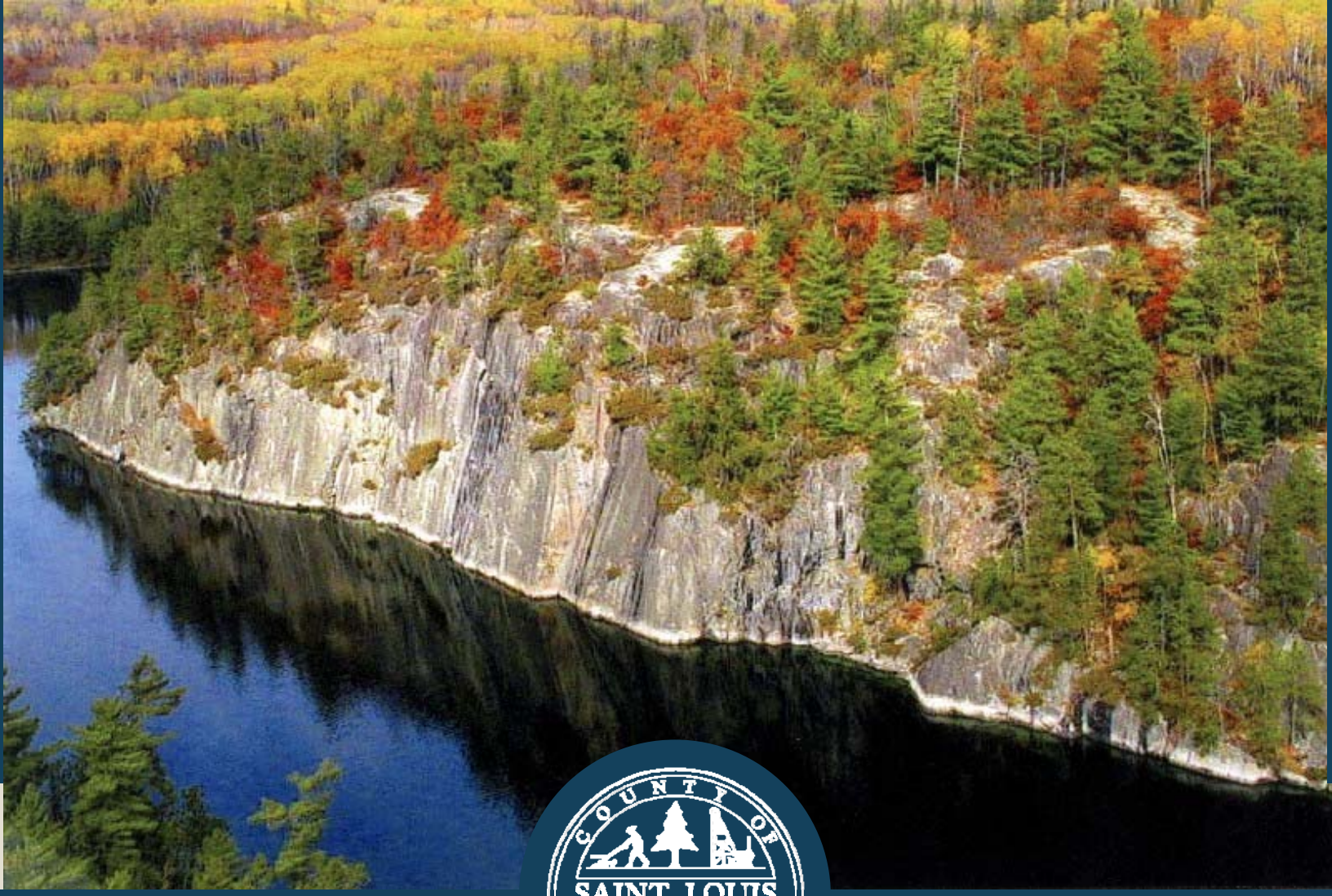

St. Louis County, Minnesota

Comprehensive Water Management Plan

Update 2010 – 2020

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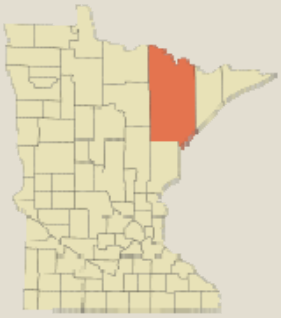

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Appendix A: Priority Concerns Scoping Document

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Executive Summary

The intent of this plan is to provide strategies to address the water related issues in St. Louis County. Issues were identified during a systematic, region-wide scoping process between August 2008 and March 2009. During that time, citizens, local government officials and agency representatives were invited to provide input about which water quality concerns are most critical for the county to address.

From late 2009 to early 2010, staff members from the St. Louis County Planning and Development Department, both North St. Louis and South St. Louis Soil & Water Conservation Districts, the Water Plan Advisory Task Force, and Technical Advisory Committee worked to formulate strategies, develop a timetable and estimate the cost to adequately address the identified priority concerns. They also completed the Comprehensive Water Management Plan Document and expanded outreach to cities and townships on the county website. The public was then given the opportunity to comment on the plan at a public hearing held on _____. The plan was approved by BWSR on _____ and by the county Board of Commissioners on _____.

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Introduction to St. Louis County

St. Louis County is located in Northeastern Minnesota and is the largest county east of the Mississippi River. It is an estimated 7,092 square miles in size, and has over one thousand lakes. St. Louis County is known for its spectacular natural beauty, including a national forest (Superior National Forest), a national park (Voyageurs National Park), the Boundary Waters Canoe Area Wilderness, four state parks, and many popular recreational trails, including portions of the Superior Hiking Trail.

Seven major watersheds are contained within, or straddle parts of, the county: the Lake Superior, Cloquet River, and St. Louis River watersheds drain to the southeast (Lake Superior), a small portion of the Mississippi River-Grand Rapids watershed drains to the Mississippi to the west, the Little Fork River watershed drains northwest to Rainy River, the Rainy River-Rainy Lake and Rainy River-Headwaters drain north to Rainy Lake and Rainy River and the Vermilion River watershed drains north to Crane Lake. The watersheds that are located generally in the northern part of the county are part of the Rainy River Basin. Those generally in the south are part of the Lake Superior Basin. See the attached "Major Watersheds" map **(Figure 3)** for more information.

St. Louis County has 26 cities and 73 organized townships. It also has 72 un-incorporated communities, 26 unorganized territories and 1 "Census Designated Place." There are about 32 persons per square mile. The city of Duluth serves as the county seat with a population of approximately 86,000. The estimated 2008 population of St. Louis County was 196,864 (U.S. Census). This represents an estimated 1.8% decline in population in the county between the years 2000 and 2008. The Minnesota State Demographic Center predicts that the county's population will rise to 202,040, an increase of about 2.6%, by 2030.

The Iron Range cities, Hibbing and Virginia, and the Lake Superior port city, Duluth, are the county's population and economic centers. Both population centers have international importance; Duluth for its freshwater port, which is one of the largest in the world, and the Iron Range for its large mining industry. Surrounding counties are: Carlton County to the south; Aitkin, Itasca and Koochiching Counties to the west; Lake County to the east; and Douglas County, Wisconsin, to the southeast (across the St. Louis River). The coast of Lake Superior creates part of the county's southern border, while the Rainy River District of Ontario, Canada, flanks its northern border. Tourism makes up a large sector of the region's economy, along with health care, timber, transportation, technology and taconite mining. Most of the United States' Iron Ore reserves are located on St. Louis County's Mesabi Iron Range, which has enough ore reserves to keep iron mining in production for more than 200 years.

St. Louis County is comprised of an estimated 4,311,013 acres. Of that, approximately 22.6% is bog/marsh/fen and 8.7% is surface water. Less than 0.1% of the land is cultivated and only 0.7% is urban/industrial. Half of the county is collectively classified as "Forest," which is a factor in the county's high water quality. Because of its large geographic area, St. Louis County leads the state in number of acres of forested area, bog/marsh/fen, brushland, and surface water. Of the total acres, 37% is privately owned and 56% is publicly owned. See **Figure 7** for the balance of land ownership by type.

Minnesota's groundwater supply can be divided into three types of hydrogeologic sources: glacial drift sources, glacial outwash sources and bedrock sources. St. Louis County overlays two types of groundwater sources: glacial outwash and glacial drift. Groundwater sources in glacial drift areas may be unreliable as they do not recharge quickly. They are typically surrounded by

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clayey glacial till that is several hundred feet thick. Residents living in these areas often supplement their drinking water supply with surface water sources (streams, inactive mine pits and Lake Superior). Groundwater sources in glacial outwash areas yield more plentiful groundwater, as they are more sand-based and located nearer to the surface. (*DNR Waters, Minnesota's Water Supply: Natural Conditions and Human Impacts, 2000).*

Plan History and Purpose

The purpose of this plan is to provide the citizens and elected officials of St. Louis County with a strategic framework to manage water resources. In 1985, the State of Minnesota adopted the Comprehensive Local Water Management Act under State Statutes 103B.301 – 103B.335. The act encourages counties outside of the metropolitan area to develop and implement comprehensive water management plans. Local ownership and implementation of the plan is the hallmark of the program. While development of a plan is voluntary, various state grants and some federal funding sources require that a county have an adopted local water management plan that is periodically updated. The St. Louis County Comprehensive Water Management Plan (CWMP) is a comprehensive analysis of water and related land resources coupled with a recommended series of strategies designed to achieve the county's water management goals. The plan acknowledges the county's large size and its three continental basins and seven major watersheds.

The St. Louis County Water Management Plan was originally adopted in 1992. In 1999, amendments were made related to wetland program administration, and in 2001, a revised plan was adopted.

In May of 2008, Minnesota's Board of Water and Soil Resources granted the county an extension of its current plan until May of 2010, at which time this updated plan will take effect. This plan will be valid through May of 2020, with the next update scheduled for 2015. The St. Louis County Board adopted a resolution on March 11, 2008, requiring the update and revision of the St. Louis County Water Management Plan. Counties are responsible for water management, and approximately one-third of Minnesota counties, including St. Louis County, delegate this program to county Soil and Water Conservation Districts (SWCDs). Due to its size, St. Louis County is one of only two in Minnesota to have two SWCDs – one serving the northern part of the county, based in Virginia, and one serving the southern part of the county, based in Duluth.

The purpose of water planning is to protect water resources through the adoption and implementation of local water management plans that are based on local priorities. To this end, the water management planning process for this plan sought to: 1) identify existing and potential problems facing the county's water resources; 2) identify opportunities to protect those water resources; 3) identify goals and objectives to manage the county waters and their related land uses in ways that promote sound, hydrologic and efficient management and effective environmental protection of those water resources; and 4) devise and carry out a plan of action that achieves the stated goals and objectives related to managing the county's water resources.

Most of the issues addressed in this plan apply county-wide. However, within certain sections, there may be references to specific watersheds or sub-watersheds.

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Water Plan Accomplishments to Date

This revised plan builds upon the activities and objectives of earlier plans. The county has been implementing the actions in the current plan over the past 15 years. Many of the issues from the first plan(s) will continue to be addressed in the updated plan, though their importance may be eclipsed by issues that have grown in priority or due to changing environmental policies and conditions.

The county's past water planning efforts have led to many accomplishments to date including:

- Increased public awareness and support by the Planning Commission and Board of Adjustment regarding the importance of protecting and enhancing the shore impact zone when considering development proposals.
- Informational brochures on topics related to shoreland development and other issues were developed and are now available to the public on the county's website and at its offices.
- Municipal sewer lines have been extended into areas that had previously been identified as "problem areas," including Pike Lake and along the North Shore. "Problem areas" are those areas with poor (e.g. clay) soils, high water tables, and areas that are densely developed with small lots.
- The availability of Geographic Information Systems (GIS) has increased significantly, including progress in the completion of a county-wide parcel layer and GIS maps that are available to the public via the county's website.
- Stormwater issues are more frequently addressed during development reviews. Decision-makers have come to understand that protecting and improving lake water quality involves more than addressing failed septic systems. A water plan challenge grant based on stormwater-related goals in the water plan led to the development of specific solutions for stormwater management for three lakeshore lots on lakes with varying development densities.
- Cooperation between St. Louis County and Itasca County to develop information on small lakes with the help of a water plan challenge grant.
- The water plan supported the county wetland plan, and over the past several years, the county's wetland administration program has become one of the best in the state.
- The Lake Superior and Rainy Basin plans were developed using data and goals from the water plan.
- Coordination between land use permitting and on-site sewage treatment decisions have been improved. For example, a three-bedroom home is now the standard used to determine whether or not a lot has sufficient room to accommodate an on-site sewage treatment system.
- The development of a county-level river classification system that is more extensive than the state's classification system, as recommended in the water plan.
- An expanded lake water quality monitoring program in cooperation with the North St. Louis Soil and Water Conservation District. This led to the establishment of specific quality standards for several lakes. The Aerie Lake sewer system was developed, in part, because of the identification of poor water quality through these monitoring efforts.
- Development of a program for financial assistance to homeowners for on-site sewage treatment systems.
- Establishment of new county shoreland regulations that meet the requirements of the state while still addressing unique county issues.
- Implementation of a plan for enforcing certain county controls such as zoning.

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- Improved regulation of county borrow pits, with increased focus on environmental concerns in the permitting process.
- Improved and expanded efforts to inform the public about county regulations.

Earlier versions of the county water plan set ambitious goals. Changing priorities, funding availability, requirements of other agencies and emerging environmental issues often result in some goals not being achieved during the plan's timetable. Water plan goals that have not been extensively addressed to date include:

- Groundwater studies for Duluth and the Iron Range – These studies would require substantial non-county financial resources, which have yet to be identified. In addition, little improvement has been made in the groundwater data that is available to the public and the county. This issue may be addressed as part of the groundwater and surface water protection priority concern.
- Environmental audits of county agencies involved in county environmental issues. A formal audit has not yet been conducted, however, some changes have been made in how programs are run. This issue will not be addressed in the updated plan.
- Development and implementation of a wellhead protection plan and well-sealing information should be incorporated in land use decision making and future plans. This issue is proposed to be addressed in the updated plan.

Priority Concerns Summary

The St. Louis County Water Plan Task Force selected four priority concerns to address: (1) negative impacts of development, (2) pollution resulting from inadequate wastewater management, (3) pollution to surface and ground waters from contaminated runoff, and (4) impaired waters. This effort resulted in a Priority Concerns Scoping Document that was approved by the Board of Water and Soil Resources (BWSR) on October 28, 2009.

Priority Concern #1: Development

Goal : Mitigate impacts of development. Emphasis: sensitive areas, including lakeshore, wetlands, and riparian areas along streams and rivers.

Actions:

1. Assist lake associations and/or property owners to identify potential areas for restoration.
2. Encourage implementation of innovative stormwater management practices.
3. Provide the most current information about best management practices (BMP's) to prevent and correct erosion using native species along lakes and rivers.
4. Implement stormwater management and erosion control retrofit projects by specific watershed or lakeshed.
5. Provide technical and financial assistance for BMP installation of stormwater and erosion control projects.
6. Develop and/or distribute educational media on the importance of BMP implementation and proper land use development.

Goal: Develop policies and guidelines that address existing and future development.

Actions:

1. Strengthen county ordinances to include stormwater and erosion control requirements and support the strengthening of similar ordinances in other local government units.

2. Develop policies that require mitigation measures for variance requests in shoreland areas.
3. Develop policies that effectively plan for future development.
4. Develop policies and ordinance language for the protection of natural environment lakes.

Priority Concern #2: Wastewater Management

Goal: Address water quality problems stemming from inadequate wastewater management.

Emphasis: Failing (SSTS) and sanitary system overflows.

Actions:

1. Continue to enforce the county-wide point of sale program for SSTS in order to (a) identify and bring failing systems into compliance, and (b) increase the amount of data available to the county and public.
2. Support wastewater treatment facility projects within SSTS problem areas.
3. Support the efforts of the city of Duluth, WLSSD and other municipalities or communities to eliminate or reduce sanitary system overflows and to repair, modernize or upgrade wastewater treatment systems.
4. Develop a septic system permit and tracking component in the land records portal to identify problem areas based on failure rate, soil and water conditions.
5. Continue to provide financial assistance in the form of low interest loans to homeowners who need to upgrade or replace failing or non-conforming septic systems.
6. Develop a septic system database using geographic information systems (GIS) to display expansion areas, wells and suitable building areas on all parcels.
7. Ensure that all properties being considered for development have appropriate conditions to accommodate wastewater systems for the highest reasonable use of the property.
8. Provide education on the technology, use and maintenance of private sewage treatment systems to home and cabin owners.

Priority Concern #3 Ground and Surface Waters

Goal: Protect ground and surface water from the combined impacts of point and non-point source pollutants. Emphasis: Contaminated run-off.

Actions:

1. Acquire data through technology development, GIS analysis, remote sensing, ground truthing, surveys or purchase to fill pre-existing or discovered data gaps.
2. Encourage and assist private landowners in forest management, development of forestry plans, re-forestation and operation following the Minnesota Forest Resource Council Voluntary Site Guidelines.
3. Provide cost-share assistance funds to seal unused wells.
4. Support wellhead protection areas and plans.
5. Protect waters that have wild rice and avoid impacts to wild rice habitat.
6. Encourage and assist local governments, communities and non-governmental organizations to prepare watershed management plans.
7. Encourage and assist land owners and occupiers to install water protection practices and BMP's.
8. Encourage and assist in wetland avoidance and impact minimization. Encourage wetland restoration projects within the county.
9. Support, develop and continue efforts to prevent infestation by, control or extirpate invasive species and weeds.

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Goal: Monitor, assess and restore watersheds.

Actions:

1. Support and assist communities and local governments with stormwater management.
2. Perform or assist other agencies, governments and organizations with watershed assessment and monitoring activities.

Goal: Coordinate and perform education activities.

Actions:

1. Support and assist the Minnesota Pollution Control Agency's Citizens Lake and Stream Monitoring Program.
2. Educate the public on the importance of sealing unused wells.
3. Foster awareness and understanding of water quality issues and promote shared responsibility for protection of Minnesota's water resources.
4. Encourage and assist the appropriate development and activities of lake associations.

Priority Concern #4 Impaired Waters

Goal: Work towards restoring those waters in the county listed as impaired on state 303(d) list.

Actions:

1. Seek funding for and complete total maximum daily load studies (TMDL).
2. Monitor and assess data to determine whether water resources meet water quality standards for designated uses.
3. Seek funding for and develop implementation and/or protection strategies based on watershed assessments. Assess data to determine whether water resources meet water quality standards for designated uses.
4. Implement projects and actions intended to reduce sources of non-point pollution and restore watersheds using best management practices.
5. Assess data to determine whether water resources meet water quality standards and designated uses.
6. Support and complete projects that address the beneficial use impairments of the St. Louis River Area of Concern. Implement the remedial action plan and work toward AOC delisting.
7. Complete TMDL projects that are currently underway, including Little Fork River, Knife River and Miller Creek.

Relevant Separate Plans and Controls

The following plans and controls are consistent with the work plan efforts outlined in the St. Louis County Comprehensive Water Management Plan:

City of Duluth Ordinance Chapter 18 Erosion and Sediment Control, Chapter 43 Sewers and Sewage Control, Chapter 18, which establishes controls for erosion and sedimentation within the city. Chapter 43, establishes the operation of the cities' wastewater facilities for public health, safety and welfare.

St. Louis County Ordinance #27: Comprehensive Land Use Plan which includes comprehensive and land use plans for county-administered, non-municipal areas. It also includes the North Shore Management Plan, the Vermilion River Plan, the Voyageur Planning Area, and the St. Louis, Cloquet and Whiteface Corridor Management Plan.

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Lake Superior Basin Plan: The Lake Superior Basin Plan specifically lists impaired waters and the protection of surface waters as program priorities. The other priority concerns identified in this plan are consistent with the goals and strategies of the Lake Superior Basin Plan.

Rainy River Basin Plan: The Rainy River Basin Plan extols the value of local water management in basin planning. It also emphasizes the need to set priorities and notes that focusing on impaired waters inherently prioritizes local water management planning efforts. The overall goal of the plan is to maintain or improve the condition of streams, rivers, lakes and groundwater in the Rainy River Basin, with sub- goals related to erosion, drinking water and shoreland use. All of these goals are consistent with the goals and actions set forth in this plan.

St. Louis River Remedial Action Plan: There are five priority action items for the St. Louis River Area of Concern. Reducing non-point source pollution, specifically, urban stormwater and restoring and protecting habitat, are two actions that directly support this plan. The remaining priority actions do not conflict with this plan.

Laurentian Resource Conservation & Development Council Area Plan 2008-2012: This document provides strategic direction for the RC&D Council for the time period 2008-2012. It includes strategies that are congruent with the priority concerns of the comprehensive water management plan including: 1) Promote and facilitate the implementation of Best Management Practices to improve the quality of impaired waters, and 2) Reduce and control erosion from high priority streambank, lakeshore and roadside sources. The remaining strategies in this plan do not conflict with the priority concerns of the updated water management plan.

Statewide Conservation and Preservation Plan, 2008: More than 125 experts contributed to this plan, the purpose of which is to: "…identify the state's natural resources, identify key issues affecting those resources, and make recommendations for improving and protecting them." The plan cites seven key issues that, if addressed, would "benefit the greatest number of natural resources to the greatest degree." Land and water habitat fragmentation, degradation, loss and conversion and land use practices were two key issues listed that match the priority concerns set forth in this plan. The other five key issues do not conflict with the priority concerns proposed in this plan. *L*and and water restoration and protection is one of five strategic areas around which the recommendations in the plan are based.

Minnesota Watermarks: This legislatively mandated document was put together by Minnesota Planning and the Minnesota Environmental Quality Board. It identifies a series of goals and objectives for water resources on a state-wide level. Protecting and restoring surface and groundwater quality are specific goals in this document. The other priority concerns listed in this plan are consistent with the proposed strategies of *Minnesota Watermarks*.

Minnesota Nonpoint Source (NPS) Water Pollution Management Program Plan: This is a statewide plan focused on the greatest threat to our nation's waters today: non-point source pollution (NPS). NPS include stormwater and Subsurface Sewage Treatment Systems (SSTS), which are also cited as priority concerns in this document.

Superior National Forest Plan: This plan guides all natural resource management activities for the Superior National Forest. It describes desired resource conditions, resource management practices, levels of resource production and management, and the availability of suitable land for resource management.

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St. Louis, Cloquet, Whiteface Corridor Plan: Section 21 of St. Louis County Ordinance 27: This is a local management plan that provides protection to the rivers' ecosystems in the areas of land use, forestry management and land acquisition.

Voyageurs National Park Water Resources Management Plan 2005: The focus of this plan is to maintain or improve water quality through management actions, cooperation with adjoining land managers, partnerships, education and outreach programs.

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Assessment of Priority Concerns

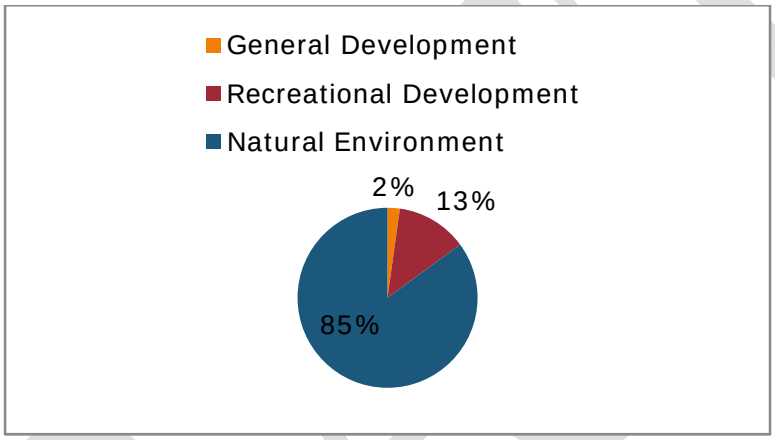
These are general assessments for each priority concern. This list describes each concern in St. Louis County. Each of these priority concerns will be addressed throughout the county.

Priority Concern #1: Development

Goal: Mitigate impacts from development. Emphasis: Sensitive areas, including lakeshore, wetlands, and riparian areas along streams and rivers.

St. Louis County is fortunate to have a large number of high quality lakes. While larger lakes are well known, there is an impressive number of smaller lakes. Figure 1 illustrates the lakes by type as categorized by the state classification system:

Figure 1: Percentage of Lakes by Type St. Louis County



Natural Environment:	**923**
Recreational Development:	**138**
General Development:	**24**
TOTAL:	**1085**

(St. Louis County Planning and Development)

This classification system is tied to lakes' resilience to human impact. Smaller, shallower natural environment lakes do not resist or rebound from human activity. At the same time, it must be recognized that lakes in one of the other classifications will not be able to rebound from all human impacts; those lakes can absorb only a little more than more sensitive lakes.

Development near lakes, rivers and streams increased during the last decade. While development activity slowed recently, it was still significant. Land use permit data shows a clustering of development near lakes, especially on large, popular lakes or those relatively close to population centers. **Figure 2** shows land use permits by location for 2007-2009.

While overall St. Louis County population projections may differ, shoreland areas will continue to be in high demand for development. Some areas will experience multi-tier development, which will further alter the landscape and cause increased impacts to these sensitive areas. As human use increases within the watershed, the impacts to the water bodies intensify. Inappropriate or poorly-planned development causes multiple problems that can harm water quality, including loss of riparian area (buffers), erosion that leads to sedimentation, and pollution from leaky or non-conforming septic systems. Inputs of fertilizers, herbicides,

pesticides and other chemicals often also increase. Development on natural environment and shallow lakes is increasing as the shoreland along larger lakes is built up or becomes more expensive. These lakes are less able to withstand impacts and quickly degrade without protective measures. Rivers and streams are subject to the same development pressures.

Shoreland areas play an important role in maintaining water quality. Wetlands and riparian areas are as much part of the lake or stream as is the water itself. When developing sensitive areas, it is important to recognize the impact of design and human behavior. For example, conservation design, with clustered buildings and greater open space, is a useful model. Such design is more conducive to a communal waste disposal system rather than subsurface sewage treatment systems.

Individual property management is also important. Vegetation that is maintained or enhanced creates habitat and absorbs rainfall and melt water. Shoreline vegetation helps prevent erosion and cleans water through natural processes. Limiting impervious surface allows for natural absorption. Avoiding the use of fertilizers and herbicides prevents them from entering the water body.

The St. Louis County Planning and Development Department's Land Use Division enforces the county zoning regulations outside the incorporated limits of municipalities and the following townships: Canosia, Lakewood, Duluth, Midway, Gnesen, Rice Lake and Greenwood. The intent of the county regulations is to balance the protection of natural resources, provide opportunities for economic growth, guard private property owner rights, and encourage the most appropriate use of the land. These regulations, along with appropriate planning, protect water quality and still allow public and private use. All local government units with zoning authority are responsible for enforcing the Minnesota Wetlands Conservation Act. Because wetlands are integral to natural processes, ensuring compliance is an important part of water protection.

Priority Concern #2: Wastewater Management

Goal: Address water quality problems stemming from inadequate wastewater management.
Emphasis: Failing private SSTS and sanitary sewer overflows.

Subsurface Sewage Treatment Systems (SSTS) that do not function correctly impact both ground and surface water quality. In shoreland areas, soil and water conditions may cause systems to be less efficient in treating wastewater. Incomplete treatment can cause public health and water quality problems. Hepatitis, dysentery, and other diseases may be spread by bacteria, viruses, and parasites in improperly treated wastewater. Incomplete treatment can also make near shore water unsafe for swimming. In addition, when household chemicals are not treated correctly, they can end up in the water and make that water toxic to humans, pets, and wildlife. Inadequate treatment can also allow excess nutrients to reach nearby surface waters, resulting in excess algae growth, which can negatively impact recreation and water quality and threaten the survival of fish and other aquatic animals. *(Maintaining Your Shoreland Septic System, University of Minnesota Extension, 2008.)*

The county's urban areas must deal with wastewater management issues on a larger, collective scale. Local municipalities address these issues through their own laws and regulations. There are some substantial problems within the county for which solutions are being implemented. The city of Duluth and the Western Lake Superior Sanitary District are under a Consent Decree with the Environmental Protection Agency (EPA) to reduce the number of sanitary sewage overflows that occur on an annual basis. These events are related to an influx of stormwater runoff into

compromised infrastructure systems. Lake Superior, a highly protected and utilized body of water, is the receiving water for these overflows. Other cities are also dealing with aging wastewater infrastructure, limited capacity, and failing systems. Several communities on the Iron Range have made proposals to modernize or expand their systems. Six communities were connected to or expanded connections to the Western Lake Superior Sanitary District. The Crane Lake Sanitary District was created, where a treatment facility has been constructed and is in operation. Another facility has been constructed at Aerie Lake in the town of Alborn. A sanitary district is proposed for the Lake Kabetogama and Ash River areas in the northern part of the county. Many others have been proposed, including several in highly developed lake communities. Funding difficulties and local opposition are often the major impediment to solutions.

Subsurface Sewage Treatment Systems

The St. Louis County Environmental Services Department is responsible for managing information and permits for Subsurface Sewage Treatment Systems (SSTS) in the county. There is a loan program available to help residents repair and replace failing or non-conforming systems. The county is working to reduce the number of failing septic systems through its SSTS ordinance, which requires that property ownership cannot be transferred unless one of the following conditions is met:

- The seller discloses to the buyer in a sworn affidavit that there is not a subsurface sewage treatment system on the property.
- The property already has a subsurface sewage treatment system with a valid certificate of compliance or notice of non-compliance.
- The seller and the buyer file a Transfer Agreement with the St. Louis County Environmental Services Onsite Wastewater Division Administrator.

The size of the structure, soil types, location of drinking water sources, types of nearby water bodies, topography and geology all determine where private systems shall be located in order to protect local water quality. The county has identified problem areas that have a high number of poorly performing systems resulting from factors such as inadequately-sized lots, poor soils and/or high water tables.

It is important to maintain a properly-functioning septic system in shoreland areas because soil and water conditions in these areas may cause systems to be less efficient in treating wastewater. Incomplete treatment can cause public health and water quality problems. Hepatitis, dysentery, and other diseases may be spread by bacteria, viruses, and parasites in improperly treated wastewater. They can also make near shore water unsafe for swimming. In addition, when chemicals used to clean and conduct other activities around the house are not treated correctly, they can end up in the water and make that water toxic to humans, pets, and wildlife. Inadequate treatment can also allow excess nutrients to reach nearby surface waters, resulting in excess algae growth, which can negatively impact recreation and water quality and threaten the survival of fish and other aquatic animals *(Maintaining Your Shoreland Septic System, University of Minnesota Extension, 2008).*

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Problem Areas for Subsurface Sewage Treatment Systems

In the previous water plan, St. Louis County identified areas with wastewater treatment problems. These areas have one or more problems that impede SSTS effectiveness. In some locations, the density of structures overwhelms the landscape. This is especially true for lake communities as year round use increases. It is estimated there are between 30,000-35,000 subsurface septic systems in the county.

The Western Lake Superior Sanitary District has identified four priority problem areas that need solutions:

Location	Reason
Caribou Lake, Grand Lake Township	High density, failing systems, water table
Grand Lake, Grand Lake Township	High density, high water table, soils, failure
Elde's Corner, Midway Township	Soils, water table
Claymore Street, Duluth	High density, soils, older systems

Figures 5 and 6 illustrate that similar problems exist throughout the county, usually through a combination of causes. In the future, problem areas may change as determined by the county based on local and state requirements. There are several high density lakeshore districts and others with high water tables and poor soils. Lakeshore areas with these problems are a high priority for resolution, through a combination of wastewater treatment and improved stormwater practices. Treating only one dimension of the problem while ignoring the other may not adequately protect the resource.

Priority Concern #3 Ground and Surface Waters

Goal: Protect ground and surface water from the combined impacts of point and non-point source pollution. Emphasis: Contaminated runoff.

Surface water is one of St. Louis County's greatest assets. An estimated 22.6% of the county is covered by wetlands (bog/marsh/fen) and another 8.7% is covered by lakes, streams and rivers. Duluth alone has 42 named streams, 16 of which are designated trout streams. St. Louis County has 87 "Designated Trout Lake (& Stream) Sections" *(DNR Rules – 6264.0050*). Several lakes are among the most popular for fishing in the Midwest, and Lake Superior is the largest surface freshwater lake in the world. It is critical to protect these resources in order to maintain the recreation, aesthetic, ecological and economic value they hold for the citizens of St. Louis County.

Both surface and ground water can be contaminated by non-point pollution. Groundwater can become contaminated with nitrogen or atrazine. When impervious surface covers as little as 10-20% of a watershed, it can alter stream morphology and carry everything used or deposited by humans into streams and lakes (Center for Watershed Protection). Mining exposes aquifers, impacts wetlands, increases impervious area and alters the flows of rivers and streams. Industrial uses can contaminate both ground and surface water. The excess runoff from mowed shorelines can carry seven to nine times more phosphorus into surface waters (Radomski and Schultz, 2005). Agricultural practices can pollute ground and surface water with phosphorous, nitrogen, herbicides and insecticides. *(Minnesota Stormwater Manual Issue Paper H Page 6/10/2005 Potential Stormwater Hotspots, Pollution Prevention, Groundwater Concerns and Related Issues.)*

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Because nonpoint sources of pollution are the largest threat to water quality, a key objective is to control contaminated runoff. Nonpoint pollution comes from many different sources, including construction sites, animal feedlots, paved surfaces, failing septic systems, and lawns. When taken together, these sources contribute huge quantities of phosphorus, bacteria, sediments, nitrates and other pollutants to the environment. The Minnesota Pollution Control Agency (MPCA) estimates that 86% of the state's water pollution comes from nonpoint sources *(MPCA website).*

Groundwater and Water Supply Regulation

The Minnesota Department of Health (MDH) manages information regarding the county's drinking water and source water systems under its Division of Drinking Water and Source Water Protection. People who acquire their drinking water from a well are individually responsible to assure their well water is safe. The MDH issues permits for and provides guidance on new wells and well-sealing under its Division of Well Management. Unused wells that are not sealed may contaminate groundwater and adjacent wells. If not in regular use, wells are required to be sealed by state statute.

Public Water Supplies

The Environmental Protection Agency (EPA) administers rules relating to the safety of public drinking water systems. The EPA maintains a Safe Drinking Water Information System, which identifies the sources and provides monitoring information for three different types of public drinking water systems:

1. Water systems that serve the same people year-round, such as homes and businesses in cities.
2. Water systems that serve the same people, for only part of the year, such as schools.
3. Water systems that do not consistently serve the same people, such as rest stops and campgrounds.

In St. Louis County, the percentage of these systems served by source type is:

System	Percentage
Groundwater	90
Surface Water	8
Purchased Surface Water	2
TOTAL	**100**

The Minnesota Department of Natural Resources (DNR) has divided the state into six groundwater provinces according to groundwater availability by source (surficial, buried sands or bedrock). St. Louis County is contained in province number two, limited, moderate and good availability by source, and in province number six, limited availability from all sources.

In addition to supplying water for drinking and other critical uses, groundwater feeds many of our surface waters. Ensuring that the supply of groundwater is not overdrawn or contaminated, or that its flow is not interrupted by human activities, is important to maintain the delicate connection between ground and surface waters and to support the communities that were built around and have come to depend on these resources.

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Ground and Surface Water Quality: Specific Issues

Shoreline Areas

Shoreland Best Management Practices can mitigate many of the effects of shoreline development. When maintained or increased, natural vegetation absorbs rain and melt water and eliminates the use of unnecessary chemicals such as fertilizers and herbicides. Minimizing impervious area allows for natural absorption and slows the direct flow to the water body. Rain gardens capture stormwater, preventing it from entering the lake or stream. Septic systems that function properly prevent excess nutrients and contaminants from entering a lake or stream.

Agricultural Practices

While agriculture is not a large percentage of the landscape in St. Louis County, improper agricultural practices can significantly degrade water quality. Certain areas of the county have fairly intensive agricultural use either in tilled fields or pasture. The link between agricultural practices and water quality is well documented. An array of local, state and federal programs are in place to mitigate for agricultural practices and protect water. Vegetative management methods, such as tillage techniques and buffer strips, can limit impacts to water. For example, alternative water sources can be constructed. Also, proper use of and avoidance of herbicides, pesticides and fertilizers reduces the potential for contaminating water.

Stormwater and Impervious Surface

Impervious surfaces can physically change streams, lakes and wetlands and carry pollution. They are one of the most significant sources for non-point pollution. All the materials used by humans, including salt, oil, fuel and chemicals such as fertilizers or herbicides are eventually transported into water bodies. This problem exists wherever impervious surface is created, from small areas such as an asphalt driveway for a cabin to large areas such as urbanized areas dominated by asphalt parking lots.

Under both EPA and Minnesota Pollution Control Agency regulation, any government unit operating under the Municipal Separate Storm Sewer Permit System must have a Stormwater Pollution Prevention Plan (SWPPP) that fulfills the following requirements:

1. Public education and outreach
2. Public participation and involvement
3. Illicit discharge detection and elimination
4. Construction site storm water runoff control
5. Post construction storm water management
6. Pollution prevention /good housekeeping

An example of the impacts stormwater can have is the city of Duluth and WLSSD consent decree for sewage overflows, which is primarily a result of stormwater entering the sewer system from the city's stormwater drains. This pollutes St. Louis Bay and Lake Superior and results in large financial costs to the public and homeowners. Projects such as the Regional Stormwater Protection Team's Watershed Festivals, educational workshops and website outreach attempt to increase citizen awareness and promote behavioral change. The South St. Louis SWCD, also a part of the project, has held multiple educational events and workshops for citizens and contractors.

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Construction Stormwater

Construction stormwater pollution prevention is regulated under the National Pollution Discharge Elimination System and is enforced by the Minnesota Pollution Control Agency. "Any activity associated with road building, landscaping clearing, grading or excavation disturbing more than an acre or as part of larger development or sale" requires a permit. There have been numerous educational opportunities provided, including workshops by the South St. Louis SWCD and others. The problem now appears to be with actual practices, especially by smaller contractors or private citizens.

Groundwater

Leaking Underground Storage Tanks: The MPCA is the lead agency in the permitting and monitoring of existing underground and above-ground storage tanks and in the remediation of contaminated sites.

Wetlands

Wetlands are important to both ground and surface water. Ensuring compliance with the Wetland Conservation Act, particularly avoidance and minimization, provides protection. Local wetland banks are minimal, however. Replacement most often occurs outside the watershed.

Special Concern: Wild Rice

Wild rice is a unique resource in several ways, and as a food source for both humans and wildlife, it is uniquely important. For Native Americans, it is significant both culturally and as a food. A Minnesota DNR inventory found 132 water bodies with 8,939 acres of wild rice within St. Louis County. There are smaller sites that have not been inventoried. Since wild rice often inhabits shallow or sensitive areas, it is vulnerable to many of the disturbances that affect aquatic vegetation. Alterations in water level are particularly destructive. The importance of wild rice should be recognized in any management decision.

Special Concern: Invasive Species

Invasive species, both aquatic and terrestrial, have impacted water quality in St. Louis County. St. Louis Bay now hosts many invasive species, ranging from large fish like the common carp to fish parasites and diseases. Shoreland, wetland and terrestrial plant invaders affect water quality by altering water flows and creating monocultures where there were previously diverse habitats. For example, Rusty Crayfish and spiny water flea affect food webs in lake environments. By altering ecosystem dynamics, invasive species affect productivity and water quality.

Special Concern: Effects of Mining

Mining activity began in St. Louis County in 1884. Mining today represents 34% of the region's economy, and, with the potential development of non-ferrous mining, $2.3 billion could be added to the state's economy. Improving upon the environmental legacy will be important for future mining operations to maintain the quality of life for residents and visitors. Although mining is regulated by state and federal agencies, the following should be addressed:

a. Continuation of mineland reclamation efforts, such as overburden piles and compacted soils.
b. Monitor water levels in mine pits and take action to mitigate problems, such as water diversions, water intake, and loss of wetlands.
c. Discharge from tailing basins to waters outside of mining property.
d. Rigorous environmental review prior to permitting new mining operations.

Citizen Education and Behavioral Change

The lesson of non-point pollution is that the most important component for protecting water is everyday behavior. While many people consider themselves to be knowledgeable about environmental issues, there is often a gap between self-perception and what they actually know *(Minnesota Report Card on Environmental Literacy)*. An objective is for agencies to foster an increase in citizen awareness and changes in behavior. Citizens can have the largest impact on stormwater quality by acting differently. Different lawn care and gardening practices can eliminate or minimize the use of fertilizers and herbicides; the same can eliminate or minimize the need for watering. Proper disposal of household chemicals, waste oil, paints or solvents prevents them from entering the water supply. Minimizing impervious area and techniques such as rain gardens minimizes surface flow, allowing water to be absorbed rather than flowing to a water body or stormwater system.

Priority Concern #4: Impaired Waters

Goal: Work toward restoring those waters in the county listed as "Impaired" on the state 303(d) list. Emphasis: Watersheds containing an impaired water as identified by the Minnesota Pollution Control Agency.

Under the Clean Water Act, states are required to assess their waters against standards set for specific uses. The uses are:

List of Designated Use Categories:

- Class 1 – Drinking water
- Class 2 – Aquatic life and recreation
- Class 3 – Industrial use and cooling
- Class 4A- Agricultural use, irrigation
- Class 4B–Agricultural use, livestock and wildlife watering
- Class 5 – Aesthetics and navigation
- Class 6 – Other uses
- Class 7 – Limited resource value waters

All groundwater is Class 1 - drinking water use. Other Class 1 waters include trout streams, Lake Superior, and some mine pit lakes. A majority of all surface waters are Class 2, in accordance with the Clean Water Act's directive that all waters be fishable and swimmable. Essentially all Class 7 waters are reaches that receive treated wastewater form a point source discharge source. All waters not specifically listed (most state waters are not) are automatically designated as Class 2 waters. There are 11 impaired streams and 165 impaired lakes partially or wholly located in St. Louis County according to the state's 303(d) list for 2008. These are just the waterways that have been assessed. Since only about 15% of the state's waters have been formally assessed for water quality, many more waterways in the county may likely be impaired by pollutants. See **Figure 4 for** Assessment of Impaired Waters in St. Louis County. That means that many more waterways in the county are likely impaired by various pollutants. The two largest watersheds, the Little Fork and St. Louis Rivers, were intensively assessed in 2008 and 2009 respectively. Further study will attempt to narrow down the specific locations and causes for the impairments.

Smaller watersheds and area lakes will be or are under proposal to be intensively assessed in the near future by the SWCD's, and other local groups, including Hibbing Community College and lake associations. It should be emphasized that this process is in its beginning stages. According

to the MPCA, past monitoring suggests that if all water bodies in the state were assessed, about 40% of them would likely be impaired for one or more pollutants.

All of the St. Louis County lakes on the state 303(d) list are listed due to pollution caused by mercury deposition (Hg) except two: Manganika Lake (southwest of Virginia), a Class 2B lake that is impaired for nutrients and eutrophication, and Echo Lake in Portage Township impaired by nutrients. The restoration of waters impaired by mercury will be handled under a "blanket" Statewide Mercury TMDL Pollutant Reduction Plan. The TMDL restoration process for other waters will be handled locally.

Mississippi River Basin

This includes only two small parts of the county. One is an area generally southwest of Hibbing running along the border with Itasca County. This area is highly affected by the Keewatin taconite tailings pit and other mining effects. The other is in the extreme southwest of the county with Prairie Lake and Prairie River as the two significant water bodies. Prairie Lake is listed as impaired for mercury.

Rainy River Basin

Within the county, there are four watersheds as part of this basin. The Littlefork River watershed was intensively assessed by the Minnesota PCA in 2008. Much of the main branch was already designated as impaired for mercury and turbidity. The main reach from the headwaters to the Rice River is proposed to be listed for turbidity. More precise data will be available when specific reaches are re-assessed. The Sturgeon River was already listed for mercury. Many of the lakes are also listed for mercury. The Rainy River-Rainy Lake Watershed in the far northwest has no stream reaches currently or proposed to be listed. Many lakes, however, are listed for mercury. The Rainy River watershed in the far northeast has no streams listed or proposed, but many lakes are proposed or listed for mercury. The Vermilion River watershed is in the far north central part of the county. The river itself is under proposed listing for mercury as many lakes already are.

Lake Superior Basin

This basin has **three distinct watersheds** within the county:

The **Lake Superior South watershed** includes streams that flow directly into Lake Superior along the North Shore in the southeast area of the county. This area is characterized by relatively high rates of descent, flashy streams, troublesome soils and significant land use changes. All of the streams are listed as impaired for turbidity and several are listed for other for other reasons. The South St. Louis Soil and Water Conservation District completed a three year TMDL study on the Knife River which is in approval process with the state and the EPA. The Miller Creek TMDL monitoring is finished and the report will be completed in early 2010. A study for the French, Sucker and Talmadge rivers is proposed but has not yet been funded.

The **Cloquet River watershed** runs in a northeast-southwest direction in the southeast quarter of the county. This is a highly forested landscape, and the main branch of the Cloquet River itself remains relatively healthy, its only listing being for mercury outside of St. Louis County. At the southwest end of the watershed are several large reservoirs; Island, Fish and Boulder lakes. Because of their relatively large size and proximity to Duluth, these are popular for recreation, cabins and year round homes. The area has undergone fairly significant development and many

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areas approximate a suburban character. While no streams other than the Cloquet River itself are currently listed, many lakes and the reservoirs are listed for mercury.

The **St. Louis River watershed** is the dominant feature of the county. The entire river is listed as impaired for mercury; from Cloquet downstream is an area of historical industrial impacts with significant water quality issues. The river and estuary are listed for the following impairments: PCB's, Mercury, Dieldrin, DDT and the category "Persistent Bio-accumulative Toxics"; There are other impairments as well. The entire estuary is listed as an EPA Great Lakes Area of Concern. It is also the receptacle, and now source, for numerous invasive species. In contrast, the rest of the watershed appears relatively healthy. Many lakes are listed for mercury. However, considering the size of the watershed, little assessment has actually been done at the sub-watershed level, especially at the north end of the watershed. The headwaters along the south side of the Laurentian divide have been heavily impacted by mining, and despite this history, there is little data available.

Both in geography and intensity, significant gaps remain in water quality data throughout the county. It is only in the last two years that full scale monitoring for the two largest watersheds (St. Louis and Little Fork) occurred. There has been a historical assumption that aside from some specific locations, such as St. Louis Bay, water quality is generally good. However, as monitoring has been accomplished, more problems, both current and historical, are found. The Impairment-TMDL process is science based, takes time and in most cases is just beginning. Considerable work will be required to move through the stages of watershed restoration.

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Implementation Schedule

Priority Concern #1: Development

Goal #1: Mitigate impacts from development. Emphasis: Sensitive areas, including lakeshore, wetlands, and riparian areas along streams and rivers.

Action	Agency	Timeline	Estimated Cost
1. Assist lake associations and property owners to identify potential areas for restoration and implementation.	SWCD; DNR; BWSR	2010-2020	$30,000
2. Encourage implementation of innovative stormwater management practices.	St. Louis County, LGU's, SWCD, DNR	2010-2020	Project Dependent
3. Provide the most current information about BMP's to correct/prevent erosion using native species along lakes and rivers.	All local government units with zoning authority, SWCD's, DNR, BWSR	2010-2020	Project Dependent
4. Implement stormwater management and erosion control retrofit projects by specific watershed or lakeshed.	SWCD, BWSR	2010-2010	Project Dependent
5. Provide technical and financial assistance for BMP installation for stormwater and erosion control projects.	SWCD; LGU; MPCA	2010-2020	$100,000/yr
6. Develop and/or distribute educational media on the importance of BMP implementation and proper land use development.	St. Louis County, DNR, BWSR, SWCD's	2010-2015	$300,000

Goal #2: Develop policies and guidelines that address existing and future development.

Action	Agency	Timeline	Estimated Cost
1. Broaden and strengthen county ordinances to include stormwater and erosion control requirements. Support strengthening similar ordinances in other local government units.	St. Louis County, all other government units with zoning authority	2010-2020	$20,000
2. Develop policies requiring mitigation measures for all variance requests in shoreland areas.	St. Louis County, all other government units with zoning authority	2010-2015	$2,000
3. Encourage the county to develop policies that effectively plan for future development and growth such as updating the county comprehensive plan. Support LGU's to plan or update existing plans.	St. Louis County, all other government units with zoning authority	2010-2015	$50,000

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4. Develop policies and ordinance language for the protection of natural environment lakes such as lot size, stormwater and erosion control standards, and/or conservation design developments.	St. Louis County, all other government units with zoning authority.	2010-2015	$25,000

Priority Concern #2: Wastewater Management

Goal #1: Address water quality treatment problems stemming from inadequate wastewater management. Emphasis: Failing SSTS and sanitary sewer overflows.

Action	Agency	Timeline	Estimated Cost
1. Continue to enforce the county-wide point of sale program for SSTS in order to (a) identify and bring failing systems into compliance and (b) increase the amount of data available to the county and public.	St. Louis County, MDH	2010-2020	$50,000/yr.
2. Support wastewater treatment facility projects within SSTS problem areas.	St. Louis County, MDH	2010-2020	$20,000/yr.
3. Support the efforts of the city of Duluth and other municipalities or communities to eliminate or reduce sanitary system overflows and repairing, upgrading, modernizing wastewater treatment systems.	St. Louis County; BWSR; LGU; SWCD;	2010-2020	$10,000/yr.
4. Develop a septic system permit and tracking component to the land records portal to identify problem areas based on failure rate, soil and water conditions.	St. Louis County	2010-2015	$300,000
5. Continue to provide financial assistance in the form of low interest loans to homeowners needing to upgrade or replace failing or non-conforming septic systems.	St. Louis County; MPCA	2010-2020	$100,000/yr.
6. Develop septic system database using GIS, expansion areas, wells and suitable building area on all parcels.	St. Louis County	2010-2015	$500,000
7. Ensure that all properties being considered for development have appropriate conditions to accommodate wastewater systems for the highest reasonable use of the property.	St. Louis County; MDH	2010-2020	$100,000/yr.

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8. Provide education on the technology, use and maintenance of private sewage treatment systems to home and cabin owners.	St. Louis County; MDH	2010-2020	$1,000/yr

Priority Concern #3: Ground and Surface Water

Goal #1: Protect ground and surface water from the combined impacts of point and non-point source pollution. Emphasis: Contaminated runoff.

Action	Agency	Timeline	Estimated Cost
1. Acquire data through technology development, GIS analysis, remote sensing and ground truthing, surveys or purchase to fill pre-existing or discovered data gaps as needed.	St. Louis County	2010-2020	$2,700,000
2. Encourage and assist private landowners in forest management, forestry plans, re-forestation and operation by the Minnesota Forest Resource Council voluntary site guidelines.	DNR; St. Louis County, SWCD; BWSR	2010-2020	$80,000
3. Provide Cost-Share Assistance for sealing unused wells.	SWCD; BWSR	2010-2020	$20,000
4. Support those communities in current wellhead protection areas in developing and implementing their plans and strategies when making land use decisions.	LGU; MDH; SWCD; MPCA	2010-2020	Unknown
5. Protect waters containing wild rice and avoid impacts to wild rice habitat.	St. Louis County; DNR	2010-2020	Unknown
6. Encourage and assist LGU's, communities and non-governmental organizations to prepare watershed management plans.	St. Louis County; LGU; SWCD; MPCA; BWSR; DNR;	2010-2020	Unknown
7. Encourage and assist landowners and occupiers to install water protection practices and BMP's.	SWCD;BWSR; MPCA	2010-2020	$150,000
8. Encourage and assist in wetland avoidance and impact minimization.	SWCD; County; LGU; BWSR	2010-2020	$200,000/yr.

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9. Support, develop and continue efforts to prevent, control or extirpate invasive species and weeds.	SWCD, BWSR, DNR, MDA, DOT, NGO	2010-2020	$100,000

Goal #2: Monitor, assess and restore watersheds.

Action	Agency	Timeline	Estimated Cost
1. Support and assist communities and LGU's with stormwater management.	St. Louis County; SWCD; MPCA; BWSR	2010-2020	$100,000
2. Perform or assist other agencies, governments and organizations with monitoring and assessment.	MPCA; SWCD; NGO;	2010-2020	$500,000

Goal #3: Coordinate and perform education activities.

Action	Agency	Timeline	Estimated Cost
1. Support and assist citizens lake and stream monitoring program.	MPCA; DNR; SWCD; BWSR	2010-2020	Unknown
2. Educate the public on the importance of sealing unused wells to protect groundwater quality.	St. Louis County; MDH	2010-2020	Unknown
3. Foster awareness and understanding of water quality issues and promote shared responsibility for protection of Minnesota's water resources.	MPCA, DNR, SWCD, LGU's, St. Louis County	2010-2020	$10,000
4. Assist and or encourage the development or activity of lake associations.	LGU's, MPCA, SWCD,	2010-2020	Unknown

Priority Concern #4: Impaired Waters

Goal #1: Work toward restoring those waters in the county listed as impaired on the state 303(d) list.

Action	Agency	Timeline	Estimated Cost
1. Seek funding for and complete total maximum daily load studies.	SWCDs; U of M; DNR; MPCA; EPA	2010-2020	Size Dependent
2. Monitor and assess data determining if water resources meet water quality standards for designated uses.	MPCA, SWCDs, BWSR, DNR, U of M; NGO	2010-2020	Size Dependent

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3. Seek funding for and develop implementation and/or protection strategies based on watershed assessments.	MPCA, BWSR, DNR, SWCDs, U of M	2010-2020	Size Dependent
4. Implement projects and actions directed at reducing sources of non-point pollution and restore watersheds using best management practices.	SWCD;MPCA; U of M; NGO; LGU	2010-2020	Size Dependent
5. Assess data determining if water resources meet water quality standards and designated uses.	SWCD, MPCA, U of M	2010-2020	Size Dependent
6. Support and complete projects that address the beneficial use impairments of the St. Louis River Area of Concern (AOC), implement the remedial action plan and work towards AOC delisting.	SWCD; MPCA; LGU;	2010-2020	Size Dependent
7. Complete TMDL projects on the Little Fork River, Knife River and Miller Creek that are currently underway.	SWCD; MPCA; BWSR	2010-2020	Size Dependent

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Supporting Plan or Program List

Local:

St. Louis County:	Ordinance # 46 (Zoning), Ordinance #27 (Comprehensive Plan) Ordinance #33 (Subdivision Regulations), Ordinance #43 (Floodplain Management) Ordinance #55(SSTS), Septic Revolving Loan program
St. Louis County Land Department:	Sustainable Forestry Initiative; ISO 14001 Environmental Management System.
City of Hibbing:	Stormwater Management
South St. Louis SWCD:	Stormwater Demonstration Projects; Small Acreage Forestry Assistance; Miller Creek TMDL, Knife River TMDL; Amity Creek Slump Stabilization; Contractor Stormwater Education Workshops; Minnesota WCA; State Cost Share Assistance. Regional Stormwater Protection Team; Coastal Non-Point Program; Education
North St. Louis SWCD:	East Swan River Watershed Assessment; Forestry Technical Assistance; Minnesota WCA, State Cost Share Assistance; Coastal Non-Point Program; Clean Water Legacy Forestry; Education

Cities with Zoning Authority:

Aurora
Babbitt
Biwabik
Brookston
Buhl
Chisholm
Cook
Duluth
Ely
Eveleth
Floodwood
Gilbert
Hermantown
Hibbing
Hoyt Lakes
Iron Junction
Kinney
Leonidas
McKinley
Meadowlands
Mountain Iron
Orr
Proctor
Tower
Virginia
Winton

Townships with Zoning Authority:

Canosia
Duluth
Gnesen
Greenwood
Lakewood
Midway
Rice Lake

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Glossary

AOC:	Area of Concern
BMP:	Best Management Practice
BWSR:	Board of Water and Soil Resources
DNR:	Department of Natural Resources
DOT:	Department of Transportation
EPA:	Environmental Protection Agency
GIS:	Geographic Information System
ISTS:	Individual Sewage Treatment System
LGU:	Local Government Unit
MDA:	Minnesota Department of Agriculture
MDH:	Minnesota Department of Health
MPCA:	Minnesota Pollution Control Agency
NGO:	Non-governmental Organization
NPS:	Non-point Source Pollution
POS:	Point of Sale
SWCD:	Soil and Water Conservation District
TMDL:	Total Maximum Daily Load
USFS:	United States Forest Service

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