M, Lake Assoc., DNR	5,000 yr	BWSR, I Co., CWL,CWF
C. Promote riparian buffer zones				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
Ongoing	SWCD	I Co, WPIC, Lake Assoc., U of M	10,000 yr	I Co. BWSR, CWL, Other, CWF
Education				
A. Develop presentations and/or brochures that focus on providing solutions and the positive aspects of being good land and water stewards				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
2007-10	SWCD	U of M, I Co., DNR	20,000	I Co., BWSR, CWL, Other, CWF
B. Promote the development of new lake and watershed organizations				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
Ongoing	SWCD	ICOLA, WPIC, DNR	Unknown	I Co., BWSR

2012 Updates

Surface Water Quality

E. Be the first point of contact regarding water quality concerns				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
2012-17	SWCD	MPCA, DNR Municipalities	3,000 yr.	BWSR, I Co., MPCA

Ground Water Quality

E. Promote certified well water testing in Itasca County				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
2012-17	SWCD	ICC, MDH Municipalities		I Co.

F. Support Ground water data collection				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
2012-17	SWCD	ICC, MDH Municipalities	3,000 yr.	BWSR, I Co., MPCA
Septic Systems				
E. Promote research to identify system alternatives and applications in Itasca County				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
2012-17	I Co.	MPCA, SWCD Municipalities	3,000 yr.	BWSR, I Co., MPCA, PFA
Fish and Wildlife Habitat				
D.AIS education/ID/monitoring				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
2012-17	SWCD	DNR, MPCA Municipalities	20,000 yr. ??	BWSR, I Co., LCCMR
E. Help develop cooperative weed mgmt areas				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
2012-17	IWLP	I.Co., SWCD TWSPS	3,000 yr.	BWSR, I Co.,
Education				
C. Help to develop educational opportunities				
Timeline	Lead Agency	Partners	Expenses	Funding Sources
2012-17	SWCD	IWLP, ICOLA Municipalities	5,000	I Co., Blandin, BWSR

IV. ITASCA COUNTY COMPREHENSIVE LAND USE PLAN

Itasca County adopted the Itasca County Comprehensive Land Use Plan on May 23, 2000. The Itasca County Planning and Zoning Department took the lead in developing the plan, along with Biko Associates, Inc., a land use planning firm, and BRW, Inc., who provided GIS and other background information. Plan development spanned a period of four years and included a very active 20-person citizen steering committee, county commissioners, (who also took a very active role in the public meetings), a technical advisory committee, and many public meetings.

There are eight goals in the plan. They are:

Natural Resources
Housing and Settlement Patterns
Agriculture
Commercial/Industrial
Recreation
Transportation
Governmental Cooperation

Water resource related items that are contained in the Itasca County Comprehensive Land Use Plan, 2000, are listed on the following pages in Attachment A. The word "rivers" should be added to some items to reflect the inclusion of all types of open surface waters. They form the core of the 2007 Local Water Plan Update. The Natural Resources Goal states "Itasca County will promote land and water uses that result in the sustainable use of natural resources, balancing development and environmental commitment to conserve and enhance the natural beauty and resources of the County for this and future generations". Other goals in the plan also contain some water-related items and are also included. The complete land use plan contains many more implementation tools and is available from the Itasca County Planning and Zoning Office in the County Courthouse in Grand Rapids.

V. WATER PLAN PUBLIC MEETINGS

The Itasca County Board of Commissioners authorized the revision and update of the Itasca County Local Water Plan on February 28, 2006, and delegated the responsibility of coordinating and writing the update to the Itasca County Soil and Water Conservation District (SWCD).

There were five public informational meetings. At each of these meetings, Jim Gustafson, Itasca County Water Plan Coordinator, described the process of updating the County Water Plan and solicited public input. The Priority Concerns Scoping Document was given out which summarized the priority concerns and their respective issues/topics for the water plan update identified by WPIC. Each priority concern was discussed and elaborated on, as necessary.

The WPIC committee determined geographic areas within the county to conduct the public meetings and solicit input from the broadest range possible. Coordination within these areas to hold the informational meeting in conjunction with other previously scheduled association meetings helped to increase participation and improve the amount of input.

An overview of the raw data collected from the mailed survey to about 40 agencies and organizations concerned with or interested in water-related items was given (see Attachment C). The survey asked each organization to rank identified topics in a priority of high, medium, low and to specify any other concerns or comments. After reviewing raw data findings, the priority concerns identified by WPIC members were summarized and ask input on those concerns was requested.

Suggestions were solicited from those in attendance regarding water plan priority concerns, including ideas not currently in either the County Comprehensive Land Use Plan or those listed in the current water plan. Each of these comments is documented in Attachment B, Public Meeting Comments. Persons in attendance were also encouraged to add suggestions to the

scoping document and return the forms to the SWCD. A copy of the scoping document can be found in Attachment C.

The first public meeting was held in conjunction with the Itasca County Township Association on Monday June 12, 2006, at the Grand Rapids Township Hall at 7:00 pm. Thirty-four persons were in attendance, and this meeting was broadcast on I.C.T.V., the local cable TV channel. The second public meeting was held on Tuesday, June 27, 2006, at the Squaw Lake Community Center in Squaw Lake at 6:30pm. Eight persons were in attendance, including members of WPIC. The third meeting was held on June 28, 2006, at the Marcell Family Center in Marcell at 7:00pm. in conjunction with the Northern Itasca Joint Powers Board meeting. Twenty persons were in attendance, including members of WPIC. The fourth public meeting was held on Wednesday, July 5, 2006, at the Wabana Town Hall north of Grand Rapids at 6:00p.m. Twenty persons were in attendance, including members of WPIC. The fifth and final public meeting was held in conjunction with the Harris Township meeting held July 12, 2006, at 7:30 pm. with 18 in attendance. This meeting was also recorded and broadcast on I.C.T.V.

In August of 2006 the BWSR Northern Review Board evaluated the Priority Scoping Concerns Identified through the public scoping process. Upon their approval the actual writing of the Itasca County Water Plan update began.

The final draft was reviewed at the Itasca County Board TLM meeting and at an advertised public meeting held at the Marcell Family Center on November 20, 2006. There was also a public hearing held to review and receive comments on December 19, 2006 as part of the Itasca County Board of Commissioners meeting. On December 22, 2006 seven copies of the Water Plan final draft were delivered to the BWSR office in Brainerd for review and distribution.

In March of 2007 the Itasca County Water Plan (2007-2017) Final Draft was reviewed by the BWSR Northern Review Board. Upon their recommendation the plan will go before the BWSR Board for approval at their March Board meeting. Upon their approval it will be presented to the Itasca County Board of Commissioners for adoption.

On October 18, 2011 a public meeting was held at the Marcell Family Center to solicit public input to the 2012 update of the priority concerns and objectives of the County water plan. The comment received were reviewed and evaluated by the WPIC committee and where appropriate were incorporated into the update.

On April 11, 2012 the BWSR Northern Review Board evaluated the proposed update and responses to Agency review comments. The Board then took action to recommend approval of the update, pending the Public Hearing scheduled by the Itasca County Board of Commissioners on April 24, 2012

On April 24,2012 the Itasca County Board of Commissioners conducted a public hearing to solicit comment on the proposed water plan revisions.

Attachment A.

Implementation Tools from the
Itasca County Comprehensive Land Use Plan
Adopted May 23, 2000
Considered for the Water Plan

WPIC believes that the Water Plan should coordinate with the Land Use Plan. To that end, the following information is text taken directly out of the Comprehensive Land Use Plan because it relates to the Water Plan. This section will show how the Land Use Plan and Water Plan coordinate and support each other and how they can move forward to support actions of the 2007 Water Plan.

I. Natural Resources Goal

Itasca County will promote land and water uses that result in the sustainable use of natural resources, balancing development and environmental commitment to conserve and enhance the natural beauty and resources of the County for this and future generations.

A. **Water Quality Objective -** Maintain high water quality of Itasca County's abundant lakes, wetlands and waterways, and develop mitigation efforts for lakes and waterways at risk of degradation.

Implementation Tools

1. **Baseline data -** Establish the current baseline quality of lakes and rivers.
2. **Updating and enforcement of ordinances** - Update the existing ordinances and plans relating to water quality where appropriate, and enforce ordinances equally and consistently.
3. **Standards for variances and conditional use permits -** Develop narrowly defined standards for variances and conditional use permits that promote the protection and enhancement of natural resources in general and water quality specifically.
4. **Lake carrying capacities (a/k/a lake sensitivity) -** Develop carrying capacities for various types of lakes, then update the existing shoreland management ordinance to incorporate carrying capacity limits.
5. **Lake waste disposal -** Educate lake users on the proper disposal of waste.
6. **Septic systems -** Require septic systems that meet high performance standards, as approved by state rules.
7. **Septic upgrades encouraged** - Create and promote a low-interest loan program to encourage landowners to upgrade individual septic systems.
8. **Alternative waste treatment -** Encourage alternative waste treatment methods that meet or exceed current septic performance standards.
9. **Wellhead/watershed protection -** Work with municipalities on their wellhead protection plans, including identifying areas within watersheds where development should be limited because of potentially negative impacts on water quality.

10. **River management plans -** Develop and adopt management plans for the Swan River, Prairie River and other important rivers that address the land use and natural resource goals of the County.
11. **Cluster development standards -** Create cluster development standards that ensure long-term maintenance of combined wastewater treatment systems, permanently preserves buffer areas along lake shores, and prevents backlot development that exceeds the capacity of lake watersheds.
12. **Incentives to protect undeveloped lakeshore -** Create tax incentives that allow private lakeshore owners not to develop, subdivide, or plat undeveloped lakeshore or environmentally sensitive areas.
13. **Designate lakeshore residential expansion areas -** Designate areas for expansion of lakefront housing consistent with shoreland, wetland, and septic ordinances.
14. **AREA 1 - Sewer service to lakeshore areas -** Evaluate the feasibility of providing sewer services to fully developed lakeshore areas with significant septic failure rates and where not currently available.
15. **AREA 2, AREA 4 and AREA 5 - Development locations and lot sizes -** Use performance zoning or overlay districts within the area to guide development locations and lot sizes.

B. **Sustainable Management Objective -** Support sustainable management of privately owned lakeshore and environmentally sensitive areas.

Implementation Tools

1. **Lakeshore vegetation -** Encourage private stewardship activities to protect and restore natural aquatic and shoreland vegetation, for example by establishing buffer areas in and along lakes and waterways.
2. **Protection of buffers and environmentally sensitive areas** Support "Blue Waters" legislation and local programs that encourage private landowners to protect natural buffer areas and environmentally sensitive areas along lakes and waterways.
3. **Incentives -** Create tax incentives that encourage private lakeshore owners not to develop, subdivide, or plat undeveloped lakeshore or environmentally sensitive areas.

C. **Lake and Road Buffer Objective -** Preserve existing forest and other buffer areas around lakes and along scenic vistas, and encourage restoration of altered areas.

Implementation Tools

1. **Design standards -** Adopt landscape design standards for lakeshore area and along scenic roadways.
2. **Lakeshore restoration -** Develop tax incentives for restoration of indigenous landscaping along lake shores.
3. **Reduce visual impacts -** Create and distribute materials that educate lakeshore owners on methods for screening accessory buildings from the lakeshore and on ways to reduce the visual impact of docks, boat-lifts, canopies and other shoreline structures.

D. **Public Ownership Objective** Maintain current level of public ownership of shoreland, including river banks, and forested areas, and identify environmentally sensitive areas.

Implementation Tools

1. **Restrict conversion -** Restrict conversion of public shorelands to private ownership.
2. **Identify key parcels for protection -** Develop lake-specific or watershed-based management plans that identify and prioritize key parcels for environmental protection.
3. **Environmentally sensitive land -** Prioritize the public acquisition of privately-held environmentally sensitive lands.
4. **AREA 2, AREA 3 and AREA 5 - No net loss -** Adopt a policy of no net loss of publicly-owned land, allowing the sale of parcels that are less appropriate in public ownership and the acquisition of a similar number of parcels or acres that are more appropriately under public protection.

II. Housing and Settlement Patterns Goal

Respect the unique settlement characteristics of each area of the County and encourage diversified housing development that maximizes the use of infrastructure including roads, sewer, water and other public services.

B. **AREA 4 - Residential Development Pattern Objective -** Recognize the local preference in Area 4 for large lot residential development.

Implementation Tools

1. **AREA 4 - Define lot sizes and areas -** Define lot sizes and areas where they are allowed in a zoning ordinance.
2. **AREA 4 - Cluster development -** Reserve the use of techniques such as cluster for future use to accommodate development pressure in environmentally sensitive areas. A cluster ordinance would require the protection of environmentally sensitive areas within a development site.

E. **Lake Backlot Development Objective -** Limit backlot development around lakes.

Implementation Tool

1. **Lake suitability for development -** Establish a hierarchy of lakes suitable and not-suitable for further development, based on the carrying capacities developed under the Natural Resources Goal.
2. **Road improvements -** Limit County investment in road improvements that would encourage backlot development. **New - Establish road standards for construction and maintenance.**
3. **Tax incentives -** Create tax incentives encouraging private lakeshore owners not to develop, subdivide, or plat undeveloped lakeshore or environmentally sensitive areas.
4. **Buffers required -** Require large buffers between lakes and any allowed cluster developments, permanent restrictions on development in the buffer area, and joint maintenance or bonding to ensure maintenance of septic system(s) within the buffer area.

F. **Lakeshore Development Objective - AREA 2 - Single-family homes -** Limit new lakeshore development to single-family homes.

Implementation Tool

1. **Lake suitability for development -** Establish a hierarchy of lakes suitable and not-suitable for further development, based on the carrying capacities developed under the Natural Resources Goal.

G. **Lakeshore Development Objective - AREA 5 - Large lot and cluster development -** Allow a combination of large lot zoning and cluster development around lakes.

Implementation Tool

1. **AREA 5 - Cluster development standards -** Develop cluster development standards that permanently preserve lakeshore buffers, mandate joint management and/or bonding for group septic systems, and prevent backlot development.

III. Agriculture Goal

Encourage agriculture as the primary use in historically farmed areas as part of a diverse economy; and respect the settlement characteristics of agricultural areas.

C. **Water Quality Objective -** Educate farmers on methods for minimizing the impact of agricultural practices on the quality of lakes, rivers, streams and wetlands.

Implementation Tool

1. **NEW TOOL -** Encourage the creation of farm plans that address erosion and application of chemicals.

IV. Commercial/Industrial Goal

Encourage a sound and diverse economy that meets the needs of Itasca County residents and visitors for employment and services.

E. **Recreation Industry Objective** - Encourage new commercial and industrial development related to the recreation industry, including resorts, services, and products.

Implementation Tools

1. **Resort development standards -** Create standards for resort development or expansion linking development to existing infrastructure capacity; the preferences of Planning Area residents; and the environmental risks posed by development on lakeshores.
2. **NEW TOOL -** Develop programs that assist resorts in promotion and development.

E. **Tourism/Recreation Objective -** Develop additional recreational opportunities for tourists and visitors.

Implementation Tools

1. **Mississippi River -** Protect recreational and open space potential along the Mississippi River corridor.
2. **AREA 4 - Primary Lakes -** Develop the recreational and open space potential along primary lakes in Area 5: Winnibigoshish, Natures and Island lakes.

L. **Commercial Development Objective -** Direct commercial development to existing commercial nodes and areas with adequate transportation, sewer and water infrastructure.

Implementation Tool

1. **Resort development -** Create performance criteria (soils, managed/bonded group septic, visual buffers) for resort development or expansion along lakes or in sensitive watersheds.

V. Recreation Goal

Develop an integrated green space and recreation system within Itasca County that provides diverse, developed and undeveloped, recreational opportunities for all residents and visitors while protecting unique scenic and natural areas.

D. **Expansion Objective -** Evaluate opportunities to expand the recreation system to meet needs not met by the current system.

Implementation Tools

1. **New facilities -** Invest in the development of new facilities to meet identified need, including public lakeshore access.
2. **Campgrounds -** Develop additional campground capacity along lakes where there is adequate infrastructure.

VII. Governmental Cooperation Goal

Encourage cooperation between governmental jurisdictions regarding efficient land use, economic development, and the management of natural resources.

D. **Water Quality Coordination Objective -** Coordinate with other governmental entities and joint powers boards on the prioritization, acquisition, or other protection of environmentally sensitive lands, lakeshore areas, river corridors, and watersheds.
Implementation Tool - Same as objective

Attachment B.

Comments from Public Meetings

Squaw Lake Community Center, June 27, 2006

Comments/questions received from the public:

- Is there an inconsistent response from county on problem reporting; who is in charge of what?
- What is the effect of a failed septic system in a lowly populated area?
- Is there testing of old filling stations?
- What about mercury?

Marcell Family Center, June 28, 2006

Comments/questions received from the public:

- How do we evaluate the goal to measure success; are there any criteria set?
- How do we evaluate the uncontrollable, for example mercury from China?
- What is surface water quality health; public health or water health?
- Will you recommend land use and tax policy from the plan?
- Who will do enforcement of the ordinance because without enforcement it is all worthless
- Lake associations have done wonders in keeping water quality high; lake associations could do policing efforts if all lakes had associations; people would be more interested because of they are vested in the lake.
- Lots of people don't test sand point wells they drive in; people think it's too hard and not necessarily needed.
- Is there a program testing to determine which septics are not in compliance? We must have a way to determine if septics are non-compliant.
- People won't come here if we don't have clean water.
- It's hard to know what incentive programs are available.
- How do these issues mesh with the MDNR; they say the same issues and do things anyway.
- Did we reach the 2002 water plan goals
- I'm concerned that the five-year plan will be outstretched and talk while it's happening already.

Wabana Town Hall, July 5, 2006

Comments/questions received from the public:

- Has there been a survey done to identify impaired lakes in the county?
- Why do lakes affect health; what health issues are there?
- With so many impaired lakes in MN, how do you maintain integrity of water quality and still allow people to live there?
- All items under the surface water are synergistic; they all affect each other.
- WPIC should make the point of not all lakes fit one size with TMDLs.

- What is the intent of the county water plan, because land use plan gets interpreted the way the County Board want it?
- Does SWCD get called into planning commission meetings for variance reviews and input?
- Isn't it WPIC's role to tell the County Board when the county land use conflicts with the water plan?
- I get the impression there's a big political agenda; seems like information is conflicting; these are not new issues; what is SWCD's role and how do agencies coordinate to get decisions made?
- If we want something in this plan, we must be clear for citizen input and guidance; is there an implementation piece in this plan to be sure action occurs?
- The consensus is that we should have water plan adopted and incorporated into the comprehensive land use plan by the County instead of truly two separate documents. Can we make this a goal in the water plan?
- Are MDNR shoreland rules adopted by the County?
- MDNR has an idea of a new way of platting out lakeshore lots; is the county considering adopting those rules?
- Can we add that a goal be conservation subdivisions; like the new North Central Lakes Project has identified and larger buffer strips also recommended? Can we add them as tools to enforce sound lake management?
- Realtors have some responsibility to educate buyers on lakeshore development. Is there a brochure or idea for landowners? We need to get rules to people before they buy it; maybe they wouldn't buy.
- ICOLA published 25000 booklets for realtors and explains all water regulations and contacts.
- Is there a website with the plan?
- WPIC needs to represent themselves and say the water plan says 'x' so how can you approve 'y' because it contradicts the water plan. WPIC should be available to citizens to express concerns over permits, etc to the County Board with more clout than being a 'concerned citizen'.

<u>Itasca County Association of Townships, June 12, 2006</u>

Comments received at this meeting include:

- What is the status of lake sensitivity project? Are we following the Canadian model?
- Education priority should also target realtors
- Has anyone addressed what effect dust abatement/ice melt chemicals have on water?
- Would it be possible to incorporate current lake management plans into the county water plan?

Marcell Family Center Revision Update Meeting November 2011

Public Hearing- Itasca County Board April 24, 2012

Attachment C.

Priority Concerns Scoping Document-2006
Itasca County, Minnesota
For 2007 Water Plan

A. Introduction

1. County primer
   a. Itasca County is located in the northern part of the Central Lakes Region. The county seat is located in the city of Grand Rapids.
   b. As of the 2004 the Minnesota State Demographer Center placed Itasca County's population at 44,242 with a projected population increase of 8% for the period of 2000 to 2010. The population is expected to grow by 22% by 2030.
   c. Dominant land uses are Forest Management, Recreation, Private and Corporate Development

2. Plan Information
   a. The Itasca Soil and Water Conservation District (SWCD) is the Local Government Unit (LGU) responsible for the local water management plan/program.
   b. The original water plan was adopted in 1990. Updated in 1996 and again in 2002. The new plan update should be completed in 2007.
   c. The expiration date of the existing plan is March 26, 2007

B. List of the Priority Concerns

1. Surface Water Quality
   a. Clarity
   b. Nutrient Levels
   c. Erosion
   d. Property values
   e. Update and expand data collection and monitoring- stabilize funding
   f. Identify point and non point sources of pollution
   g. Enforce current shoreland ordinances
   h. Develop lake sensitivity guidelines
   i. Health

2. Land Use and Development
    a. Shoreline buffers
    b. Wetlands
    c. Ownership fragmentation
    d. Increased rate of development
    e. Runoff
    f. Sedimentation
    g. Major developments-be proactive
    h. Promote enforcement of shoreland ordinances
    i. Discourage development on lakes already on impaired list or promote mitigation for development
    j. Maintain recreational opportunities
    k. Cumulative impacts within a watershed
    l. Develop lake sensitivity guidelines
    m. Regulate the development of marginal lake lots
    n. Promote riparian buffer zones
    o. Discourage use of variances for shoreland development

3. Ground Water Quality
    a. Protect quality
    b. Develop quality data base
    c. Sealing of abandoned wells
    d. Septic system compliance/enforcement
    e. Contamination Prevention education

4. Septic Systems
    a. Promote ordinance enforcement
    b. Identify non-compliant systems
    c. Identify or develop funding sources for upgrades
    d. Provide incentives for upgrade of old systems

5. Fish and Wildlife Habitat
    a. Surface water
    b. Wetlands
    c. Recreation importance to economy
    d. Endangered Species
    e. Invasive Species

6. Education
    a. Current Residents
    b. New Property Owners
    c. Recreational Users
    d. Shoreland Ordinances/Enforcement
    e. Focus on providing solutions
    f. Lake and River Associations/ schools

C. Priority Concern Identification

1. Public input forums
    a. Water Plan Implementation Committee meetings: March 21& May 16, 2006.
    b. Outreach Mailings to (42) Organized Townships March 24, (10) Municipalities March 24, (5) Adjacent Counties & Water Plan Managers March 27, (37) Lake & River Associations March 23, (8) state agencies Mach 27. See attached distribution lists. Appendices A-E
    c. Additional public meetings will be held during June and July of 2006 in Max, Marcell, Wabana, & Harris Townships
    d. A copy of all comment materials received is available for review at the Itasca SWCD

2. Summary of out reach mailings:
    a. Cover letter explaining process
    b. Water Plan Update Assessment Rankings Worksheet in which participants were asked to rank the importance of the following water parameters.
    c. Priority Concerns: Definitions and Examples reference paper was distributed for review.
    d. Participants were then asked to fill out the Priority Concerns Input Worksheet by listing the top 3 concerns affecting their area.

Assessment Rankings

Comparison between years 1995, 2001, and 2006

X = 1995 Ranking
O = 2001 Ranking
Z = 2006 Ranking

	-----HIGH------	MODERATE-----		LOW---
I. SURFACE WATER				
(C) Quality	X,O,Z			
(I) Pollutant Sources	Z	X,O		
(Q) Expected Land Use Changes	O,Z	X		
(M) Shoreland Ordinances	O,Z	X		
(E) Sedimentation		X,O,Z		
(F) Runoff		X,O,Z		
(P) Unique Features and Scenic Areas			X,Z	O
(A) Quantity		O,Z	X	
(L) Floodplain Protection			O	X Z
(N) Recreational lands, Adequacy of		Z	O	X
(O) Fish and Wildlife Habitat, " "	Z	X,O		
(G) Irrigation				X,O,Z
(H) Agricultural Ditches				X,O,Z
II. GROUNDWATER				
(D) Quality	O,Z	X		
(I) Pollutants	Z	X,O		
(Q) Expected Land Use Changes	O	X	Z	
(J) Special Geologic Conditions		X,O,Z		
(B) Quantity				X,O,Z
III. WETLANDS				
(K) Present and Future Uses	X	Z	O	
(O) Fish and Wildlife Habitat	Z	O	X	
(L) Floodplain Protection		Z	X,O	

Assessment Rankings Response Data Set:

Raw Data Showing the Number of Responses Under Each Evaluation Criteria 2006

Evaluation Criteria for Surface Water	weight=3 High	weight=2 Moderate	weight=1 Low	Total pts	H=60+ M=45-59 L=<45	weighted avg
Quality	22	0	2	68	H	2.83
Pollutant Sources	17	6	1	63	H	2.63
Expected Land Use Changes	14	9	0	60	H	2.61
Shoreland Ordinances	15	6	3	60	H	2.5
Sedimentation	7	12	5	50	M	2.08
Runoff	8	14	2	54	M	2.25
Unique Features and Scenic Areas	7	8	9	46	M	1.92
Quantity	3	15	5	44	L	1.91
Floodplain Protection	3	9	12	39	L	1.63
Recreational Lands, Adequacy Of	9	7	7	48	M	2.09
Fish and Wildlife Habitat	16	7	1	63	H	2.63
Irrigation	0	2	22	26	L	1.08
Agricultural Ditches	1	4	19	30	L	1.25
Evaluation Criteria for Groundwater	High	Moderate	Low			
Quality	19	4	0	65	H	2.83
Pollutants	16	6	2	62	H	2.58
Expected Land Use	11	13	0	59	M	2.46
Special Geologic Conditions	1	13	9	38	L	1.65
Quantity	2	10	11	37	L	1.61
Evaluation Criteria for Wetlands	High	Moderate	Low			
Present and Future Use	13	10	1	60	H	2.5
Fish and Wildlife	17	7	0	65	H	2.71
Floodplain Protection	6	9	9	45	M	1.88

The following table is a summary of the Priority Concern hand-written responses.

Priority Concern Response Data

First Priority	**Second Priority**	**Third Priority**
Water Quality (surface & ground)	Pollution sources (within 3 miles)	Land Use Changes (development)
Monitor surface water quality	Land use changes	Wetland protection
Water Quality (surface & ground)	Lakeshore development	Maintain natural shoreline veg
Water Quality (surface)	Ground water quality	Shoreland buffers
Water quality (surface and ground)	NA	NA
Unconforming Septics	Enforce current ordinances	NA
Flooding (prairie river chain)	Flooding (prairie river chain)	Flooding (prairie river chain)
Ground water quality	Run-off sedimentation	Maintain recreational access
Ground water quality	Surface water quality	Fish and wildlife
Impacts of development on water quality	Failing septics	Cumulative impacts
Water Quality	Fish and Wildlife	Pollutant Sources
Development, recreation (controlled growth)	Impaired septic systems	Run-off, drainage
Surface water quality	Ground water quality	Surface & Ground Water pollution
Water Quality	Septics	Shoreline
Zoning Ordinance to protect Water Quality	Water quality monitoring	Septic survey, update
Lake carrying capacity	Developing marginal lots	Water run-off
Shoreline buffer zones	Land use rules	Wetland protection
Protect ground water	Sealing unused, unsealed wells	Develop ground water quality data
Impaired waters (TMDL)	Rainy river & upper Mississippi basins	Little Fork, Big Fork, Swan river
Water quality-development in riparian area	Erosion and sediment control	Forest land conversion
Water quality (1-6)	Mining impacts	Stream stability
Surface water quality	Maintain/improve shoreland wetland	Development in shore impact zone
Development of Lakeshore	Failing septic systems	Preserving water quality (surface)

Major Priorities Tallied:
Water Quality (surface) 19
Development/runoff/sed/ 18
Water Quality (ground) 12
Shoreline buffers/wetlands 9
Non-compliant septics 8

Other Priorities:
Flooding on Prairie River Chain

Others (continued)
Fish and wildlife
Sealing unused wells
Rainy River/ Upper Miss Basin
Plans
Maintain Recreational access
Cumulative Impacts
Little Fork river Plan
Big Fork River Plan
Swan River Plan
Steam Stability

D. Priority Concern Selection

1. Priority concerns were chosen by the Water Plan Implementation Committee after review of the above tables, and comparing them with past assessment rankings to evaluate if there had been any major changes or apparent trends forming.

2. Differences between the plans priority concerns and those received in comments are the following:
    a. Many of the specific concerns cited were grouped together with similar concerns and then addressed.
    b. The scope of some of the concerns were very broad and were broken down into more specific areas so that they may be more adequately addressed.

E. Priority concerns not addressed by the Plan.

1. Of the more than 90 priority concerns that were reviewed, many were able to be addressed by grouping them under our six major categories. The remaining concerns while not insignificant did not seem to have the widespread support like the others. The WPIC and SWCD will continue to work with other agencies, municipalities, and associations to address these other issues as they arise.

Table 3.

2010 Itasca County
Impaired Waters List
Per Section 303 (d) Clean Water Act

STREAMS

Reach name	River ID#	Yr placed in impairment Inventory	Affected designated use	Pollutant or stressor	Impairment Status
Mississippi River: Vermillion R to Black Water/ Pokegoma Lk	07010101-501	1994	Aquatic Life	Oxygen, Dissolved	TMDL Required
Mississippi River: Little Winnibigoshish Lk to Leech Lake R	07010101-725	2010	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Mississippi River: Prairie R to Split Hand Cr	07010103-502	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Mississippi River:Prairie R to Split Hand Cr	07010103-502	1998	Aquatic life	Turbidity	Delist based on new more comprehensive data.
Mississippi River: Grand Rapids Dam to Prairie R	07010103-503	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Mississippi River: Grand Rapids Dam to Prairie R	07010103-503	1998	Aquatic life	Oxygen, Dissolved	Delist based on new more comprehensive data.
Swan River: Swan Lk (31-0067-00) to Mississippi R	07010103-506	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Swan River: Swan Lk (31-0067-00) to Mississippi R	07010103-506	2004	Aquatic life	Oxygen, Dissolved	Removed: new and more comprehensive data show no DO impairment
Mississippi River: Split Hand Cr to Swan R	07010103-507	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved

LAKES

Reach name	Lake or wetland ID#	Yr placed in impairment Inventory	Affected designated use	Pollutant or stressor	Impairment Status
Ball Club	31-0812-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Bass	31-0316-00	2010	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Bass	31-0576-00	2010	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Beauty	31-0028-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Bello	31-0726-00	2010	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Blackwater	31-0561-00	2010	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Blandin	31-0533-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Bowstring	31-0813-00	2010	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Buck	31-0069-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved

LAKES

Reach name	Lake or wetland ID#	Yr placed in impairment Inventory	Affected designated use	Pollutant or stressor	Impairment Status
Caribou	31-0620-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Crooked	31-0193-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Cut Foot Sioux (East Bay)	31-0857-02	2010	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Cut Foot Sioux (Main Bay)	31-0857-01	2010	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Cutaway	31-0429-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Decker	31-0934-00	2006	Aquatic recreation	Nutrient/Eutrophication Biological Indicators	TMDL Required
Deer	31-0334-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Deer	31-0719-00	2010	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Dixon	31-0921-00	2008	Aquatic recreation	Nutrient/Eutrophication Biological Indicators	TMDL Required
Forsythe	31-0560-00	2002	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Guile	31-0569-00	2002	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Island	31-0913-00	2002	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Island	31-0913-00	2010	Aquatic recreation	Nutrient/Eutrophication Biological Indicators	Proposed impairment under USEPA review
Jessie	31-0786-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Jessie	31-0786-00	2004	Aquatic recreation	Nutrient/Eutrophication Biological Indicators	TMDL Required
Little Bass	31-0575-00	2002	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Little Bear	31-0156-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Little Winnibigoshish	31-0850-00	2010	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Long	31-0570-00	2002	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Loon	31-0571-00	2002	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Lower Panasa	31-0112-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Moose	31-0722-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
O'Brien (North Portion)	31-0032-01	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
O'Brien (South Portion)	31-0032-02	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Ox Hide	31-0106-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Plantation	31-0439-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Pokegama (Main Bay)	31-0532-01	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Pokegama (Wendigo)	31-0532-02	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved

LAKES

Reach name	Lake or wetland ID#	Yr placed in impairment Inventory	Affected designated use	Pollutant or stressor	Impairment Status
Prairie	31-0384-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Prairie	31-0384-00	2010	Aquatic recreation	Nutrient/Eutrophication Biological Indicators	Proposed impairment under USEPA review
Rice	31-0717-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Round	31-0896-00	2008	Aquatic recreation	Nutrient/Eutrophication Biological Indicators	TMDL Required
Round	31-0896-00	2010	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Sand	31-0826-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Snowball	31-0108-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Split Hand	31-0353-00	2010	Aquatic recreation	Nutrient/Eutrophication Biological Indicators	Proposed impairment under USEPA review
Swan (Main Basin)	31-0067-02	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Swan (West Bay)	31-0067-01	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Trout	31-0216-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Trout	31-0410-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Turtle	31-0725-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Unnamed (O'Brien Reservoir #4)	31-1225-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Upper Panasa	31-0111-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Wabana	31-0392-00	2010	Aquatic consumption	Mercury in fish tissue	TMDL Approved
Wolf	31-0152-00	1998	Aquatic consumption	Mercury in fish tissue	TMDL Approved

Attachment D. Acronyms

BMP	Best Management Practices
BSU	Bemidji State University
BWSR	Board of Water and Soil Resources
CLMP	Citizen Lake Monitoring Program
CWF	Clean Water Fund
CWL	Clean Water Legacy Act
DNR	Department of Natural Resources
GIS	Geographic Information System
I Co.	Itasca County
ICOLA	Itasca County Coalition of Lake Associations
ISTS	Individual Septic Treatment Systems
IWLP	Itasca Water Legacy Partnership
Lk Assoc.	Lake Associations
LGU	Local Government Unit
MDNR	Minnesota Department of Natural Resources
MGS	Minnesota Geological Survey
MPCA	Minnesota Pollution Control Agency
NRCS	Natural Resources Conservation Service
SWCD	Soil and Water Conservation District
TLM	Transportation and Land Management
TMDL	Total Maximum Daily Load
Uof M	University of Minnesota
USFS	United States Forest Service
USGS	United States Geological Survey
WPIC	Water Plan Implementation Committee