

# Little Saskatchewan River

# Integrated Watershed Management Plan

[www.littlesaskatchewanrivercd.ca](http://www.littlesaskatchewanrivercd.ca)



## Letter from PMT Chairman & Letter from Minister of Water Stewardship

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July 2011

Within these pages is the Little Saskatchewan River Integrated Watershed Management Plan as prepared by the watershed community. As you read through the plan, you will learn about the goals, objectives, and actions laid out to maintain and improve the health of natural resources in our watershed. The priorities, identified by local citizens and resource professionals, have been synthesized to produce five manageable goals. While each goal appears to address a separate resource, they are intrinsically woven together.

Creating this plan is only the first step in a healthy watershed. Success can only occur when we each take an active role in the implementation of the action items to the best of our abilities.

The Project Management Team takes this opportunity to thank everyone involved in the development of the plan.

Evan Smith  
Chair, Little Saskatchewan River Project Management Team



MINISTER OF WATER STEWARDSHIP

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Winnipeg, Manitoba, CANADA  
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Mr. Ken Cook  
Chairperson  
Little Saskatchewan River Conservation District  
Box 209  
Oak River MB R0K 1T0

Dear Mr. Cook:

**RE: Little Saskatchewan River Integrated Watershed Management Plan**

In accordance with Section 19(2) of The Water Protection Act and on the advice of the Manitoba Water Council, I approve the Little Saskatchewan River Integrated Watershed Management Plan dated May 2011.

I would like to congratulate the staff, Project Management Team, and Board of the Little Saskatchewan River Conservation District for developing the Little Saskatchewan River Integrated Watershed Management Plan. This plan reflects considerable hard work over the past several years as you identified priorities for tackling many of the challenging issues facing this watershed.

The Government of Manitoba is committed to watershed planning as an effective means to address risks to water and aquatic resources.

Thank you for your ongoing efforts in watershed management. I offer the continued support of the department as you work towards implementation of the goals in your plan.

Yours sincerely,

Christine Melnyk

## EXECUTIVE SUMMARY

In 2006, the Little Saskatchewan River Conservation District was designated as the Water Planning Authority for the Little Saskatchewan River watershed as part of a larger initiative to complete integrated watershed management plans (IWMPs) on the upper reaches of the Assiniboine River within Manitoba.

Through the input of watershed residents, stakeholders, and resource management professionals, the Water Planning Authority developed five broad goals which serve as the foundation for this IWMP. On top of these goals, a number of specific, measurable objectives were developed, each of which break the watershed goals into more manageable components.

This plan will serve as a roadmap... to maintain and improve the health of our watershed.

### Watershed Goals & Objectives

1	To maintain, and where necessary, improve overall water quality in the long term Objective 1A - Promote management practices to reduce average annual nutrient levels on Sandy Lake, Clear Lake, and Lake Wahtopanah over the next 10 years
2	To promote high quality drinking water for human consumption Objective 2A - Prevent contamination of groundwater sources that supply public drinking water systems Objective 2B - Prevent contamination of surface sources that supply public drinking water systems Objective 2C - Prevent contamination in all identified private and semi-public wells
3	To achieve balance between stakeholders' surface water needs and minimize negative impacts from flooding, drought, and erosion Objective 3A - Establish in-stream flow needs, on a seasonal basis, for the Little Saskatchewan River Objective 3B - Develop a Surface Water Management Plan for the watershed by 2013 Objective 3C - Increase water storage for drought sensitive areas and the headwaters of the watershed Objective 3D - Reduce erosion by water on identified highly erodible land
4	To ensure the quality and quantity of groundwater is sustained to support a variety of demands Objective 4A - Gain additional knowledge and understanding of groundwater resources in the watershed
5	Conserve and improve natural areas in the watershed Objective 5A - Encourage the development of an environmental goods and services program to conserve and improve natural areas Objective 5B - Conserve and improve wetlands, woodlands, and native prairie in the watershed

This IWMP is divided into three sections. The first section of the IWMP provides background on the planning process and general watershed management principles. The second section outlines the goals developed by the project management team and how we intend to reach these goals. The third section provides a detailed breakdown of the recommended actions. For each action a lead agency, measure of success, partner agencies, timeframe to complete the action, and target area are recommended. This plan will serve as a roadmap for the Conservation District, government, and other agencies in order to maintain and improve the health of our watershed.



Figure 1 - An aerial view of Lake Wahtopanah, looking north-east. There are numerous man-made reservoirs in our watershed originally constructed for municipal water supply and downstream domestic and agricultural purposes (including livestock watering and irrigation). These reservoirs now serve as drinking water sources, provide important habitat, act to beautify our landscape, and provide diverse recreational opportunities.

## ACKNOWLEDGEMENTS

The Little Saskatchewan River Water Planning Authority would like to gratefully acknowledge and thank the Little Saskatchewan River Conservation District, the watershed planning advisory team members, member municipalities, and all watershed residents and stakeholders for their support, input, and participation in developing the Little Saskatchewan River Integrated Watershed Management Plan.

Special thanks go to the members of the Project Management Team which included Chair Evan Smith, Ross Shindruk, Phil Tyschinski, Stewart Lewis, and manager Colleen Cuvelier from Little Saskatchewan River CD; Bob Reside of Parks Canada; and Jason Senyk from Manitoba Water Stewardship.

Additional thanks go to the members of the four-watershed project management team which shepherded the process from the start, Manitoba Water Stewardship planners, Phil Weiss and Sheldon Kowalchuk, Dave Dobson from Ducks Unlimited Canada, Conservation District representatives: John Whitaker, Robbie Craig, Robert Alexander, Geordie Danyliuk, Ron Turetsky, Ed MacKay, and Dennis Pedersen, and Conservation District Managers: Colleen Cuvelier, Ryan Canart, Andrea Gorda, and Lisa Greba, all of whom were instrumental in the initial stages of the planning process.

Figure 2 - There are many excellent recreational opportunities in our watershed including boating, hiking, swimming, and fishing, to name just a few. Proper management by our watershed community will help ensure that future generations are able to enjoy the same opportunities.





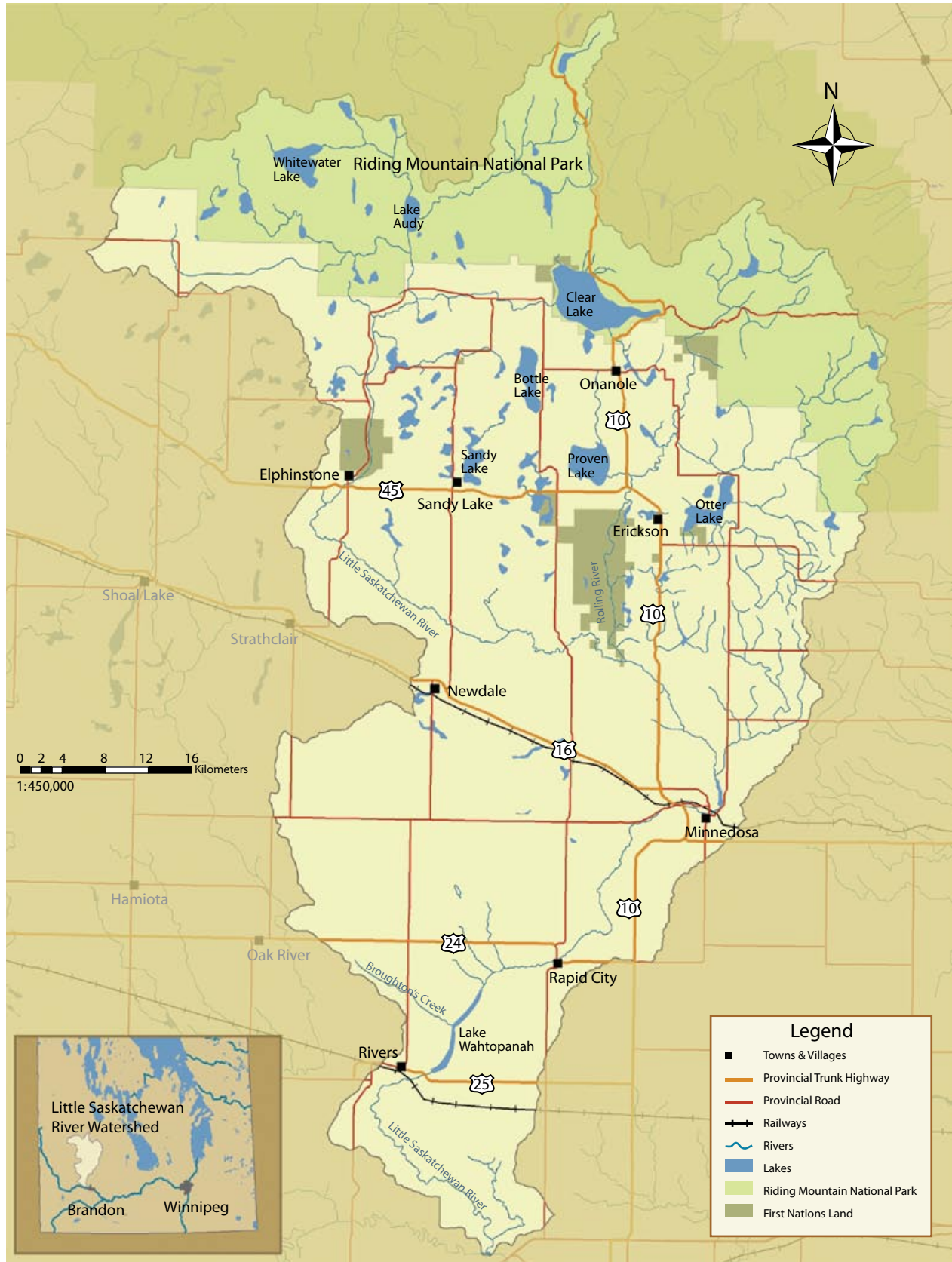


Figure 3 - The Little Saskatchewan River Watershed

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## INTRODUCTION

Welcome to the Integrated Watershed Management Plan (IWMP) for the Little Saskatchewan River watershed. This IWMP is the result of over five years of work from a variety of organizations including the Little Saskatchewan River Conservation District, watershed residents and resource management professionals. This plan is intended for the Little Saskatchewan River watershed and the community that lives, works, and plays in the watershed. Therefore, it will only succeed if you, and the rest of our watershed community embrace this plan and become involved in its implementation.

### What is a watershed?

A watershed is defined as a landscape where all water within it drains to a common point such as a river or lake. Within a watershed, surface and groundwater are generally connected, water flows across the landscape through waterways or vertically through various layers of soil and substrate. This movement of water across and through the landscape connects an area hydrologically. This connectivity extends beyond soil and water to include the plants and animals that depend upon these systems for life.

A watershed is a natural spatial unit defined by the movement of water, and as such, it is also the area best suited to manage and make decisions about water. Since a watershed is a naturally defined landscape and intersects with existing man-made political boundaries, such as municipalities, watershed management can be challenging within our existing models of governance and decision making.

### What is an integrated watershed management plan?

An integrated watershed management plan is intended to be used as a roadmap to assist our watershed community in reaching its vision: to live in and manage a watershed that provides a healthy balance and a sustainable future for all members of the ecosystem and economy. To this end, the IWMP outlines five general goals and eleven specific objectives which serve to put our watershed vision into more concrete terms. The implementation section contains the specific recommended actions which will help us to achieve our objectives and thus fulfill our watershed vision.

An integrated watershed management plan is unique from other plans because it integrates information and issues about land and water in our watershed and outlines common goals

for all watershed stakeholders. Whereas development plans and other planning initiatives typically contain sections dealing with general environmental concerns and or specific resources, these areas are often dealt with as constraints to development rather than specific objectives in their own right. Thus, there is opportunity for the two planning processes to compliment each other and provide tools for the community to address both environmental and development goals. The IWMP is intended to operate in concert with existing development plans, and to this end draws linkages to the development plan in the third section, where it contains a number of land use recommendations for planning districts and municipalities.

### Purpose – Why create an integrated watershed management plan?

The purpose of this IWMP is to clearly state the goals for the protection, conservation, or restoration of our landscape and water, aquatic ecosystems and drinking water sources in the watershed. The IWMP also outlines the specific actions that are necessary in order to achieve these goals. In other words, it defines what our watershed community wants to achieve and how this will be accomplished.



Figure 4 - An aerial view of the meandering Little Saskatchewan River.



## Watershed Management Principles

The following watershed management principles provided a foundation to the Watershed Planning Advisory Team and the Project Management Team throughout the planning process. These principles help to illustrate the connections and inter-relationships within a watershed, and assist with the development of management strategies and specific actions for the watershed.

- Nothing happens in isolation – everything is connected by the land and water in a watershed
- Monitoring and research is an essential part of water management
- Upstream is connected to downstream
- Water management planning should be based on watersheds
- What happens on the landscape is reflected in the water
- Clean water is critical to the sustainability of our local communities and environment
- The watershed planning process needs to be community-based and inclusive of all stakeholders
- Management strategies need to be adaptive to changing conditions and situations
- Decisions need to be made considering the best available science, local knowledge, and experience
- Nothing happens overnight - large-scale landscape improvements require long-term commitment and participation
- Building momentum through implementation successes is critical to reaching watershed goals and long-term success
- Opportunities for learning and participating must be easily accessible

## Legislative and Regulatory Background

Integrated watershed management plans are a key component of Manitoba's Water Protection Act, proclaimed in January of 2006. The Act includes general instructions for the planning process, requirements for what should be included in an IWMP, and outlines how watershed plans are to be approved.

## Key Players in the Planning Process

### Watershed Residents

Watershed residents are an important group in the creation and implementation of this IWMP. This IWMP is intended to be a reflection of the collective values of watershed residents in relation to the environment and natural resources. In the process of drafting this plan, 33 watershed residents participated in open-house meetings.

Through their participation, they helped prioritize the issues facing the watershed and shared their vision of what they would like the Little Saskatchewan River watershed to look like for future generations.

### Water Planning Authority (WPA)

The Water Planning Authority (WPA) is the agency that is designated under the authority of The Water Protection Act with the responsibility to prepare the watershed management plan. The Little Saskatchewan River Conservation District is the WPA for the Little Saskatchewan River watershed.



Figure 5 - Marshy banks of Clear Creek, an outlet of Clear Lake, in the northern part of the watershed.



## Watershed Planning Advisory Team (WPAT)

The Watershed Planning Advisory Team (WPAT) is a large group of people who represent key stakeholder organizations and resource management agencies. The role of the WPAT is to collect and interpret local and technical information about the watershed and provide input on the formation of the watershed plan. The WPAT met 10 times during the planning process between late 2006 and the end of 2007 and received presentations from a wide variety of resource management professionals from government and other agencies.

## Project Management Team (PMT)

The Project Management Team (PMT) is a small group of people and includes staff and board representation from the Little Saskatchewan Conservation District, a representative from Parks Canada, and a provincial planner. The role of the PMT is to make key decisions throughout the planning process which are intended to reflect the issues and concerns of the broader WPAT. The PMT was responsible for designing communication materials, planning open houses to engage public participation; combining the local and technical input to generate the goals, objectives, and actions for the watershed; and finalizing the content of the IWMP. The PMT for the Little Saskatchewan River watershed was formed in the fall of 2008. Prior to this point, a single PMT oversaw the conduct and development of four Assiniboine IWMPs together.

## Planning Process and Timeline

In early 2006, the Little Saskatchewan River watershed and three neighbouring watersheds, the Arrow- Oak, Assiniboine-Birdtail, and Shell River were joined together into a single planning process intended to simplify and streamline the development of all four integrated watershed management plans. As plan development progressed, team members broke out into separate project management teams, one for each watershed. This allowed the plans to be tailored to local needs and enhanced local involvement.

A Terms of Reference detailing the timelines, budget, roles and responsibilities for the parties involved in the planning process was signed in June of 2006. The planning process, however, has had to be adaptive in order to meet changing circumstances. For example, the planning process was originally scheduled to take two years but due to staff turnover and delays in the collection and submission of technical data the process took just over 3 years to complete.



Figure 6 - A timeline of the watershed planning process for the preparation of the Little Saskatchewan River integrated watershed management plan.

In July of 2008, the State of the Watershed Report was released for the Little Saskatchewan River watershed. This report contained a summary of the existing scientific data and the issues facing the watershed from the perspective of resource management professionals. In early August 2008, a series of three public open houses were held in Sandy Lake, Minnedosa, and Rivers in order to garner feedback and capture the resource and environmental concerns of watershed residents. In early 2009, the PMT for the Little Saskatchewan River watershed began the task of combining the issues brought forward by both the resource management professionals and local people – the goals, objectives, and recommended actions contained herein are the result of the PMT's work.

## Watershed Background

The State of the Watershed Report for the Little Saskatchewan River watershed contains a summary of the available data on the people, environment, and resources of the watershed. If you are interested in learning more about the watershed or if you would like detailed background information on watershed issues please see the Little Saskatchewan River State of the Watershed Report (2008) available from the Little Saskatchewan River Conservation District office or online at [www.littlesaskatchewanrivercd.ca](http://www.littlesaskatchewanrivercd.ca)



Figure 7 - Drainage of cultivated land can benefit producers but it will also impact water quality and water quantity from that point downstream.

## WATERSHED GOALS & OBJECTIVES

The following pages provide details on each of the goals and objectives in our watershed plan, and also explain some of the rationale and causes behind the issues. The table below summarizes the vision, goals, and objectives for the watershed.

The vision, goals, and objectives describe increasingly detailed layers of how the plan is organized. First, the vision for the watershed acts as the singular, long term guiding statement, calling for a sustainable ecosystem and economy for all members of our watershed community. In the next layer are our five goals, which

### Vision

To live in and manage a watershed that provides a healthy balance and a sustainable future for all members of the ecosystem and economy

identified as the concrete steps necessary to achieve our goals, objectives, and ultimately the vision for our watershed.

although broad and general, serve as guiding statements for issues that were identified. The next layer of organization constitutes the eleven objectives for our watershed. Whereas the goals are intended to be more general, our objectives are specific, measurable, and achievable outcomes that we desire to reach, and are often connected to a specific geographic target area. At the next layer of organization are the actions which have been

### Watershed Goals & Objectives

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# Goal 1 Water Quality

Our Goal - To maintain, and where necessary, improve overall water quality in the long term

## Why is water quality an issue? What are some of the causes?

Nutrient enrichment, or excessive levels of nitrogen and phosphorus, is one of the primary water quality concerns in our watershed. Although nutrient enrichment is often talked about in connection with Lake Winnipeg, water quality issues have also surfaced much closer to home. Water quality data from the Little Saskatchewan River, just below the Rivers dam indicates that from 1973 to 1997 phosphorus levels in the water have increased by almost 40% (Manitoba Water Stewardship, 2007).

Elevated levels of nutrients in our waterways can fuel excessive production of algae in local water bodies, such as the algae bloom in Lake Wahtopanah in the summer of 2009, and contribute to the nutrient loading downstream in Lake Winnipeg. Algae is a natural part of aquatic ecosystems but too much algae can degrade water quality and cause problems for drinking water, recreation, ecosystem health—and in some cases can create toxic algal blooms. Some of the sources of nutrients that were identified by local residents and resource management professionals included: sewage (wastewater lagoons and private septic fields), livestock wastes, drainage of land, volume and timing of fertilizer application.

Three target areas for nutrient reduction were identified in our watershed, Clear Lake, Sandy Lake, and Lake Wahtopanah. The catchments for each of these lakes, shown in the map, will serve as the target areas for nutrient reduction actions in our watershed. Nutrient loading is an issue in many waterbodies in our watershed, these three lakes were chosen as the target areas for nutrient reduction based on public input, their recreational value, past algae outbreaks, and the availability of existing information or past studies.

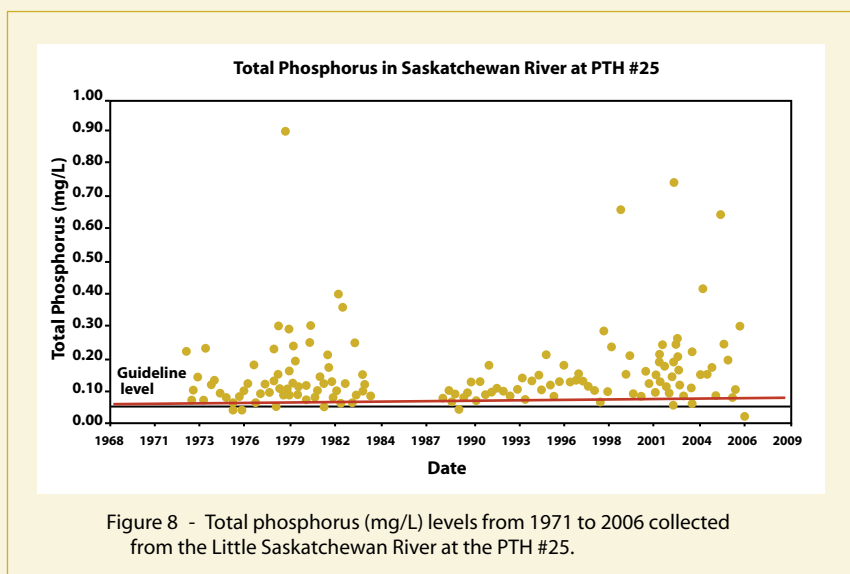


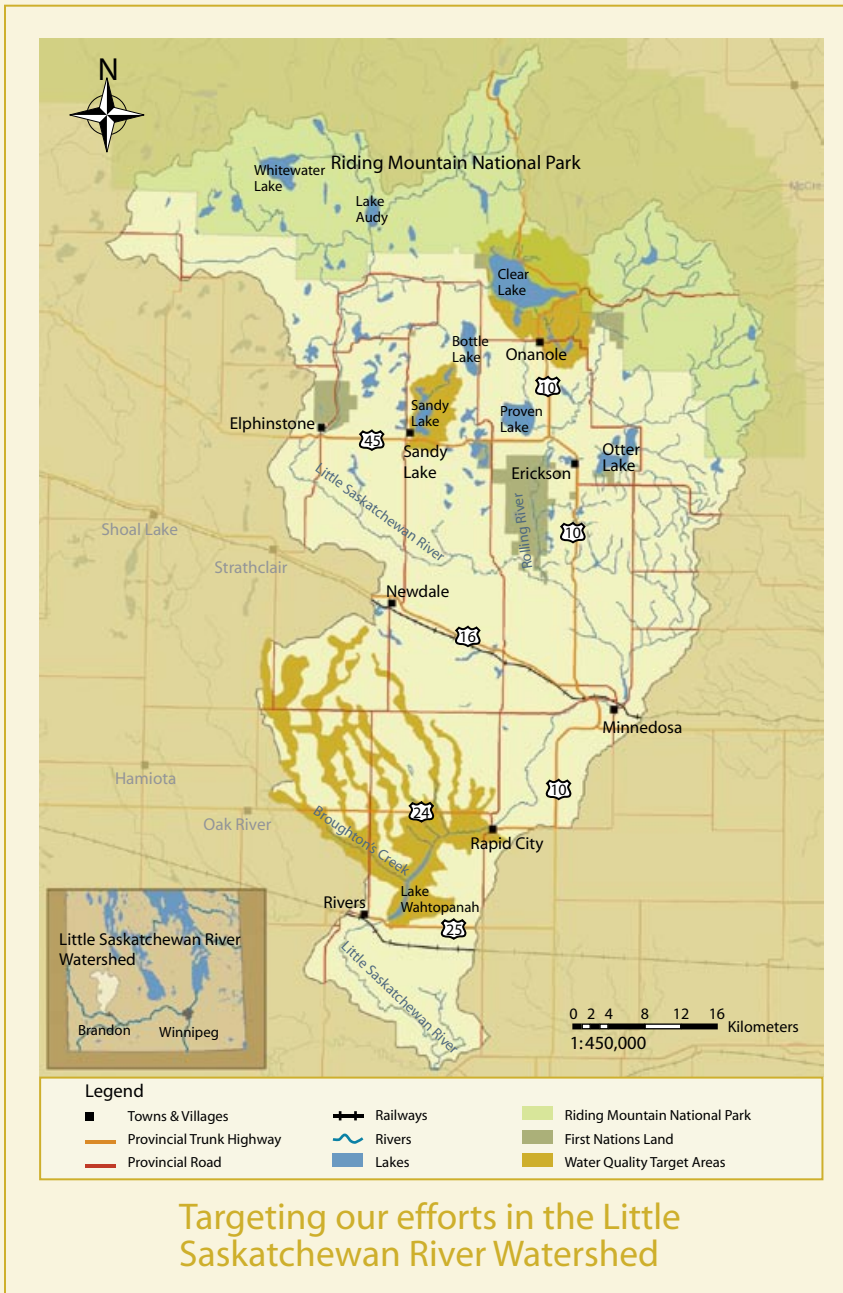
Figure 9 - Livestock that are allowed direct access to waterbodies and waterways can have a negative impact on water quality directly through excrement, and indirectly by trampling the riparian zone.





# Goal 1 Water Quality

What are we trying to accomplish? How will we get there?



## Objective 1A

Promote management practices to reduce average annual nutrient levels on Sandy Lake, Clear Lake, and Lake Wahtopanah over the next 10 years.

To reduce nutrient levels, the watershed community will:

- Offer incentives for off-site watering and riparian fencing on watercourses and lakes
- Maintain riparian buffer zone of 30m on watercourses and lakes for new developments
- Restore effective natural riparian buffer zones on watercourses and lakes
- Encourage and assist landowners to divert point sources of nutrients into retention ponds (golf courses, livestock operations, industry)
- Restore previously drained wetlands
- Offer an incentive program to replace failing septic systems
- Coordinate an education campaign to increase awareness of water quality issues and grass-roots solutions
- Test municipal lagoon effluent for nutrient levels
- Implement treatment and diversion options to reduce nutrient output from municipal sewage lagoons
- Establish one central boat launch on Sandy Lake and prohibit launching a boat elsewhere on the lake
- Establish grassed waterways
- Establish regular water quality testing on Sandy Lake to monitor phosphorus levels

# Goal 2 Drinking Water

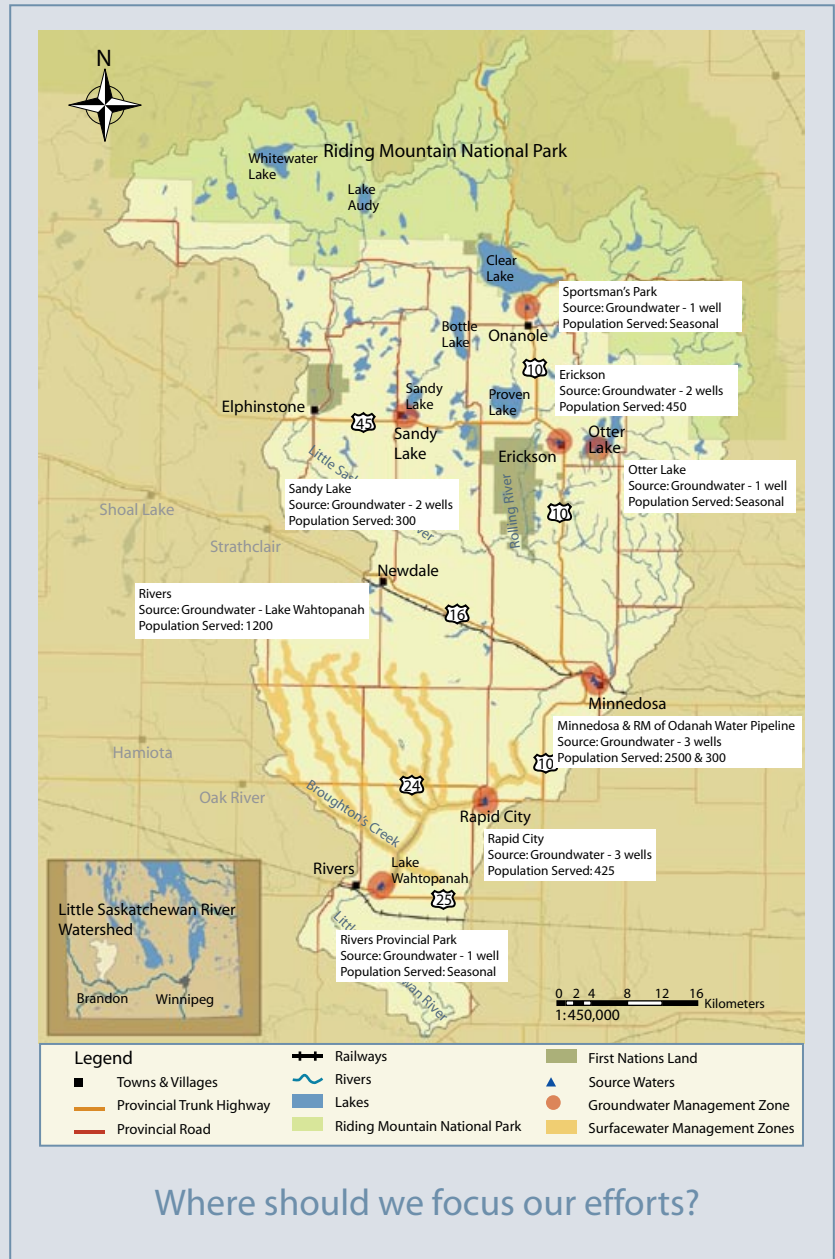
Our Goal - To promote high quality drinking water for human consumption

Why is drinking water a concern? What are some of the threats?

There are eight public drinking water systems in the Little Saskatchewan River watershed. Seven of these systems are supplied by groundwater from 13 different wells. The Town of Rivers withdraws its water from Lake Wahtopanah (Rivers Reservoir). There is not always a clear distinction between groundwater and surface water sources, some wells may be classified as groundwater under the direct influence of surface water, meaning that the water in the well is connected to, or draws water from, a surface water body. In our watershed Rapid City's wells have been confirmed as groundwater under the direct influence of surface water, this means that this well may be more susceptible to land use impacts—similar to a surface water source. In addition, there are many semi-public systems (i.e. schools, hospitals) and a large number of private wells in the watershed.

Surface drinking water sources, because they are more directly exposed to the environment and human activities, are particularly vulnerable to contamination by bacteria or other pollutants. The map shows the management area for Lake Wahtopanah, a 400 metre buffer that extends 40 kilometers upstream from the drinking water intake. It is this area, shown in orange on the map, that we recommend focusing our management efforts to protect the water before it enters our drinking water system.

Groundwater in our watershed is withdrawn either from Odanah Shale bedrock or from sand and gravel aquifers which tend to be located more closely to the surface. The Odanah Shale is deep and generally well protected from land use activities, however, the sand and gravel aquifers may be more sensitive to human activities at the surface. Land use activities such as: livestock operations, waste disposal grounds, improperly functioning septic systems, application of herbicides, pesticides, and fungicides, and sewage lagoons may impact the quality of our valued groundwater by leaching pollutants into the ground. Abandoned or improperly sealed wells also threaten both shallow



Where should we focus our efforts?

# Goal 2 Drinking Water

## What are we trying to accomplish? How will we get there?

and confined groundwater, as they can act as a conduit for pollutants to directly enter the groundwater. To reduce the risk of groundwater contamination, good land management practices should be conducted throughout the watershed, with particular attention paid to wells that supply a public drinking water system. The target areas around our public wells is shown in red on the map.

The treated drinking water for the towns of Rivers and Rapid City and the RM of Odanah's rural water pipeline has levels of tri-halothanes that exceed the Guidelines for Canadian Drinking Water Quality and Manitoba's Drinking Water Quality Standard. Trihalothanes are a disinfection by-product created during the treatment process by the interaction of organic material in the source water with chlorine. Manitoba's Office of Drinking Water and local government authorities are working together to find a solution to this issue.

### Objective 2A

Prevent contamination of groundwater sources that supply public drinking water systems

To protect groundwater drinking water sources, the watershed community will:

- a. Conduct a detailed source water protection assessment in partnership with each utility owner
- b. Refine source water protection zones for public wells based on local geology
- c. Control development that may contribute harmful levels of pathogens, bacteria, pollutants, or nutrients in source water management zones
- d. Seal abandoned wells

### Objective 2B

Prevent contamination of surface sources that supply public drinking water systems

To protect surface drinking water sources, the watershed community will:

- a. Offer incentives for off-site watering and riparian fencing
- b. Maintain riparian buffer zones of 30 m on watercourses and lakes for new developments
- c. Restore effective natural riparian buffer zones on watercourses and lakes
- d. Encourage and assist landowners to divert point sources of nutrients into retention ponds
- e. Restore previously drained wetlands
- f. Offer incentive program to replace failing septic systems
- g. Test municipal lagoon effluent for nutrient levels
- h. Implement treatment and diversion options to reduce nutrient output from municipal sewage lagoons

# Goal 3 Surface Water Management

**Our Goal - To achieve a balance between stakeholders' surface water needs and minimize negative impacts from flooding, drought, and erosion**

## Why is surface water management an issue? What are some of the causes?

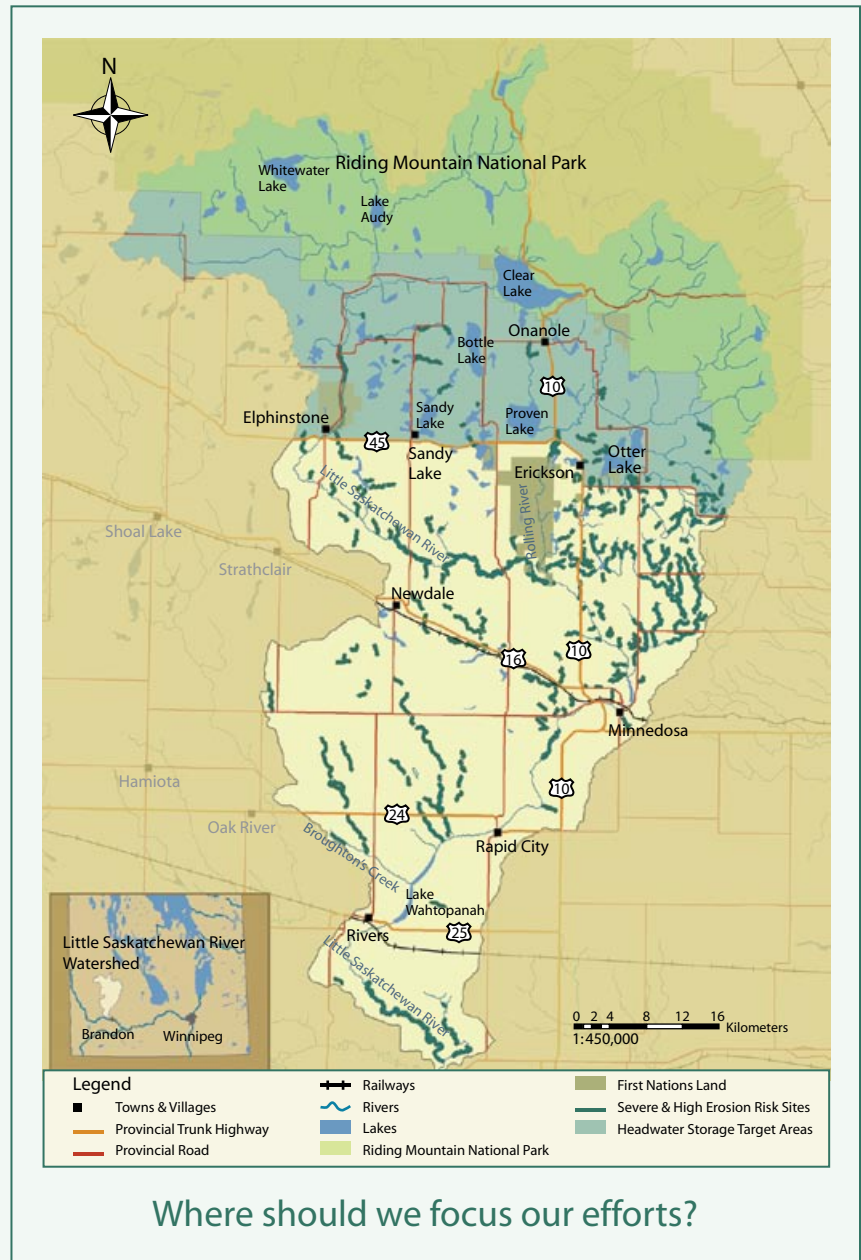
Drainage and surface water management are issues that many people have strong opinions about. Public feedback was generally divided between those that wanted to improve the drainage network and get water off the landscape as quickly as possible and those that experienced problems with flooding and erosion and wanted to retain more water on the landscape.

Water management decisions in our watershed are often made at small scales, often looking at individual fields or culverts, with little consideration of upstream activities or downstream impacts. Further, when decisions are made about water, the focus is typically on managing the quantity of water and little or no emphasis is placed on the other effects of water such as impairment of water quality, aquatic ecosystems, or soils. For example, when water is removed from the landscape very quickly, there is more water in the streams and drains over a short time (higher peak flow). This can result in:

- Infrastructure damage
- Higher erosion rates leading to poor water quality
- Less water storage on the landscape resulting in greater potential for water shortages

To help resolve these issues, the recommended approach is to prepare a surface water management plan to rationalize and coordinate infrastructure needs and drainage activities along with land use and physical geography.

There are three additional objectives related to managing the specific aspects of surface water quantity. First is to establish in-stream flow needs, or the amount of water required to maintain a healthy river ecosystem, and to use this information in decisions about water use licensing. Second, a need was identified to increase the storage of water in the headwaters of the watershed and in specific drought prone areas, this area is shown in light teal on the map. Lastly, there was also a need identified to reduce erosion rates by improving riparian health and converting erosion-prone land to permanent cover, the target areas are indicated in dark teal on the map.



Where should we focus our efforts?



# Goal 3 Surface Water Management

What are we trying to accomplish? How will we get there?

## Objective 3A

Establish in-stream flow needs on a seasonal basis for the Little Saskatchewan River

To meet in-stream flow needs, the watershed community will:

- a. Conduct in-stream flow needs study to determine riverine flow requirements
- b. Ensure water use licenses comply with updated riverine flow requirements

## Objective 3B

Develop a surface water management plan for the watershed by 2013

To develop a surface water management plan, the watershed community will :

- a. Delineate water management zones based on physical characteristics and land use
- b. Establish policies and guidelines for surface water management in each zone
- c. Establish objective criteria to evaluate drainage applications
- d. Conduct an inventory of culverts and drains in the watershed
- e. Engage local residents to identify problem spots and help select a consensus design standard for infrastructure
- f. Encourage new infrastructure to meet the selected standard
- g. Ensure all drainage works in the watershed are licensed

## Objective 3C

Increase water storage for drought sensitive areas and the headwaters of the watershed

To promote water storage, the watershed community will:

- a. Identify drought-prone areas in the watershed
- b. Offer a permanent cover incentive program in marginally productive areas
- c. Investigate potential water storage sites for drought prone areas
- d. Construct small, water-retention projects



Figure 10 - An eroded waterway in a cultivated field. Management practices such as grassed waterways can help to protect soil from erosion and improve downstream water quality.

## Objective 3D

Reduce erosion by water on identified highly erodible land

To reduce erosion by water, the watershed community will:

- a. Restore effective natural riparian buffer zones on watercourses and lakes
- b. Establish grassed waterways
- c. Offer a permanent cover incentive program in high and severe erosion risk areas

# Goal 4 Groundwater

**Our Goal - To ensure the quality and quantity of groundwater is sustained to support a variety of demands**

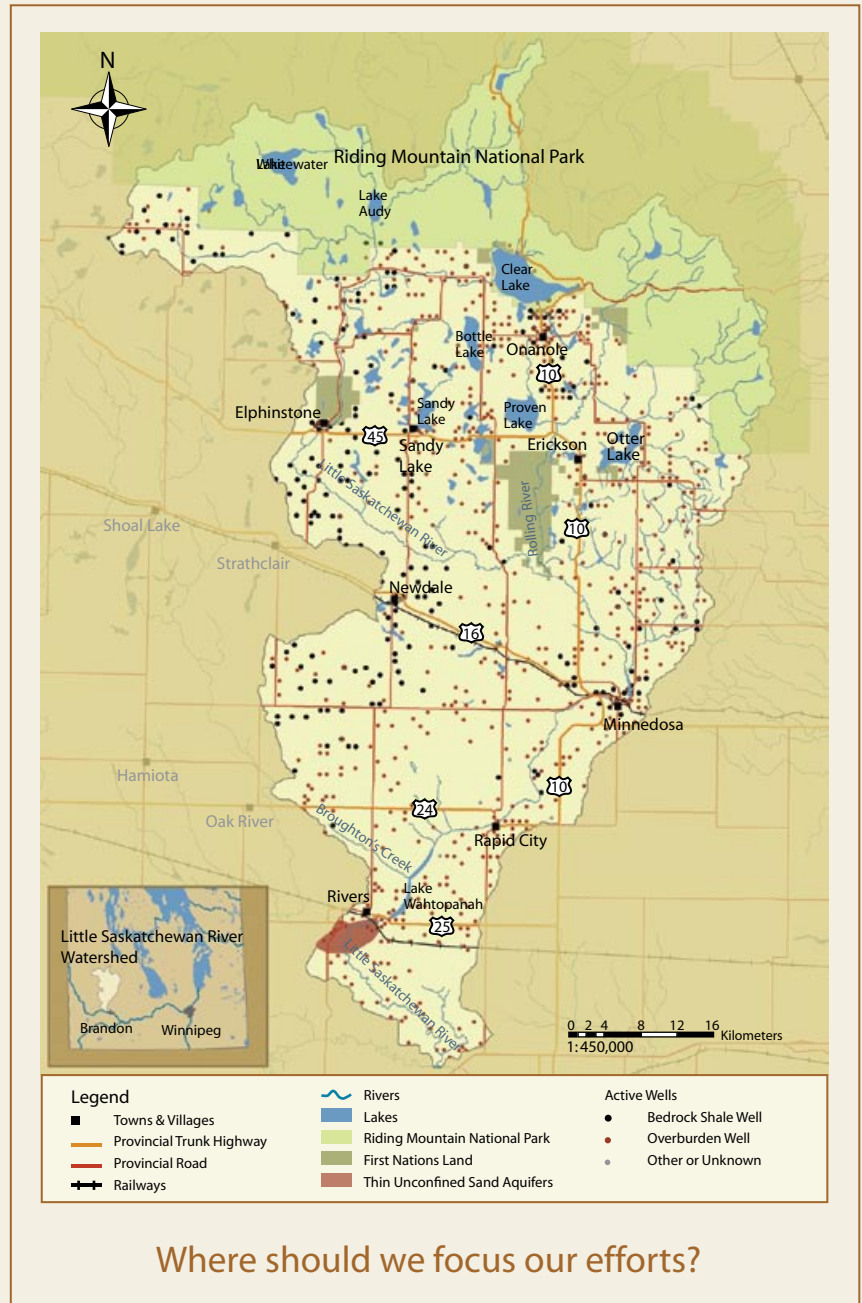
## What is the status of our groundwater?

Groundwater is the source of drinking water for most of the towns and private residences in our watershed. The groundwater used for these purposes varies between shallow, sand or gravel aquifers and confined, deep, shale bedrock aquifers.

Depending on the soils, topography, and underlying geology, human activities at the surface can potentially impact groundwater quality and quantity. Some of the activities which may impact groundwater quality and quantity are:

- Application of fertilizers in close proximity to a well
- Operation of municipal or private sewage systems
- Application of herbicides, pesticides, and fungicides in close proximity to a well
- Contamination from livestock wastes
- Loss of wetlands (possible reduction in groundwater recharge)

One of the central concerns relating to groundwater in our watershed is that there is insufficient knowledge about the number, location, and construction of active and abandoned wells in the watershed. Abandoned or improperly sealed wells form a particular threat as they pose a contamination hazard for the aquifers which may affect other wells that utilize the same groundwater. Manitoba Water Stewardship maintains a database of wells in the province, however, many wells, especially older ones, are not recorded. A well inventory to locate wells and assess their condition is an important step in protecting groundwater resources. Anticipated changes to The Ground Water and Water Well Act will require all new well locations to be logged and all test holes to be sealed once finished.



## What are we trying to accomplish? How will we get there?

Another key area of concern identified by watershed residents was a lack of information about the total quantity of water available from key aquifers, the volume of recharge versus withdrawal, and the critical areas which serve to recharge local aquifers. More information and education for the watershed residents will assist in protecting groundwater from contamination and in ensuring that water is available for future generations.

### Objective 4A

Gain additional knowledge and understanding of groundwater resources in the watershed

To better understand our groundwater resources, the watershed community will:

- a. Conduct a well inventory for the watershed
- b. Prepare new groundwater maps at the watershed scale and share with the watershed community
- c. Work to ensure that key aquifers in the watershed are monitored
- d. Promote education to reduce household water use
- e. Coordinate an education effort on wellhead protection

Figure 11 - Old, abandoned, or poorly maintained wells such as the one pictured below represent a potential threat to groundwater aquifers.





# Goal 5 Ecosystem Health

Our Goal - Conserve and improve natural areas in the watershed

What are natural areas? Why are they at risk?

Ensuring sufficient habitat remains in the Little Saskatchewan River watershed is critical to supporting healthy aquatic and terrestrial ecosystems. Despite ongoing conservation efforts, the indication is that habitat, particularly wetlands and riparian areas, are being lost and at an increasingly rapid rate. Preserving connections between natural areas is also important as it allows for travel between different areas and different habitat types.

Protecting habitat for wildlife is an important goal in itself but we also recognize that natural areas provide valuable ecological services such as mediating water quality and water quantity. The loss of natural areas, therefore, also has an impact on water quality, flooding and other issues which may at first seem unrelated.

Wetlands and riparian areas were identified as particularly important and vulnerable natural areas in our watershed. Wetlands and riparian areas act as the interface between land and water, and as a result, their loss will mean that human activities will have a greater impact on water quality, water quantity, and aquatic ecosystem health.

The Alternative Land Use Services (ALUS) Program, trialed from 2006-2009 in the RM of Blanshard, employed an innovative approach to conservation by providing financial incentives to landowners for the ecological goods and services provided by natural areas such as wetlands, grasslands, and riparian areas. This program encouraged landowners to conserve natural areas using incentives rather than regulations — our watershed community values this incentive-based approach to conservation and recognizes it as the preferred model for conservation programming. Since a watershed-wide incentive-based ecological goods and services program is beyond the scope of any-one agency to deliver, a number of more attainable, short-term actions are outlined in Objective 5B.



Where should we focus our efforts?

Figure 12 - A healthy riparian area, like the one pictured here, provides habitat, protects water quality, and also serves as a travel corridor



# Goal 5 Ecosystem Health

What are we trying to accomplish? How will we get there?

## Objective 5A

Encourage the development of an environmental goods and services program to conserve and improve natural areas

To encourage the development of an environmental goods and services program, the watershed community will:

- a. Educate the public on the value of natural areas
- b. Develop a watershed-wide ecological goods and services program



Figure 13 - Debris from a recently cleared wooded area. In many cases, woodlands and wetlands are perceived as “unproductive” or “wasted” land. Changing this perception through education and compensating landowners through incentive programs will help to conserve remaining natural areas in our watershed.



## Objective 5B

Conserve and improve wetlands, woodlands, and native prairie in the watershed

To conserve wetlands, woodlands, and native prairie, the watershed community will:

- a. Inventory natural areas in the watershed
- b. Protect wetlands through conservation agreements
- c. Restore previously drained wetlands
- d. Protect woodlands through conservation agreements
- e. Develop woodlot management plans on privately held woodlands
- f. Maintain riparian buffer zones of 30m on watercourses and lakes for new developments
- g. Restore effective, natural riparian buffer zones on watercourses and lakes
- h. Encourage the protection of remaining native prairie through conservation agreements
- i. Assist landowners to develop a grazing plan for native prairie used as pasture
- j. Mitigate drainage of wetlands

## IMPLEMENTATION ACTIONS

An IWMP acts like a roadmap for watershed residents, government, and conservation agencies by outlining where we want to go, through objectives, and how we are going to get there, through actions. The actions in this section are grouped according to the organization that will lead their implementation and colour-coded according to the goal(s) that the action will help us to achieve. The implementation plan also includes a measure of success for each action, partner agencies that will assist in implementation, a target timeframe to complete the action, specific target areas for the action, and a reference to the objective and action in the second section of the plan.

Each action is colour coded to indicate which goal it works towards. Goal colours are as follows, but can be combined if the action works towards achieving more than one goal:

GOAL 1: Water Quality	GOAL 2: Drinking Water	GOAL 3: Surface Water	GOAL 4: Groundwater	GOAL 5: Natural Areas
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### Conservation District

Action		Measure of Success	Partner Agencies	Timeframe	Target Areas	Desired Outcome
1	Offer incentives for off-site watering and riparian fencing on watercourses and lakes	25% of livestock operations	MHHC, MAFRI, MB Conservation	ongoing	Clear Lake, Sandy Lake, Lake Wahtopannah catchments	Obj 1A & 2B
2	Restore effective natural riparian buffer zones on watercourses and lakes	1.5 miles/year	landowners, MAFRI	ongoing	riparian areas at risk of erosion; Clear Lake, Sandy Lake, Lake Wahtopannah catchments	Obj 1A, 2B, 3D & 5B
3	Encourage and assist landowners to divert point sources of nutrients into retention ponds (golf courses, livestock operations, industry)	2 sites/year	MWS, MAFRI	2011- 2017	Clear Lake, Sandy Lake, Lake Wahtopannah catchments	Obj 1A & 2A
4	Offer incentive program to replace failing septic systems	10 sites/year	none identified	ongoing	Clear Lake, Sandy Lake, Lake Wahtopannah catchments	Obj 1A & 2B
5	Education campaign to increase awareness of water quality issues and grass-roots solutions	none identified	MWS, Cottage Owners Associations, RMNP, Riding Mountain Biosphere Reserve	ongoing	Clear Lake, Sandy Lake, Lake Wahtopannah	Obj 1A

## Conservation District (continued)

	Action	Measure of Success	Partner Agencies	Timeframe	Target Areas	Desired Outcome
6	Conduct a detailed source water protection assessment in partnership with each utility owner	identify and eliminate potential hazards due to well site/situation	MWS, MB Conservation, MWSB, RMNP, EMO, municipalities, Planning Districts	2011- 2012	management zone around all 14 public drinking sources	Obj 2A
7	Seal abandoned wells	all identified abandoned/ disused wells in the management zone of public wells – 30 wells/year	none identified	ongoing	1.5 km radius of public wells, 1.5 km radius of semi-public and private water sources if funds are available	Obj 2A & 2C
8	Coordinate an education effort on wellhead protection targeting students and landowners	all grade 7 students to participate annually; landowner education every 2nd year	schools in the watershed	ongoing	watershed wide	Obj 2C & 4A
9	Assist with collection and shipping of subsidized water tests for private and semi-public water sources	all known semi-public wells and 25% of known private wells	MWS	annually, ongoing	watershed wide	Obj 2C
10	Delineate water management zones based on physical characteristics and land use	map delineating water management zones	municipalities, landowners	2009- 2010	watershed wide	Obj 3B
11	Establish policies and guidelines for surface water in each area	policies and guidelines for water management in each zone	MWS, municipalities	2010	watershed wide	Obj 3B
12	Establish objective criteria to evaluate drainage applications	criteria for drainage	municipalities	2010	watershed wide	Obj 3B
13	Engage local residents to identify problem spots and help select a consensus design standard for infrastructure	consistent design standard for drainage infrastructure in the watershed	watershed residents, municipalities	2009- 2013	watershed wide	Obj 3B

### Legend

GOAL 1: Water Quality	GOAL 2: Drinking Water	GOAL 3: Surface Water	GOAL 4: Groundwater	GOAL 5: Natural Areas
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## Conservation District (continued)

	Action	Measure of Success	Partner Agencies	Timeframe	Target Areas	Desired Outcome
14	Encourage new infrastructure to meet the selected standard	removal of unplanned impediments in drainage infrastructure	municipalities, MWS	ongoing	watershed wide	Obj 3B
15	Offer incentive programs to convert land to permanent cover in marginally productive areas	none identified	DUC, MHHC, NCC	ongoing	cropland on CLI class 6-7 soils	Obj 3C
16	Investigate potential storage sites for drought prone areas	map of potential storage sites	MWSB, MWS	2013	drought sensitive areas	Obj 3C
17	Construct small, water retention projects	none identified	MWS	ongoing	drought sensitive areas	Obj 3C
18	Establish grassed waterways	none identified	DUC, MHHC, NCC	ongoing	drains in erosion prone areas	Obj 1A & 3D
19	Offer incentive programs to convert land with high erosion risk to permanent cover	none identified	landowners	ongoing	erosion prone areas under cropland	Obj 3D
20	Conduct a well inventory in the watershed	GPS coordinates, info on well construction, and water quality for all public, semi-public and private wells	municipalities, MWS	2009- 2012	watershed wide	Obj 4A
21	Education campaign to reduce household water use	survey to measure public awareness	none identified	2010	watershed wide	Obj 4A
22	Educate the public on the value of natural areas	none identified	MHHC, DUC, NCC, Delta Waterfowl	ongoing	watershed wide	Obj 5A
23	inventory natural areas in the watershed	map of natural areas	MWS, MB Conservation, DUC, MHHC, NCC, RMNP	2009- 2012	watershed wide	Obj 5B
24	Establish regular water quality testing on Sandy Lake	regular monitoring of phosphorus levels	MWS, cottage owners association	ongoing	Sandy Lake	Obj 1A

### Legend

GOAL 1: Water Quality	GOAL 2: Drinking Water	GOAL 3: Surface Water	GOAL 4: Groundwater	GOAL 5: Natural Areas
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## Manitoba Water Stewardship

	Action	Measure of Success	Partner Agencies	Timeframe	Target Areas	Desired Outcome
25	Refine source water protection zones for public wells based on local geology	accurate management zones for public water sources	none identified	2010	management zone around all 14 public drinking sources	Obj 2A
26	Identify and map all semipublic water sources in the watershed	up-to-date well inventory	CD	2009- 2012	watershed wide	Obj 2C
27	Conduct in-stream flow needs study to determine riverine flow requirements	monthly/ seasonal breakdown of in-stream flow needs	none identified	2009- 2012	Little Saskatchewan River	Obj 3A
28	Ensure water use licenses comply with revised riverine flow requirements	river discharge remains above in-stream flow requirements	none identified	2013	Little Saskatchewan River	Obj 3A
29	Ensure all drainage works in the watershed are licensed	all identified unlicensed drainage	CD, municipalities, landowners	2009- 2015	watershed wide	Obj 3B
30	Prepare new groundwater maps at the watershed scale and share with the watershed community	none identified	CD	none identified	regional	Obj 4A
31	Work to ensure that key aquifers in the watershed are monitored	none identified	none identified	none identified	regional	Obj 4A
32	Mitigate the drainage of wetlands	No net loss of wetlands	MHHC	ongoing	watershed wide	Obj 5A

## Municipalities

	Action	Measure of Success	Partner Agencies	Timeframe	Target Areas	Desired Outcome
33	Establish one central boat launch on Sandy Lake and prohibit launching a boat elsewhere on the lake	outlying boat launches closed	none identified	2015	Sandy Lake	Obj 1A
34	Conduct a culvert/ drain inventory of the watershed	identify constriction points and capacity of the drainage system	MWS, CD	2009- 2012	watershed wide	Obj 3B

## Legend

GOAL 1: Water Quality	GOAL 2: Drinking Water	GOAL 3: Surface Water	GOAL 4: Groundwater	GOAL 5: Natural Areas
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## Manitoba Agriculture, Food, and Rural Initiatives

	Action	Measure of Success	Partner Agencies	Timeframe	Target Areas	Desired Outcome
35	Identify drought prone areas in the watershed	map of drought prone areas	AESB, MWS	2010- 2012	watershed wide	Obj 3C
36	Develop woodlot management plans on privately held woodlands	5% of private woodlands by 2015	Riding Mountain Biosphere Reserve, CD	2009- 2015	Little Saskatchewan River valley, riparian areas, highway 45 and 357 North	Obj 5B
37	Assist landowners to develop a grazing plan for native prairie used as pasture	10% of native prairie/year	grazing clubs, crown lands	ongoing	watershed wide	Obj 5B

## Manitoba Conservation

	Action	Measure of Success	Partner Agencies	Timeframe	Target Areas	Desired Outcome
38	Test municipal lagoon effluent for nutrient levels	none identified	MWS, municipalities, RMNP	ongoing	municipal lagoons in the watershed	Obj 1A & 2B

## Conservation Agencies

	Action	Measure of Success	Partner Agencies	Timeframe	Target Areas	Desired Outcome
39	Restore previously drained wetlands	50 acres/year	Wetland Restoration Incentive Program—DUC, MHHC, MWS, landowners, CD	2009- 2012	watershed wide	Obj 1A, 2B & 5B
40	Protect wetlands through conservation agreements	500 acres/year	DUC, MHHC, NCC	ongoing	watershed wide	Obj 5B
41	Protect woodlands through conservation agreements	200 acres/year	MHHC, NCC, CD, MAFRI	ongoing	Little Saskatchewan River valley, riparian areas, highway 45 and 357 North	Obj 5B
42	Encourage the protection of remaining native prairie through conservation agreement	100% of identified native prairie protected	DUC, MHHC, NCC, CD, landowners	ongoing	watershed wide	Obj 5B

## Legend

GOAL 1: Water Quality	GOAL 2: Drinking Water	GOAL 3: Surface Water	GOAL 4: Groundwater	GOAL 5: Natural Areas
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## Planning Districts

	Action	Measure of Success	Partner Agencies	Timeframe	Target Areas	Desired Outcome
43	Maintain riparian buffer zones of 30 m on watercourses and lakes for new developments	no existing riparian areas lost in target areas	municipalities	ongoing	watercourses, lakes, and 3rd order or higher drains in Clear Lake, Sandy Lake, Lake Wahtopanah catchments	Obj 1A, 2B & 5B
44	Control development that may contribute harmful levels of pathogens, bacteria, pollutants, or nutrients, in source water management zones	restrict potentially harmful developments in the management zone	municipalities	2011 onwards	management zone around all 14 public drinking sources	Obj 2A

## Multi-Agency

	Action	Measure of Success	Partner Agencies	Timeframe	Target Areas	Desired Outcome
45	Implement treatment and diversion options to reduce nutrient output from municipal sewage lagoons	none identified	municipalities and Towns, MWSB, MB Conservation, MWS, CD	2018	municipal lagoons in the watershed	Obj 1A & 2B
46	Construct new rural water pipelines to provide water to deficient areas	increase in pipeline development	MWSB, RMs, MWS	2009- 2015	southern 1/3 of watershed (from Minnedosa south)	Goal 2
47	Develop a watershed-wide ecological goods and services program	incentive payment for wetlands and riparian areas	government (all levels), environmental groups and conservation agencies	none identified	class 1-3 wetlands and riparian areas	Obj 5A

## Legend

GOAL 1: Water Quality	GOAL 2: Drinking Water	GOAL 3: Surface Water	GOAL 4: Groundwater	GOAL 5: Natural Areas
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## EVALUATION AND REPORTING

This watershed management plan is meant to guide conservation and resource management initiatives in the watershed over the next 10 years. During this time, socioeconomic and environmental circumstances will certainly change and the needs and priorities of watershed residents and stakeholders will change as well. As such, this IWMP is meant to be adaptive, which means that it can be updated as we learn more about our watershed and gain experience through implementation. This adaptability means that the Water Planning Authority, with the advice of the WPAT, has the ability to change objectives as needed, along with the actions and policies required to meet these objectives.

Our success in implementation will be evaluated primarily by the progress made towards meeting the stated objectives. The secondary means of evaluating progress will be meeting the measure of success listed for each individual action. Thus, if the actions we take do not allow us to reach our objectives we may need to revise actions or add new ones, or alter our objectives to be more realistic.

Reports on plan implementation will be produced every two years in order to update stakeholders and watershed residents on the progress towards reaching our objectives in the watershed plan. In addition to bi-annual updates this watershed management plan will undergo a full, comprehensive review in 2016.



Figure 14 - Resource management professionals and local government representatives at a meeting in Basswood to recommend and review action items and target areas for our integrated watershed management plan, July 2009.

## GLOSSARY

**Management Zone** - The management zone represents the crucial land use area where activities or interventions have the greatest opportunity to affect the raw water quality of a source water.

**Natural Area** - Land which remains undeveloped and supports a healthy ecosystem that provides ecological goods and services, including but not limited to wildlife habitat.

**Recreational Water Body** - A lake or other water feature that has recreational developments associated with it or which is used for recreational purposes including but not limited to: swimming, fishing, boating.

**Riparian Area** - The transition zone along a watercourse which acts as the interface between upland ecosystems and watercourses.

**Private Water Source** - A surface or groundwater source that provides water to a single connection, most often a home or farm.

**Public Water Source** - A surface or groundwater source that provides water to a system with 15 or more service connections.

**Semi-Public Water Source** - A surface or groundwater source that supplies a system that is not public or private and consists of less than 15 service connections, or supplies a single public facility such as a school or hospital.

**Sensitive Developments** - Any development that will or, under specific circumstances (spill, accident, etc), could reasonably be expected to impact a source water by contributing pathogenic organisms, deleterious chemicals, nutrients, or by increasing the turbidity of the source water.

**Small Water Retention Project** - A man-made work designed to impound or store water. For the purposes of this IWMP small water retention projects are defined as projects designed to store 50 dam<sup>3</sup> (40 ac-ft) or less and, therefore, are subject to licensing under The Water Rights Act but do not require a license under The Environment Act.

**Source Water** - The raw, untreated water which is used to supply a drinking water system. Source waters may be surface water, such as a lake, reservoir, river, or groundwater.

## ACRONYMS

AESB - AAFC — Agri-Environment Services Branch, Agriculture and Agri-Food Canada

CD — Conservation District

DFO — Fisheries and Oceans Canada (formally known as the Department of Fisheries and Oceans)

DUC — Ducks Unlimited Canada

EMO — Emergency Measures Organization

IWMP — Integrated Watershed Management Plan

MAFRI — Manitoba Agriculture, Food and Rural Initiatives

MHHC — Manitoba Habitat Heritage Corporation

MWSB — Manitoba Water Services Board

MWS — Manitoba Water Stewardship

NCC — Nature Conservancy Canada

PD — Planning District

PMT — Project Management Team

RM — Rural Municipality

RMNP — Riding Mountain National Park



## APPENDIX A - WATERSHED PLANNING ADVISORY TEAM—INVITE LIST

Agriculture and Agri-Food Canada/Agri-Environment Services Branch	Enbridge	Manitoba Conservation/Forestry
Archie Miniota Economic Development	Enerplus	Manitoba Conservation/Land and Water Use
Assessippi Parkland Tourism	Environment Canada/CWS	Manitoba Conservation/Remote Sensing
Assessippi Ski Area and Winter Park	Erickson & District Wildlife Association	Manitoba Conservation/Wildlife
Assiniboine Agricultural Producers	Erickson Clanwilliam CDC	Manitoba Eco-Network, Water Caucus
Assiniboine Community College	Fisheries and Oceans Canada/DFO	Manitoba Forage Seed Association
Assiniboine Development Corridor	Flax Council of Canada	Manitoba Forestry Association
Assiniboine Hills Conservation District	FLIPPR	Manitoba Habitat Heritage Corporation
Assiniboine Valley Producers Association	Fort la Bosse School Division	Manitoba Hydro
Assiniboine-Birdtail Soil Association	Friends of Riding Mountain National Park	Manitoba Industry, Economic Development & Mines
Beautiful Plains School Division	Friends of Rivers Lake	Manitoba Intergovernmental Affairs / Trade
Birdtail Sioux First Nation	Gambler First Nation	Manitoba Intergovernmental Affairs/ Planning Districts
Birtle Ag Society	GreenWing Energy Management Ltd.	Manitoba Naturalists' Society
Birtle and District Chamber of Commerce	Hamiota Economic Development Corp.	Manitoba Pork Council
Birtle and District Community Development Corp.	Harding Ag Society	Manitoba Pulse Growers Association
Blanshard & District CDC	Harrison CDC	Manitoba Transportation and Government Services
Bluestem Wildlife	Husky Energy Inc.	Manitoba Trappers Association
Boggy Creek Metis Association	Inglis and Area Business Group	Manitoba Water Services Board
Boundary Colony	Intermountain Conservation District	Manitoba Water Stewardship/ Environment Office
Boundary Lane School	International Erosion Control Association - Northern Plains Chapter	Manitoba Water Stewardship/Fisheries
Brandon & Area Environmental Council	Keeseekoowenin First Nation	Manitoba Water Stewardship/ Groundwater
Brandon Naturalist Society	Kelvin Nerbas	Manitoba Water Stewardship/Hydrology
Brandon Soil Management Association	Keystone Agricultural Producers	Manitoba Water Stewardship/Licensing
Brandon University	Keystone Vegetable Producers Association	Manitoba Water Stewardship/Water Quality
Brandon Wildlife Association	Kilman's Cottage Association	Manitoba Zero Tillage Research Association
Bunge Canada	Lake Audy/Riding Mountain Landowners Association	Manitoba - Petroleum Branch
Canola Council of Canada	Lake Enterprises Ltd	Mid West Recreation
Carlton Trail Planning	Lake of The Prairies Conservation District	Mid West Weed District
Central Agricultural Conservation Area	Lakeside Resort (Ditch Lake)	Mid-West Planning District
Citizens for the Responsible Application of Phosphorus	Little River Game & Fish Association	Minnedosa Ag Group
Clear Lake Cabin Owners Association	Little Saskatchewan Game & Fish	Minnedosa Ag Society
Clear Lake Cottage Owners Association	Little Saskatchewan River Conservation District	Minnedosa Chamber of Commerce
Climate Change Connection	Long Range Game & Fish	Minnedosa Fish Enhancement
CN	Lost Meadows	Minnedosa Soil Management Association
Cool Spring Colony	Louisiana Pacific	Minnedosa Wildlife Association
CP	MacDonald Soil and Water Conservation	Mixedwood Forest Society
Dairy Farmers of Manitoba	Manitoba Aboriginal and Northern Affairs	Mountain View School Division
Decker Colony	Manitoba Ag Woodlot Program	MTS (Manitoba Telephone)National Farmers Union
Deerboine Colony	Manitoba Agriculture, Food and Rural Initiatives	Nature Conservancy of Canada
Delta Waterfowl	Manitoba Canola Growers Association	Neepawa & Area Planning District
Ditch Lake - Beatty Sub-division	Manitoba Cattle Producers Association	Oak River Ag Society
Ducks Unlimited Canada	Manitoba Chicken Producers	Oak River Colony
Duke Energy	Manitoba Conservation/Conservation Data Center	Oakburn Game and Fish
Eagle Guide Service	Manitoba Conservation/Environment Officer	Onanole Fish & Wildlife
Elkhorn Ag Society		Organic Producers Association
Emergency Measures Organization - Western Region		

Otter Lake Cottage Owners Association	RM of Whitehead	Trans Canada Pipeline
Park West School Division	RM of Woodworth	TransCanada West
Parks Canada-Riding Mountain National Park	Roblin & District CDC	Tri-Roads Planning District
Pelly Trail CDC	Roblin Ag Society	University of Manitoba (Natural Resources Institute)
Plainview Colony	Roblin Chamber of Commerce	University of Winnipeg Environmental Science
Plainview Colony School	Roblin Planning District	Upper Assiniboine River Conservation District
Prairie Fruit Growers Association	Rolling River First Nation	Valley Inc/Minnedosa & Area CDC
Prairie Lake Lodge	Rolling River School Division	Valley Recreation District
Prairie West Recreation	Rosburn & District CDC	Vegetable Growers Association of Manitoba
Pyott's Campground	Rosburn Community Development Corp.	Village of Binscarth
Rapid City & District Wildlife Association	Rosburn Planning	Village of Elkhorn
Rapid City Ag Society	Rosburn Recreation Commission	Village of St. Lazare
Rapid City Cattle Producers	Rossmann Game and Fish	Virten Ag Society
Red River Community College	Russell Ag Society	Virten Area Wildlife Association
Ricker's Campground	Russell Chamber of Commerce	Virten Economic Development
Riding Mountain Biosphere Reserve	Russell Game and Fish	Wasagaming Chamber of Commerce
Riding Mountain Landowners Association	San Clara Metis Association	Wasagaming Tenants' Association
Riding Mountain Liaison Committee	Sandy Lake Cottage Owners Association	Water Ski Manitoba
Rivers Ag Society	Sandy Lake Game & Fish	Water Wisdom
Rivers Game & Fish	Sandy Lake Recreation Association	Waywayseecappo First Nation
Rivers West	Saskatchewan Watershed Authority	West Souris River Conservation District
Rivers-Daly CDC	SAVED	Wolf Creek Conservation
RM of Archie	Shellmouth Community	Woodlot Association of Manitoba
RM of Birtle	Shoal Lake Ag Society	Woodworth CDC
RM of Blanshard	Shoal Lake Chamber of Commerce	Woodworth Conservation Group
RM of Clanwilliam	Shoal Lake Economic Development	Woodworth Ducks Unlimited
RM of Daly	Shoal Lake Enhancement Corp	Woodworth Game & Fishing Association
RM of Ellice	Shoal Lake Planning	Woodworth Soil Association
RM of Grandview	Silver Beach Cottage Owner's Association	Yellowhead
RM of Hamiota	Sioux Valley Dakota Nation	
RM of Harrison	Snake Creek Wildlife Association	
RM of Hillsburg	South Ditch Lake Recreational Co-op Limited	
RM of Miniota	South Riding Mountain Planning District	
RM of Minto	South Riding Mountain Wildlife Association	
RM of Odanah	Southwest Regional Development Corp	
RM of Park	Starbuck Marketing Club	
RM of Park (North)	Strathclair Ag Society	
RM of Pipestone	Strathclair CDC	
RM of Rosedale	Tanner's Crossing Planning District	
RM of Rosburn	Town of Birtle	
RM of Russell	Town of Erickson	
RM of Saskatchewan	Town of Hamiota	
RM of Shell River	Town of Minnedosa	
RM of Shoal Lake	Town of Rapid City	
RM of Sifton	Town of Rivers	
RM of Silver Creek	Town of Roblin	
RM of Strathclair	Town of Rosburn	
RM of Swan River	Town of Russell	
RM of Wallace	Town of Shoal Lake	

## APPENDIX B - SUMMARY OF PUBLIC INPUT

### LITTLE SASKATCHEWAN RIVER WATERSHED (05MF) - PUBLIC CONCERNS

In January 2006, the Little Saskatchewan River Conservation District (LSRCD) was designated as the Water Planning Authority (WPA) for watershed 05MF (Figure 1) by the Province of Manitoba. This watershed plan was initiated as part of a larger planning initiative for the Assiniboine River which also included the Shell River (05MD), Assiniboine-Birdtail (05ME), and Arrow-Oak (05MG). Following the collection of data and the compilation of a State of the Watershed (SOW) Report, a Project Management Team (PMT) was created specifically for each of the four watersheds in order to provide local input and guidance on planning for each of the individual watersheds.

The next step in the development of the IWMP was to hold public forums to explore the watershed concerns of local residents and other stakeholders within the watershed. The issues identified at these public forums will provide direction to the Little Saskatchewan River PMT on the direction and focus of the Integrated Watershed Management Plan. Three meetings were held across the watershed with the goal of engaging residents and soliciting a range of public issues. The meetings were held in August 2008 at: Sandy Lake (August 4); Rivers (August 5); and Minnedosa (August 7).

At each of the public meetings the attendees were asked to provide their top three concerns related to water within the Little Saskatchewan River watershed. Attendees were also asked to contribute ideas on how these issues could be resolved and, if

the issue was successfully resolved what that success would look like in 25 years. Participants at each of these public open houses were also asked to form groups, discuss the issues in the watershed and form a collective list of issues and solutions for the watershed. This was done to allow for discussions on issues and to obtain more general concerns within the watershed as opposed to site specific issues garnered through individual responses. All of the individual and group responses were collected and compiled in a digital format, word for word, by members of the PMT. The complete list of public and group concerns is available on the Assiniboine IWMP website at [www.uarcd.ca/IWMP](http://www.uarcd.ca/IWMP).

In order to analyze the individual and group responses, the public responses were categorized into a primary issue category (e.g. surface water quality), a sub-category if enough information was provided (e.g. nutrient application), and a target location if provided (e.g. Sandy Lake). This methodology required some subjectivity in the categorization process but concerted efforts were made to capture the essence of the issues. In the event that several concerns were addressed in one issue statement, the first issue mentioned was taken as the category, or the issue for which solutions were provided was taken as the dominant concern.

The following is a summary of what 33 watershed residents told us.



## Main Categorization of Issues

Table i - Individual Input

Category	1st Priority		2nd Priority		3rd Priority	
	#	%	#	%	#	%
Surface Water Quality	16	49	10	38	6	30
Natural Areas	5	15	4	15	6	30
Groundwater	3	9	3	12	3	15
Drinking Water	4	12	4	15	1	5
Surface Water Management	4	12	2	8	1	5
Soil			1	4	1	5
Education & Partnerships			2	8	0	-
Other	1	3	0	-	2	10
Total	33	100	26	100	20	100

Table ii - Group Input

Category	1st Priority		2nd Priority		3rd Priority	
	#	%	#	%	#	%
Surface Water Quality	3	43	4	57	1	17
Natural Areas	0	-	0	-	3	50
Groundwater	1	14	0	-	0	-
Drinking Water	1	14	0	-	0	-
Surface Water Management	2	29	3	43	1	17
Soil	0	-	0	-	0	-
Education & Partnerships	0	-	0	-	0	-
Other	0	-	0	-	1	16
Total	7	100	7	100	6	100

In order to better incorporate all of the public input and priorities, a weighting system was used which provides more relative importance (weight) to priority issues (i.e. 1st priority = 3 points, 2nd priority = 2 points, 3rd priority = 1 points). Figure i shows the results from the individual input based on this weighting system and Figure ii shows the results from the group input based on the same weighting system.

### Individual Issues - Weighted

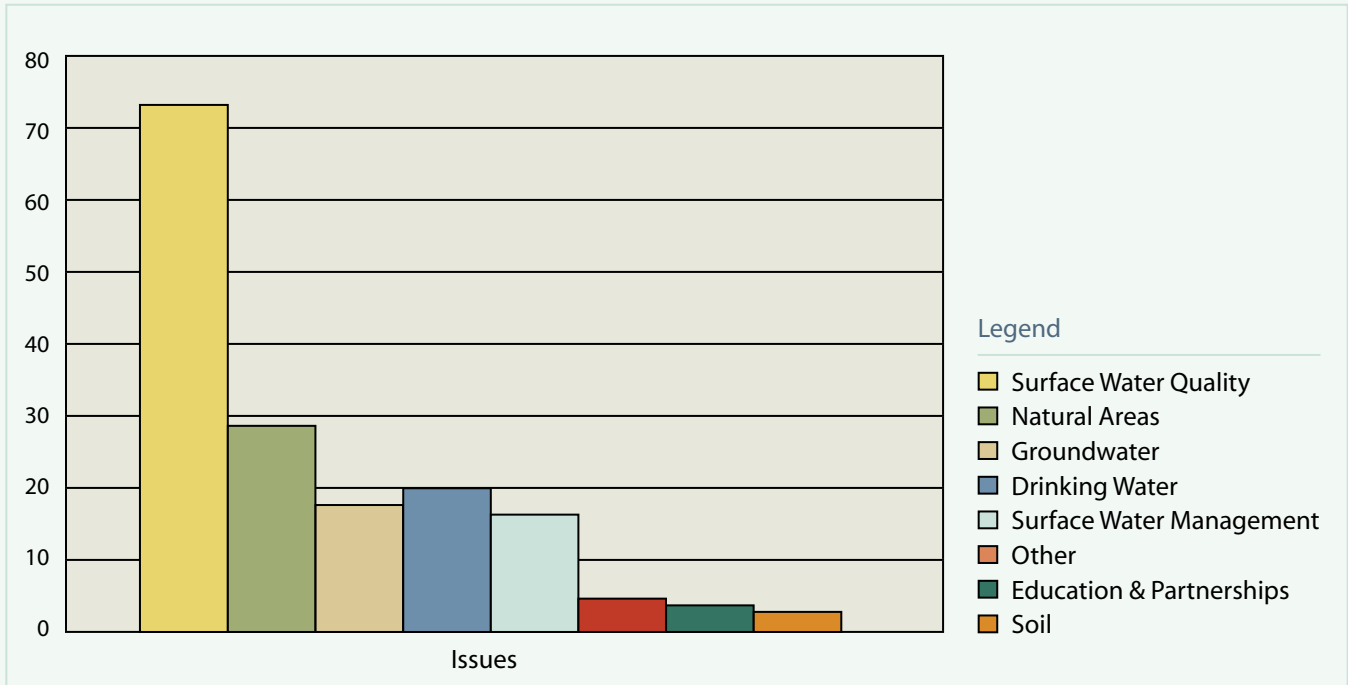


Figure i - Weighted ranking of individual issues based on priority level

### Group Issues - Weighted

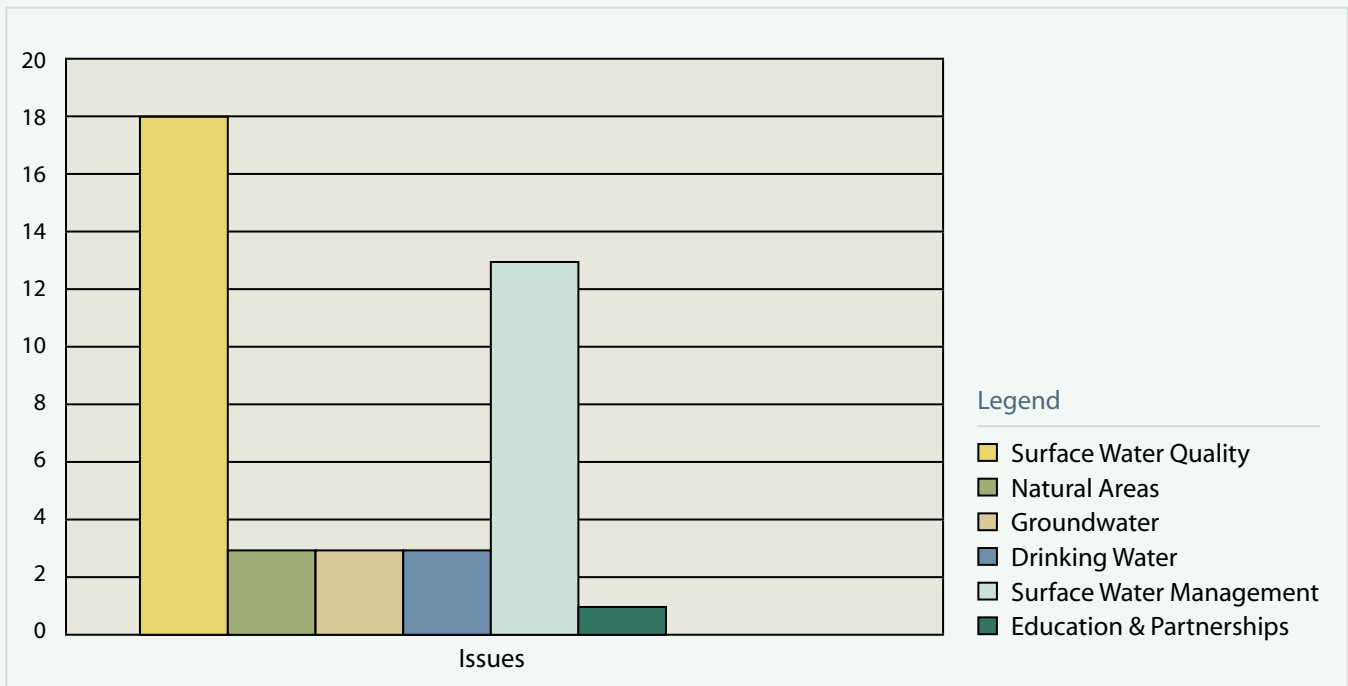


Figure ii - Weighted ranking of group issues based on priority level

## Public Priorities

The results from the individual and group results are similar, clearly placing Surface Water Quality as the most important issue to local residents. The top five local priorities were surface water quality, natural areas, surface water management, drinking water, and ground water; these five issues received 91% of the weight-ed support from individuals and 98% of the weighted support from groups.

1	Surface Water Quality
2	Natural Areas
3	Surface Water Management
4	Drinking Water
5	Groundwater

## Sub-Categorization of Issues

In order to provide more specific direction for the integrated watershed management plan the five highest priority areas of concern were further broken down into sub-categories. These sub-categories are outlined here in order to allow for a better understanding of the nature of the concerns and will, therefore, assist in the design of better and more relevant solutions. A glossary, explaining each of the sub-categories can be found at the end of this document.

### Surface Water Quality - Sub-categories

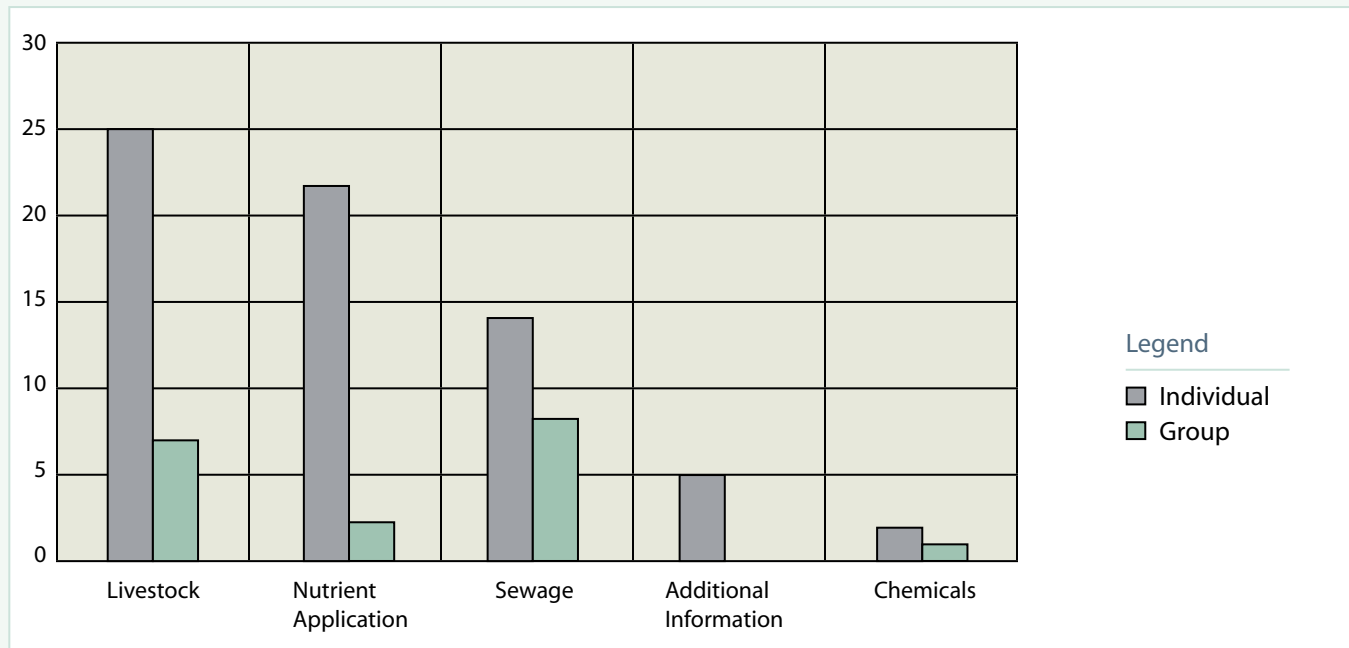


Figure iii - Sub-category issues related to surface water quality

### Natural Areas Concerns - Sub-categories

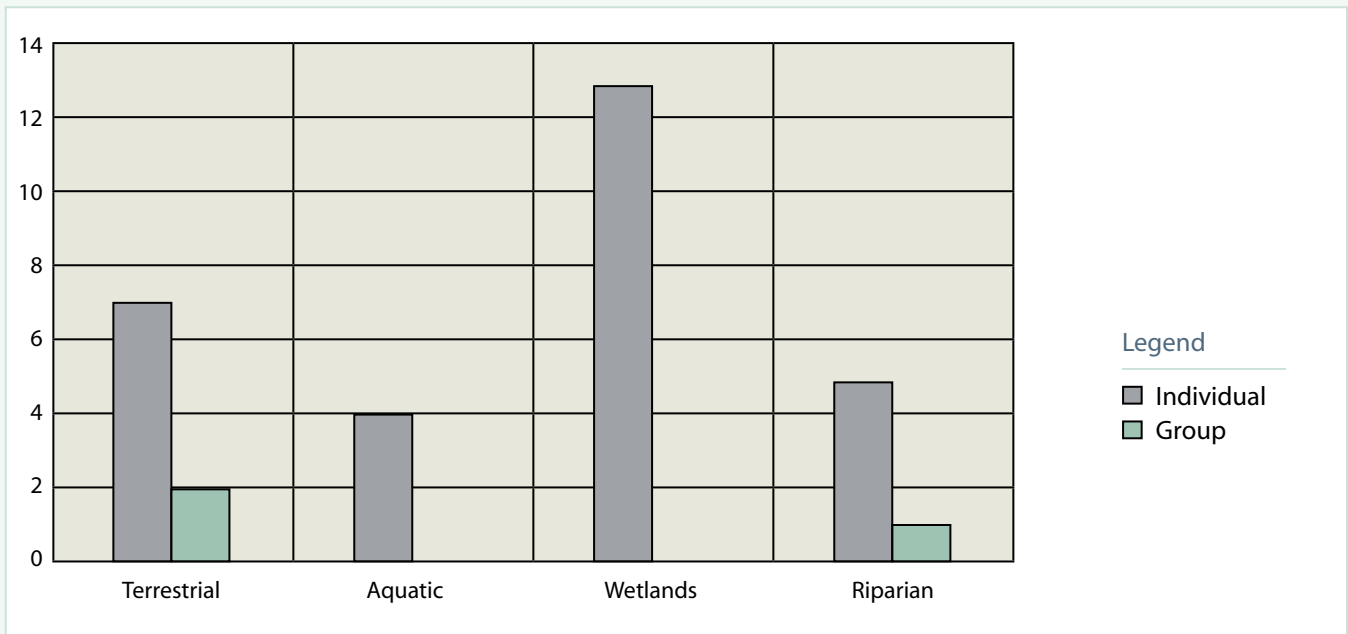


Figure iv - Sub-category issues related to natural areas

### Surface Water Management - Sub-categories

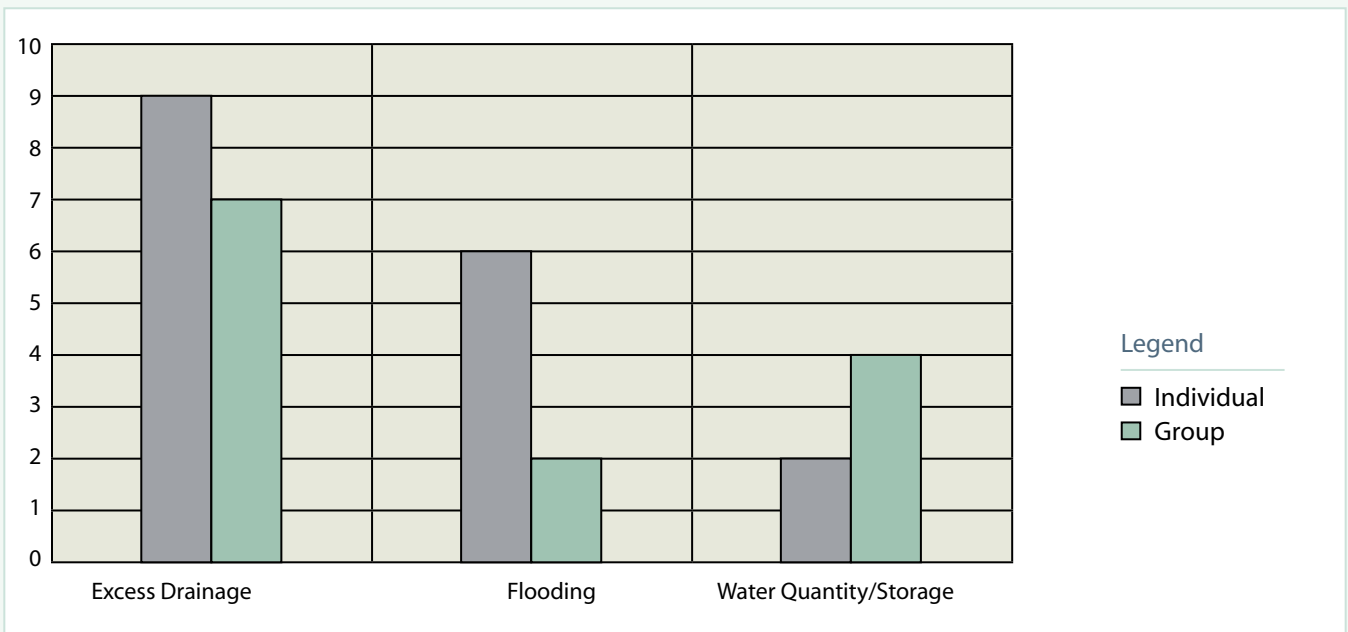


Figure v - Sub-category issues related to surface water management



### Drinking Water Concerns - Sub-categories

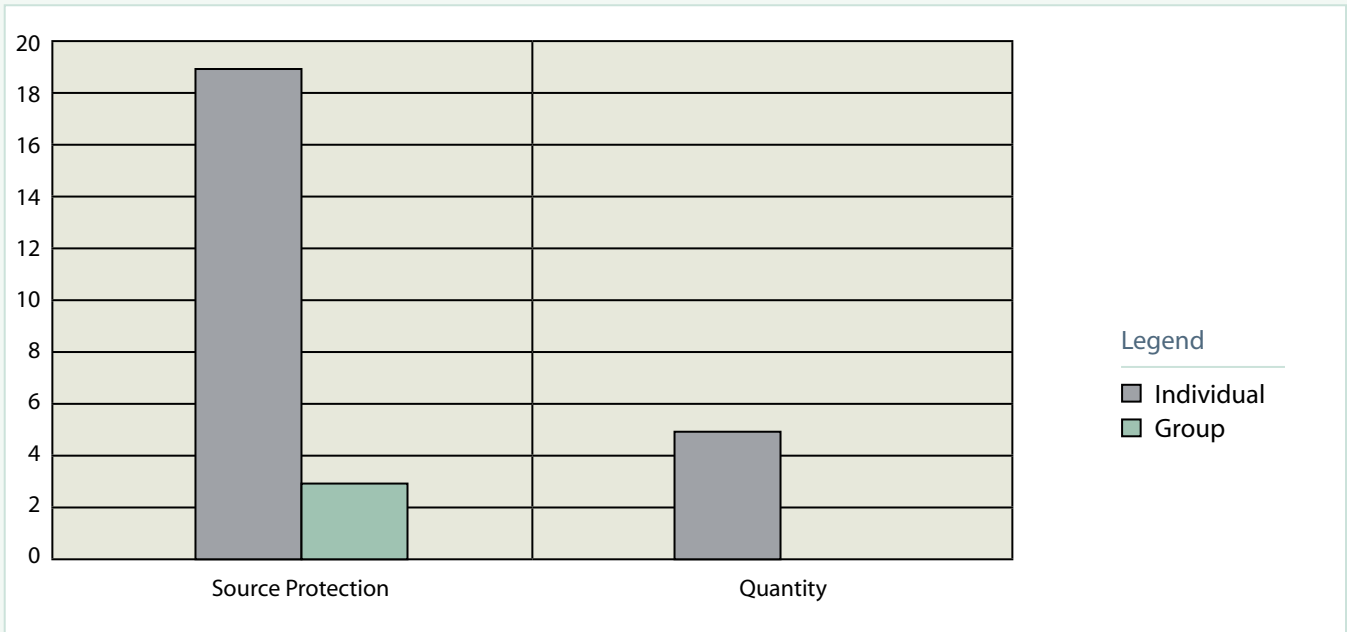


Figure vi - Sub-category issues related to drinking water

### Groundwater Concerns - Sub-categories

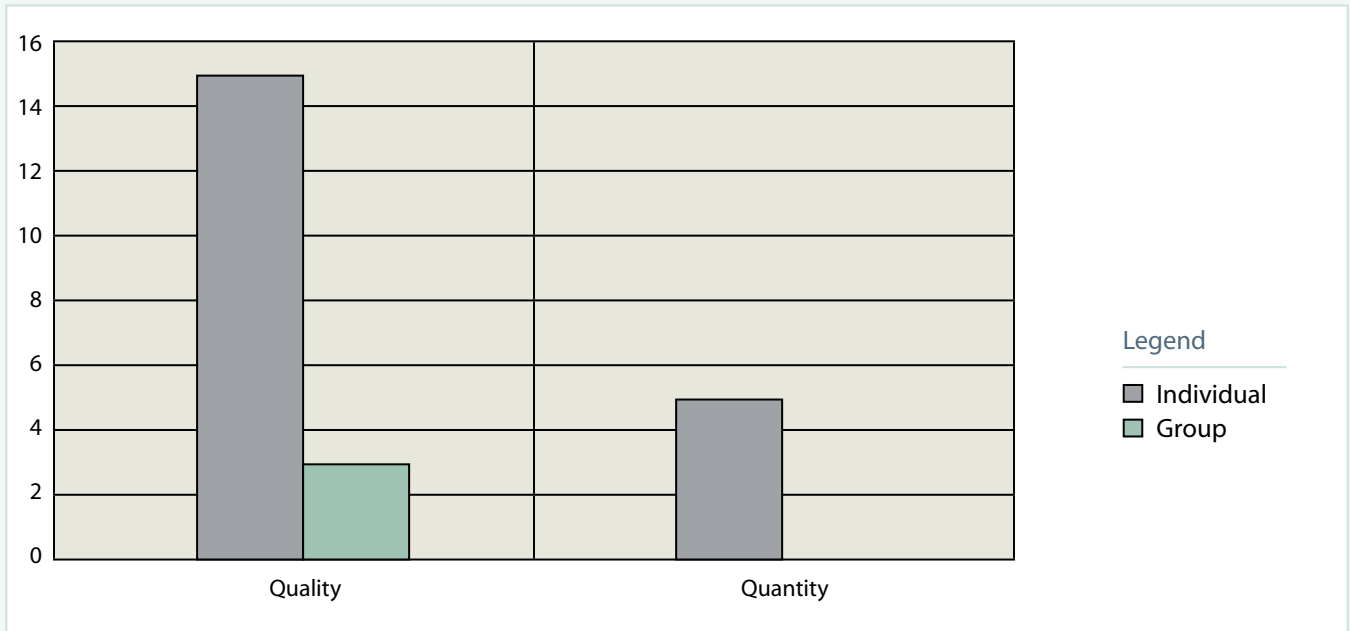


Figure vii - Sub-category issues related to groundwater

## Target Locations

### Surface Water Quality

Key areas identified for surface water quality concerns included: Sandy Lake with concerns of sewage and nutrient application. These concerns were generally echoed for all recreational lakes in the watershed including Clear Lake, Minnedosa Lake, Lake Wahtopanah, and Otter Lake.

### Natural Areas

The riparian area along the Little Saskatchewan River was identified by respondents as an area of concern. Concerns included unstable river banks. Protecting the Clear Lake aquatic ecosystem was also identified as a local target area.

### Drinking Water

The key target area for drinking water protection identified by respondents was the source water zones as mapped in the drinking water section of the State of the Watershed report.

### Groundwater

The key area for groundwater identified by respondents was areas where sand and gravel aquifers are located at or near the earth's surface as mapped in the groundwater section of the State of the Watershed report.

## Summary

This document was prepared for the benefit of the PMT, all watershed stakeholders, and the public at large in order to provide an overview of the concerns voiced by residents of the Little Saskatchewan River watershed. The five key issues in the Little Saskatchewan River watershed, as identified by the public, are: surface water quality, natural areas, surface water management, drinking water, and groundwater. The breakdown and analysis of the public input will be used by the PMT, in conjunction with the technical and scientific input, in the preparation of the Little Saskatchewan River IWMP.

## Glossary

### Main Categories

Main categories were established based on the statements provided to the PMT by the public. The PMT used the following definitions when categorizing comments into main categories.

**Surface water quality** - The health of any water body on the surface of the land including water runoff, creeks, rivers, wetlands and lakes

**Surface water management** - The control of surface water, primarily runoff, through the drainage network

**Drinking water** - Water for human consumption

**Groundwater** - Encompassing both the quality (health) and quantity (volume) of the water found under the Earth's surface in aquifers

**Natural areas** - A generic term referring to wetlands, riparian areas, woodlands, wildlife habitat and parks. This term does not necessarily refer to water but may refer to areas that are typically seen as beneficial to water quality.

**Education and Partnerships** - This category refers to a lack of public knowledge and/or a need for relationships amongst stakeholder groups.

**Soil** - The impact of soil on waterways and lakes which primarily refers to soil and shoreline erosion.

## Glossary (continued)

### Sub-Categories

Sub-categories were established based on the statements provided to the PMT by the public. The PMT used the following definitions when categorizing comments into sub-categories.

**Chemicals** - Primarily refers to agricultural chemicals such as: herbicides, pesticides and insecticides; and industrial chemicals

**Livestock** - The waste produced by domesticated animals

**Nutrient application** - Primarily refers to fertilizers such as nitrogen and phosphorous in agricultural, recreational, or urban applications

**Additional information** - A general shortage of historical/baseline data, limited monitoring capability, or uncertainty; may also indicate a lack of public awareness

**Sewage** - The waste derived from humans, includes both municipal and individual sources

**Terrestrial** - Grassland and woodland ecosystems

**Aquatic** - Aquatic ecosystems such as rivers, lakes, and other waterbodies

**Wetlands** - Wetland ecosystems including swamps, sloughs, bogs, and fens

**Riparian** - Riparian ecosystems are transitional areas between uplands and waterbodies

**Quality** - Refers to the health of the groundwater

**(Groundwater) Quantity** - Volume of water that is typically accessible from aquifers

**Source protection** - Providing safe drinking water

**Drinking Water Quantity** - Ensuring an adequate volume of drinking water, including one which is resilient to drought

**Flooding** - Excess water which causes damage to private property, crops, or infrastructure or which is found on the land for extended periods of time

**Water Quantity/Storage** - An area of land designated to be a water holding area, this could include wetlands or small retention dams

**Excess Drainage** - Refers to the removal of surface water at a rate or on a scale which is significantly different from an unaltered landscape, and which may have consequences to ecosystem health, water quality, and/or water quantity

Note: If you would like more information on the procedure we used or have further questions please feel free to contact Colleen Cuvelier, LSRCD Manager at (204) 566-2270.

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