



Riparian Area Management: Implementation Guidelines



About This Document

The health of riparian areas in the Battle River watershed is an area of concern. In particular, the impact of unhealthy areas on nutrient levels that poses a threat to water quality and the overall resilience and health of aquatic ecosystems in this watershed. Over 50% of the riparian areas within the Battle River watershed are slightly or severely impaired. Relatively little is known about riparian health in the Sounding Creek watershed. It is important to build a greater understanding of riparian health in this watershed in order to manage it effectively.

The following document outlines the BRWA's implementation guidelines for riparian areas management in the Battle River and Sounding Creek watersheds in Alberta. Riparian areas are one component of the BRWA's watershed management planning (WMP) process.

This advice was developed with broad input from watershed residents, stakeholders and decision-makers, and is supported by information compiled in the BRWA's *Understanding the Policy Context for Riparian Areas of the Battle River and Sounding Creek Watersheds* report.

Accompanying Policy Advice

This implementation guidelines document is accompanied by a corresponding policy advice document³. Whereas the policy advice document puts forward an overarching policy direction for riparian health and management of riparian areas, this implementation guidelines document describes options for management strategies aimed at supporting the implementation of that policy direction.

Guideline Purpose

The purpose of this implementation guidelines document is to provide recommendations for beneficial management practices and strategies that may be implemented to support the improvement of riparian health in the Battle River and Sounding Creek watersheds in Alberta.

Guideline Objectives

Overall objectives of this document:

- Promote the implementation of actions and strategies that help to:
 - Improve and maintain riparian health
 - Address the root causes of riparian health issues
- Provide information to watershed residents, stakeholders, and decision-makers on recommended management actions for riparian areas management
- Support regulatory discretion and adaptation to local and regional circumstances in the implementation of these actions

Guideline Application

These implementation guidelines apply to the Battle River and Sounding Creek watersheds within Alberta, and are intended for all residents, stakeholders and decision-makers within these watersheds. This includes all four orders of government (municipal, provincial, federal and First Nations), urban and rural residents, agricultural producers, business and industry, environmental and community organizations, academia and watershed stewardship groups.

The BRWA's WMP process is non-regulatory. Implementation of the policy advice and implementation guidelines developed for each of the BRWA's 12 watershed management priority areas is dependent on the voluntary actions of watershed residents, stakeholders and decision-makers. In addition, implementation of these recommendations is based on an adaptive management approach. The BRWA recognizes that we do not have a complete understanding of the natural and social systems functioning within the Battle River and Sounding Creek watersheds. Implementation actions are viewed as experiments that may or may not result in the desired outcomes; lessons learned through these experiments allow us to collectively improve watershed management approaches over time.

The BRWA will work to support the implementation of policies and management practices that align with the goals and objectives outlined in this document.

Implementation Guidelines

1 Society and Economics

Health of riparian areas influences the well-being of communities. Riparian health assessments are required to build a greater understanding of riparian conditions and ecological services provided for communities in the Battle River and Sounding Creek watersheds. Site-specific objectives would establish targets for restoration. Management strategies could then be developed to help achieve these targets.

Policy Objective:

Increase resilience of communities creating their capacity to address ecological issues.

Develop a framework to guide the decision-making process about trade-offs that need to be made regarding ecosystem services, development, and industrial use.

Implementation Guidelines:

Guideline	Responsibility
<p>1.1: Communities and stakeholders set priorities for riparian health at a regional level.</p> <p><i>Rationale: Communities need to work together at a regional level as water flows from one to another.</i></p>	<ul style="list-style-type: none"> • Watershed stakeholders • Municipal governments • Battle River Watershed Alliance • Regional Economic Development Alliances (REDAs) • AUMA/AAMDC • Local environmental groups • Agricultural organizations • Alberta Environment and Parks
<p>1.2: Build community capacity for riparian restoration.</p> <p><i>Rationale: Many factors are involved with enabling communities to address ecological issues. Barriers need to be dealt with to allow progress to be made.</i></p>	<ul style="list-style-type: none"> • Watershed stakeholders • Local environmental groups • Municipal governments • Battle River Watershed Alliance
<p>1.3: Mosaic of habitats on the to land to minimize ecological/economic trade-offs</p> <p><i>Rationale: Allows for increased community resilience and creates synergies for cultural services, such as rural agri-tourism, preservation of local crops and livestock varieties, promote local products and services,</i></p>	<ul style="list-style-type: none"> • Landowners & managers • Municipal governments • REDAs • Battle River Watershed Alliance • Alberta Agriculture and

Guideline	Responsibility
<i>create jobs, and help reduce rural emigration.</i>	Forestry

2 Ecology & Natural Areas

Riparian areas are important for fish and wildlife habitat. Many of the Environmentally Significant Areas (ESAs) are located in riparian areas of streams, rivers, and lakes in the Battle River and Sounding Creek watersheds. As a result, many of the parks and protected areas are also by waterbodies.

Policy Objective:

Protect ESAs, especially those located within riparian areas

Develop a framework to guide the decision-making process about trade-offs that need to be made regarding ecosystem services, development, and industrial use.

Implementation Guidelines

Guideline	Responsibility
2.1: Establish more protected/conservation areas around riparian ESAs	<ul style="list-style-type: none"> • Watershed stakeholders • Municipal governments • Conservation agencies • Battle River Watershed Alliance • Alberta Environment and Parks
2.2: Mosaic of habitats on the to land to minimize ecological/economic trade-offs <i>Rationale: Allows for increased community resilience and creates synergies for cultural services, such as rural agri-tourism, preservation of local crops and livestock varieties, promote local products and services, create jobs, and help reduce rural emigration.</i>	<ul style="list-style-type: none"> • Landowners & managers • Municipal governments • REDAs • Battle River Watershed Alliance • Alberta Environment and Parks • Alberta Agriculture and Forestry
2.3: Protect and restore fish habitat <i>Rationale: Much of fish habitat depends on the surrounding land use. This would improve fishing opportunities as well as riparian health.</i>	<ul style="list-style-type: none"> • Landowners & managers • Municipal government • Alberta Agriculture and Forestry • Alberta Environment and Parks

Guideline	Responsibility
	<ul style="list-style-type: none"> • Federal Department of Fisheries and Oceans
<p>2.4: Control and prevent invasive species</p>	<ul style="list-style-type: none"> • Watershed stakeholders • Landowners & managers • Municipal governments • Alberta Agriculture and Forestry • Alberta Environment and Parks • Federal Department of Fisheries and Oceans
<p>2.5: Both sides of streams have a minimum 30-metre-wide naturally vegetated riparian area to provide and protect aquatic habitat. To provide wildlife habitat functionality may require total vegetated riparian widths greater than 30 metres.</p>	<ul style="list-style-type: none"> • Watershed stakeholders • Landowners & managers • Municipal governments • Alberta Agriculture and Forestry • Alberta Environment and Parks
<p>2.6: A minimum of 75% of stream/river/shoreline length should be naturally vegetated.</p>	<ul style="list-style-type: none"> • Watershed stakeholders • Landowners & managers • Municipal governments • Alberta Agriculture and Forestry • Alberta Environment and Parks • Battle River Watershed Alliance
<p>2.7: Urbanizing watersheds maintain less than 10% impervious land cover in order to preserve the abundance and biodiversity of aquatic species.</p>	<ul style="list-style-type: none"> • Watershed stakeholders • Landowners & managers • Municipal governments • Alberta Low Impact Development Partnership • Alberta Agriculture and Forestry • Alberta Environment and Parks • Battle River Watershed Alliance

3 Water Supply

As natural buffer zones, riparian areas play a significant role in protecting water quality and reducing adverse water quality impacts associated with non-point source pollution.

Riparian areas slow water movement and help store water in flood and drought events.

Policy Objectives:

Recognize the importance of riparian areas in reducing impact of extreme water events and water quality.

Implementation Guidelines:

Guideline	Responsibility
<p>3.1: Water quality monitoring for lakes and tributary streams in the Battle River and Sounding Creek watersheds in order to quantify non-point source pollution loads in these systems.</p> <p>Based on monitoring results, discuss where the development of site-specific water quality objectives for tributaries and lakes may be appropriate.</p>	<ul style="list-style-type: none"> • Watershed stakeholders • Alberta Agriculture and Forestry • Alberta Environment and Parks • Alberta Lake Management Society (ALMS)
<p>3.2: Support the implementation of beneficial non-point source pollution management practices through incentive programs and other support mechanisms.</p>	<ul style="list-style-type: none"> • Landowners & managers • Watershed residents • Municipal governments • Alberta Agriculture and Forestry • Alberta Environment and Parks • Agricultural organizations • Battle River Watershed Alliance
<p>3.3: Maintain and restore riparian vegetation within the 1/100 year flood zone around all lakes, wetlands, rivers, and streams.</p>	<ul style="list-style-type: none"> • Landowners & managers • Municipal governments • Alberta Agriculture and Forestry • Alberta Environment and Parks
<p>3.4: Maintain flood plain structure and function</p>	<ul style="list-style-type: none"> • Landowners & managers • Municipal governments • Non-governmental organizations • Alberta Agriculture and

Guideline	Responsibility
	Forestry <ul style="list-style-type: none"> • Alberta Environment and Parks
3.5: Establish riparian and wetland restoration projects in key areas in the watershed, with a focus on restoration efforts that support water quality enhancement.	<ul style="list-style-type: none"> • Landowners & managers • Municipal governments • Wetland restoration agencies • Alberta Agriculture and Forestry • Alberta Environment and Parks • NAWMP
3.6: Develop a riparian and wetland restoration strategy to guide 3.5 work with emphasis placed on protecting existing wetlands, thereby preventing further wetland loss	<ul style="list-style-type: none"> • Landowners & managers • Municipal governments • Wetland restoration agencies • Alberta Agriculture and Forestry • Alberta Environment and Parks • NAWMP
3.7: Maintain or restore riparian and wetland areas on private or municipal property	<ul style="list-style-type: none"> • Landowners & managers • Municipal governments • Wetland restoration agencies • Alberta Agriculture and Forestry • Alberta Environment and Parks
3.8: Develop flood and drought adaptation and management plans using natural infrastructure.	<ul style="list-style-type: none"> • Landowners & managers • Municipal governments • Battle River Watershed Alliance • Alberta Environment and Parks • Alberta Agriculture and Forestry

4 Land Use

Loss of native vegetation from agricultural lands, urban areas, and erosion are recognized as significant contributors to surface water quality degradation in Alberta. Balancing ecosystem needs and land use need is crucial in addressing riparian issues.

Policy Objective:

Promote beneficial management practices

Maintain economic viability

Develop a means to support those involved in development and agriculture to maintain ecosystem services

Guideline	Responsibility
<p>4.1: Develop a management strategy for off highway vehicles (OHVs) and other motorized vehicle use in riparian areas and wetlands.</p>	<ul style="list-style-type: none"> • Watershed stakeholders • Recreational organizations • Municipal governments • Battle River Watershed Alliance • Alberta Wilderness Association • Alberta Environment and Parks
<p>4.2: Development of urban riparian management framework.</p>	<ul style="list-style-type: none"> • Watershed stakeholders • Community groups • Municipal governments • AUMA/AAMDC • Battle River Watershed Alliance
<p>4.3: Encourage agricultural producers to implement beneficial crop management practices in order to maintain and improve the health of riparian areas in the watershed.</p>	<ul style="list-style-type: none"> • Agricultural producers • Agricultural organizations • Municipal governments • Cows and Fish • Alberta Environment and Parks • Alberta Agriculture and Forestry • Battle River Watershed Alliance

Guideline	Responsibility
<p>4.4: Encourage livestock producers to implement beneficial grazing management practices in order to maintain and improve the health of riparian areas in the watershed. A suite of beneficial management practices may be pursued, including:</p> <ul style="list-style-type: none"> ▪ Exclude livestock from (or limiting livestock access to) surface water bodies and water ways and utilizing off-site/off-stream watering systems. This serves to protect sensitive riparian areas, thus supporting water quality improvements. ▪ Implement alternative grazing techniques, such as rotational grazing, in order to prevent overgrazing. Reducing cattle stocking density may also limit overgrazing of pasture land. Limiting overgrazing may significantly improve the quality of runoff water by limiting soil erosion. 	<ul style="list-style-type: none"> • Agricultural producers • Agricultural organizations • Municipal governments • Cows and Fish • Alberta Environment and Parks • Alberta Agriculture and Forestry • Battle River Watershed Alliance
<p>4.5: Utilize the Environmental Farm Plan process as the foundation for encouraging agricultural producers in the Battle River and Sounding Creek watersheds to examine practices on their land and undertake management practices that promote environmental stewardship and watershed sustainability. Utilize programs to support agricultural producers in completing and implementing Environmental Farm Plans.</p>	<ul style="list-style-type: none"> • Landowners & managers • Agricultural Research and Extension Council of Alberta • Regional Environmental Farm Plan technicians • Battle River Watershed Alliance
<p>4.6: Use tools like Riparian Setback Matrix Model to determine optimal buffer before development of lands near watercourses.</p> <p>4.6.1.: Use of setback tool could be part of development permit process and done at developer's expense.</p>	<ul style="list-style-type: none"> • Landowners & managers • Developers • Municipal governments • Alberta Environment and Parks • Alberta Agriculture and Forestry • Alberta Energy Regulator
<p>4.7: Develop land use bylaw regarding natural resource extraction as it pertains to gravel pits.</p>	<ul style="list-style-type: none"> • Municipal governments
<p>4.8: Develop guidelines and regulations limiting riparian area damage during construction of pipeline and water crossings, and restoration after construction has completed.</p>	<ul style="list-style-type: none"> • Alberta Environment and Parks • Alberta Energy Regulator

Guideline	Responsibility
<p>4.9: Strengthen compliance in regards to removal and alteration of riparian areas and fish habitat around waterbodies.</p>	<ul style="list-style-type: none"> • Municipal governments • Alberta Environment and Parks • Federal Department of Fisheries and Oceans

5 Riparian Health, Management, and Restoration

Riparian health monitoring is required to build a greater understanding of riparian conditions and trends and identify areas of concern in the Battle River and Sounding Creek watersheds. Site-specific riparian health objectives would establish targets for riparian health maintenance and restoration. Management strategies could then be developed to help achieve these targets.

Policy Objective:

To create a management framework in which all riparian stakeholders are encouraged to manage the land to protect and/or restore the functions of the riparian area in an effort to facilitate implementation priorities and decisions.

Guideline	Responsibility
<p>5.1: Establish riparian restoration projects in key areas in the watershed based on completed riparian health assessments.</p> <p>5.1.2 Develop a riparian restoration strategy to guide the work.</p> <p>5.1.3 Maintain or restore riparian buffer strips on property.</p> <p>5.1.4 Protect riparian areas that are currently in good health</p>	<ul style="list-style-type: none"> • Landowners & managers • Municipal governments • Watershed stakeholders • Battle River Watershed Alliance • Cows and Fish • Alberta Environment and Parks • Alberta Agriculture and Forestry
<p>5.2: Create a management plan for riparian areas and surrounding land</p>	<ul style="list-style-type: none"> • Landowners & managers • Municipal governments • Battle River Watershed Alliance
<p>5.4: Development and application of a riparian areas monitoring and restoration strategy as joint work by the Government of Alberta and the designated Watershed Planning and Advisory Council for the Battle River Basin, as well as for Sounding Creek Basin.</p>	<ul style="list-style-type: none"> • Battle River Watershed Alliance • Alberta Environment and Parks
<p>5.5: Manage and utilize beaver activity to promote healthy</p>	<ul style="list-style-type: none"> • Landowners & managers

Guideline	Responsibility
<p>riparian areas.</p> <p>5.5.1 Develop policy and guidelines pertaining to relocation of beaver for restoration purposes</p>	<ul style="list-style-type: none"> • Municipal governments • Cows and Fish • Alberta Environment and Parks
<p>5.6: Riparian restoration projects to increase resilience of the watershed to drought and flood.</p>	<ul style="list-style-type: none"> • Battle River Watershed Alliance • Cows and Fish • Alberta Agriculture and Forestry • Watershed Resilience and Restoration Program (AEP)
<p>5.7: Complete riparian health assessments on a regular basis for the main stem of the Battle River, as well as for tributary streams, lakes, and wetlands within the Battle River and Sounding Creek watersheds. Various methods may be utilized to complete these assessments, such as aerial videography and on-the-ground riparian health assessments.</p> <p><i>Rationale: Determining the health of a riparian area is an essential first step in determining what management actions may be required in that area</i></p>	<ul style="list-style-type: none"> • Landowners & managers • Cows and Fish • Alberta Conservation Association • Battle River Watershed Alliance • Alberta Environment and Parks • Alberta Agriculture and Forestry
<p>5.7: Collection and dissemination of floodplain information for all mainstem rivers</p>	<ul style="list-style-type: none"> • Alberta Environment and Parks

About the Battle River Watershed Alliance

The Battle River Watershed Alliance (BRWA) was created in 2006 as a non-profit society. Shortly after its formation, the BRWA was selected by Alberta Environment, under *Water for Life: Alberta's Strategy for Sustainability*¹, as the designated Watershed Planning and Advisory Council (WPAC) for the Battle River and Sounding Creek watersheds within Alberta.

Under Alberta's *Water for Life* strategy, WPACs have a role to report on the state of the watershed, lead in watershed planning, develop best management practices, educate users of the water resource and foster stewardship activities within the watershed.

The BRWA works in partnership with communities, individual watershed residents, watershed stewardship groups, all four orders of government (municipal, provincial, federal and First Nations), industry, academia, and environmental organizations to promote the health and sustainable management of the land and water resources of the Battle River and Sounding Creek watersheds using the best science and social science available.

We exist to have a watershed that sustains all life by using sound knowledge, wisdom, and wise actions to preserve our watershed for future generations.

¹ Government of Alberta. (2003). *Water for Life: Alberta's Strategy for Sustainability*. Available from <http://www.waterforlife.alberta.ca/>

About BRWA’s Watershed Management Planning Process

As the provincially designated Watershed Planning and Advisory Council (WPAC) for the Battle River and Sounding Creek watersheds within Alberta, the BRWA has a role to lead in watershed planning.

The BRWA’s Watershed Management Planning Process was initiated in 2011. This planning process will ultimately result in a comprehensive Watershed Management Plan for the Battle River and Sounding Creek watersheds in Alberta, and is guided by the *Battle River Watershed Management Planning Process Phase Two Terms of Reference*².

The Watershed Management Planning Process will address a number of watershed management priorities that have been identified through the BRWA’s 2011 State of the Watershed Report³ and extensive public engagement. These priorities are outlined in the figure below.

Policy advice and implementation guidelines will be developed for each of these priority areas. These documents will comprise the Watershed Management Plan for the Battle River and Sounding Creek watersheds in Alberta.

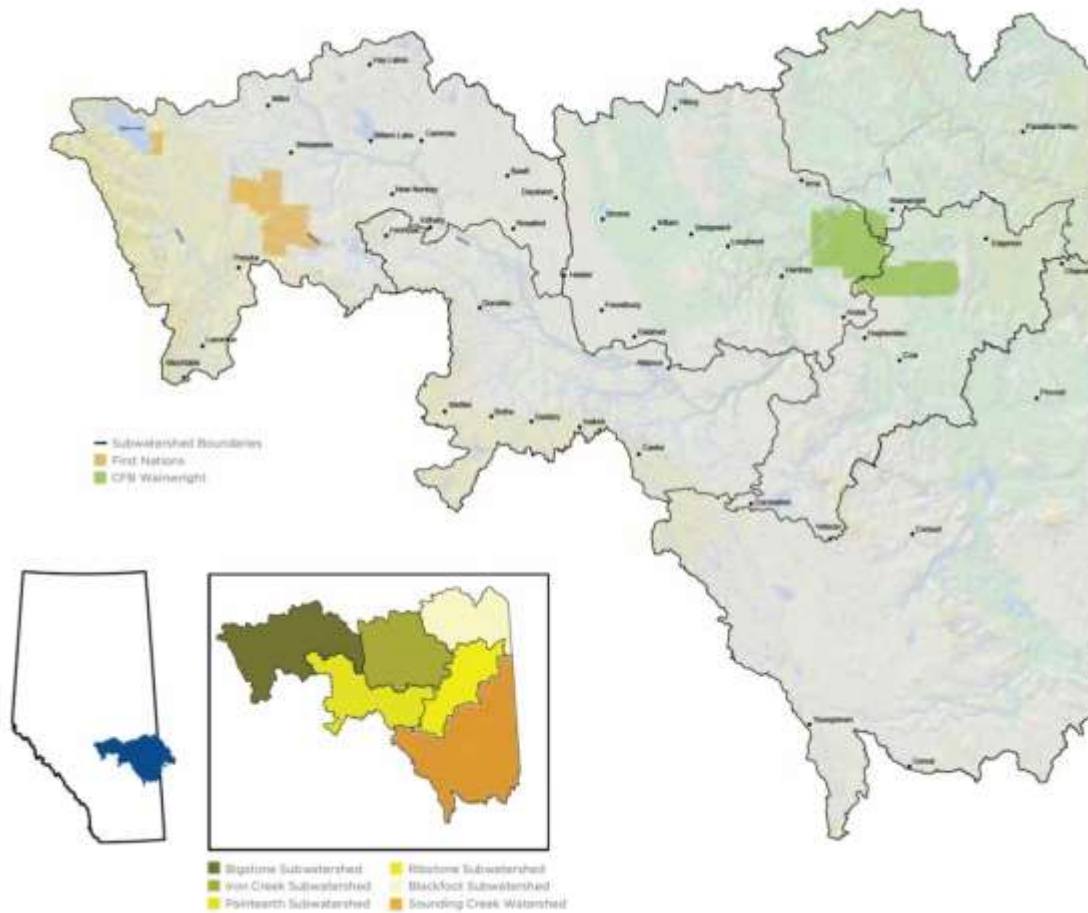


Key components of the BRWA's Watershed Management Planning Process

² Battle River Watershed Alliance (BRWA). (2012). *Battle River Watershed Management Planning Process Phase Two Terms of Reference*. Battle River Watershed Alliance Watershed Planning Report. Available from <http://www.battleriverwatershed.ca/publications/161/view>

³ Battle River Watershed Alliance (BRWA). (2011). *State of the Battle River and Sounding Creek Watersheds Report 2011*. Battle River Watershed Alliance. Available from <http://www.battleriverwatershed.ca/content/state-watershed-report>

Battle River and Sounding Creek Watersheds within Alberta



This is our battle: the watershed we all share, and the fight to maintain a healthy environment, vibrant communities, and a stable economy. x

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