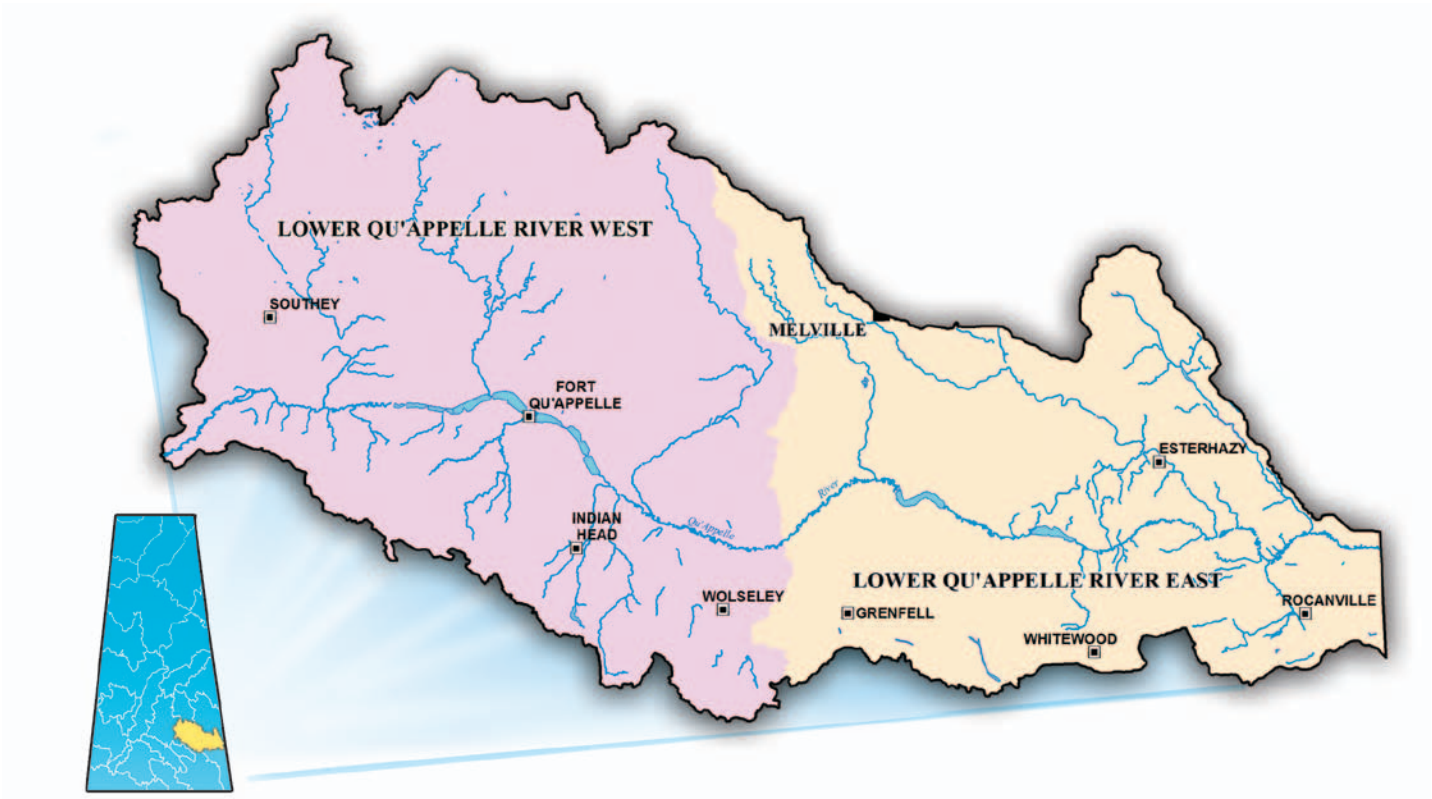
S A S K A T C H E W A N

Water Security Agency

March 2013

Lower Qu'Appelle River Watershed Plan



Lower Qu'Appelle Watershed Stewards

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Message from the President, Water Security Agency

The Water Security Agency is mandated to ensure protection of water quality, safe drinking water, maintenance of infrastructure, aquatic habitats and sustainable water supplies, and to lead implementation of the 25 Year Saskatchewan Water Security Plan.

Watershed planning and implementation of the resulting plans is a program that establishes partnerships between government, industry stakeholders and communities in working toward these goals and it pleases me to point out that the commitment to this activity is entrenched in the 25 Year Saskatchewan Water Security Plan.

I would like to congratulate the members of the watershed advisory and technical advisory committees, the board of the Lower Qu'Appelle Watershed Stewards Inc. and the Water Security Agency planning staff on the development of this watershed plan. The Lower Qu'Appelle River Watershed Plan is a welcome addition to Saskatchewan's already impressive suite of plans. This plan establishes an integrated and comprehensive strategy to address the challenging issues facing the watershed.

Thank you to the dedicated volunteers who contributed significant time and effort toward this initiative and for your ongoing efforts as you move on to the implementation of the plan.

It is particularly gratifying for me to realize that ensuring a sustainable water supply to support our communities, business and industry needs, a healthy environment and our quality of life is a vision shared by government and citizens of Saskatchewan.

Wayne Dybvig, President
Water Security Agency

Message from the Lower Qu'Appelle Watershed Stewards Inc.

Water management and protection is of critical importance to the people of the Lower Qu'Appelle River Watershed. Whether from a farm, First Nation, resort community, town or village, all residents desire a high-quality water supply for their own use and to sustain the environment. To protect the quality of life we enjoy as residents of the Lower Qu'Appelle River Watershed, the water resources must be managed well.

The need for a reliable water supply of appropriate quality is entrenched in the Lower Qu'Appelle River Watershed Plan vision: a long-term, stable, high-quality water supply for people and for the environment; healthy ecosystems; and water quality in the Lower Qu'Appelle Lakes able to support recreation, fishing and economic development within the ecological limits of the system.

On behalf of the Lower Qu'Appelle Watershed Stewards Inc. (Stewards), we appreciate the thought, time and effort that the Watershed Advisory Committee members invested in developing the plan. It has been an interesting and rewarding experience. We also appreciate the efforts of the Technical Advisory Committee members and the Water Security Agency planning team, for their important roles in developing this plan.

With the publication of the Watershed Plan, the Stewards will now concentrate their efforts on its implementation. We believe that this is only the beginning of an organization that will grow and develop to represent and serve the people of this region. Many challenges and diverse interests may arise in the future as this part of the province realizes population growth, industrial development and increased demands on natural resources, and the Lower Qu'Appelle Watershed Stewards Inc. are anxious to participate in meeting these challenges.

Bob Bruce and **Don Jensen**, Co-chairs
Lower Qu'Appelle Watershed Stewards Inc.

1. Executive Summary

Reliable, high-quality water supplies are required to meet the current and future needs of the people of Saskatchewan. The release of the 25 Year Saskatchewan Water Security Plan in October 2012 establishes the direction to meet this need. Programs to support the achievement of the Government of Saskatchewan's vision for *Water supporting economic growth, quality of life and environmental well-being* are outlined in the 25 Year Saskatchewan Water Security Plan.

Watershed planning and implementation of the resulting plans, as described in Action Area 3.4 of the 25 Year Saskatchewan Water Security Plan, "Source water protection planning", is one program that can engage local communities in working toward this vision. The Government of Saskatchewan, in partnership with grassroots stakeholder groups, has engaged in watershed planning since 2003 and has developed plans for one aquifer and ten watersheds to date.

In the spring of 2009, planning staff from the Water Security Agency (WSA) invited stakeholders in the Lower Qu'Appelle River Watershed to participate in watershed planning. These stakeholders, representing various organizations within the watershed, were formed into two watershed advisory committees (WAC): the Eastern and Western Lower Qu'Appelle River WACs. A technical advisory committee (TAC) was also established with members representing resource management organizations and regulatory agencies such as the WSA, Ministries of Environment and Agriculture and other government and non-government organizations.

WAC meetings began in January 2010. During these meetings, members of the WACs received presentations from members of the TAC, reviewed technical information provided by planning staff from the WSA, and discussed interests and issues. The final result of these meetings and the significant efforts of dedicated volunteers and government and non-government staff is the Lower Qu'Appelle River Watershed Plan (Watershed Plan).

The vision for the watershed is

- A long-term, stable, high-quality water supply for people and for the environment
- Healthy ecosystems. Water quality in the Lower Qu'Appelle Lakes will be able to support recreation, fishing and economic development within the ecological limits of the system.

Subsequent components of the Watershed Plan include goals, objectives and key actions. These components are grouped into the following eight categories:

- Source water protection and safe drinking water,
- Water quality,
- Water quantity and flow,
- Industry (agriculture and other),
- Upland water management,
- Wastewater management,
- Landfills and solid waste management, and
- Governance, implementation and collaborative processes.

These components establish a comprehensive and integrated approach to make positive change toward achieving the vision for the watershed.

The Stewards were formed in 2012 and include representatives of the organizations that participated on the WACs. This grassroots, community-based, not-for-profit corporation will collaborate with local stakeholders and the government and non-government organizations that participated in the planning process to lead the implementation of the Watershed Plan.

2. Forward

Abundant, high-quality water supplies are a fundamental component of any sustainable community. To meet this need, the Province of Saskatchewan released the 25 Year Saskatchewan Water Security Plan in October 2012. The 25 Year Saskatchewan Water Security Plan is a forward-looking document that seeks to deal with water issues not currently being addressed or in need of review or revitalization.

The 25 Year Saskatchewan Water Security Plan will ensure the sustainability and quality of Saskatchewan's surface and ground water supplies while protecting drinking water supplies from the source to the tap. The 25 Year Saskatchewan Water Security Plan outlines seven goals to achieve the vision:

- Sustainable Supplies;
- Drinking Water Safety;
- Protection of Water Resources;
- Safe and Sustainable Dams;
- Flood and Drought Damage Reduction;
- Adequate Data, Information and Knowledge; and
- Effective Governance and Engagement.

Source water is the raw, untreated surface or ground water from which drinking water is withdrawn.

In conjunction with the release of the 25 Year Saskatchewan Water Security Plan, the government announced the creation of the WSA. The WSA represents the consolidation of government's core water management expertise and brings various provincial responsibilities for water together. The WSA leads management of the province's water resources to ensure safe drinking water sources and reliable water supplies for economic, environmental and social benefits for Saskatchewan people.

In support of the mandate, the WSA engages in watershed planning. Watershed planning is a framework for environmental management that focuses efforts to address high priority issues related to water within a defined geographic region. To achieve this, the WSA utilizes the watershed and aquifer planning model, *Protecting our Water: a Watershed and Aquifer Planning Model for Saskatchewan* (Model) to guide watershed planning with stakeholders at the community level.

Qu'Appelle River
Credit: Water Security Agency

The Model focuses on protecting water at the source through an approach known as source water protection. Source water protection is an essential component of any strategy to minimize contamination risks in a drinking water system (CCME 2002, 9).

In addition to focusing efforts on source water protection in the strict sense, the Model is designed to allow participants to explore and address additional water related concerns. These include concerns related to water quality and quantity, water demands, flooding and drought, climate change, the protection of riparian and wetland areas, and the maintenance of biodiversity.

Watershed planning is a collaborative effort among government and non-government agencies and local stakeholders. The planning process identifies and explores threats to water quality, water quantity and the aquatic ecosystem and provides a forum for stakeholders to develop a plan that contributes to sound water management.

The watershed planning process also relies on the expertise of natural resource managers from government and non-government agencies. These experts assemble information to target areas of concern, inform discussion among partner agencies and stakeholder representatives, present options to address issues, answer questions from WAC members and engage in decision making in the development of the actions within the watershed plan.

Regardless of the scope of the resulting watershed plan, the Model is designed to achieve consensus, collaboration and stakeholder involvement throughout the planning process. With a focus on protecting the quality and quantity of water supplies, the planning process is designed to identify threats and develop strategies to address them at the watershed level.

Figure 1 – Lower Qu'Appelle River Watershed

Once the watershed plan is developed, a non-profit community-based organization is formed to lead the implementation of the watershed plan. To date, 10 watershed stewardship groups, including the recently formed Stewards, have been formed and are currently implementing the published watershed and aquifer plans. These watershed stewardship groups receive technical support from the federal and provincial government and non-government organizations, receive core funding from the WSA and leverage this core funding to access additional funding to facilitate plan implementation.

The Lower Qu'Appelle River Watershed

The Lower Qu'Appelle River Watershed is located in southeastern Saskatchewan and covers an approximate area of 17,800 square kilometres (see Figure 1). Forming the lower or downstream half of the Qu'Appelle River Basin, the Lower Qu'Appelle River Watershed begins near the Town of Craven and terminates in Manitoba.

The Qu'Appelle River is the dominant watercourse in the watershed. The river is a fairly slow-moving system with its headwaters located at the Qu'Appelle River Dam on Lake Diefenbaker (Upper Qu'Appelle River Watershed) and terminating at its confluence with the Assiniboine River located in Manitoba. The scope of the plan is limited to the portion of the watershed located in the Province of Saskatchewan downstream from the Town of Craven.

Water diverted from Lake Diefenbaker to the Qu'Appelle River system via the Qu'Appelle River Dam also has a significant effect on the watershed. This water is used to augment the natural water supply in the Qu'Appelle River Basin. Releases are made from the dam to the Qu'Appelle River to provide water supplies for the cities of Regina and Moose Jaw as well as a number of smaller communities. These releases also meet the demands of a number of industries, irrigation and other agricultural needs along the river system, and provide for the maintenance of acceptable lake levels to meet recreational needs.

The most distinctive characteristic of the Lower Qu'Appelle River Watershed is the Qu'Appelle River Valley. The valley originated as a glacial spillway and runs the entire length of the watershed. The Qu'Appelle Valley has a relatively flat bottom with steep side slopes, and varies from 1.6 to 3.2 kilometres in width (SaskWater 1997, 2). The Qu'Appelle River is confined to the Qu'Appelle Valley and flows through six major lakes. From west to east these lakes include Pasqua, Echo, Mission, Katepwa, Crooked and Round Lakes. The Qu'Appelle River is a mature stream with a broad flood plain and freely developed meanders. The river channel has a low gradient and its capacity varies significantly throughout its length. Major tributaries to the Qu'Appelle River are the Loon, Jumping Deer, Pheasant, Kaposvar Creeks. Lesser tributaries include the Pearl, Indianhead, Redfox, Ekapo, Cutarm and Scissor Creeks (SaskWater 1997, 1).

Fairy Hill Marsh
Credit: Water Security Agency

The watershed is characterized by hot summers, cold winters, moderate precipitation and variable weather patterns. In addition to the significant variations in both seasonal and annual temperatures and precipitation, wide fluctuations in temperature from day to day and between day and night are common. The mean annual precipitation varies from about 360 mm to 470 mm with the wettest periods occurring in June and July. Snowfall, which averages less than 110 cm annually, accounts for about 25 percent of total annual precipitation (SaskWater 1997, 2).

The Lower Qu'Appelle River Watershed includes the City of Melville, 16 towns and 29 villages, 16 First Nations and resort villages along the lakes. Economic activity within the watershed includes agriculture, tourism, potash mining, and oil and gas development. Agriculture, both crop production and livestock production, is an important economic driver in the watershed. Potash and oil and gas extraction are more localized, yet also important economic drivers. Recreation-based tourism is another important support of the watershed economy, and this is particularly true of the Lower Qu'Appelle Lakes.

State of the Watershed Report

The WSA publishes the State of the Watershed Report (Report). The Report can be utilized to provide an overall indication of the health of a specific watershed in Saskatchewan. The reporting process is based on a Stress-Condition-Response Model and uses indicator-based assessments to rate watershed health, environmental stressors and management responses. This model explicitly recognizes relationships between the health of the watershed (condition), human impacts on the ecosystem (stressors) and the associated management activities (responses) that have been adopted to mitigate the stresses and improve the health of the watershed.

The Lower Qu'Appelle River Watershed, as determined by the 2010 State of the Watershed Report, is classified as Stressed. This means that although the watershed has no degradation in function or the services it provides, it has lost resistance to change. As evident in Table 1 below, three of the four conditions are rated as stressed. These include surface and ground water quality and riparian areas.

Table 1 – Lower Qu'Appelle River Watershed State of the Watershed Condition Indicators

Condition Indicators	Status
Surface Water Quality	Stressed
Ground Water Quality	Stressed
Aquatic Benthic Macroinvertebrate	Healthy
Riparian Areas	Stressed
Rangeland Health	N/A*
Environmental Acidification	N/A*
Health Grade	Stressed

*NA indicates that data are either unavailable or not applicable for that watershed

3. Watershed Planning Process

Watershed planning in Saskatchewan is based on intense collaboration between government and local community stakeholders. The management and protection of the water resources for the benefit of Saskatchewan residents is best served when stakeholders collaborate through frank rapport and mutual respect, then commit to actions that support the vision and goals of the watershed plan. Involving local stakeholders is vital to ensure the plan is implemented since this involvement establishes local support and ownership of the watershed plan.

Assembly of the Teams

The development of the Watershed Plan established partnerships between local and technical stakeholders. The Model prescribes the formation of the WACs, a TAC and a planning team. Members of the WAC represent the interests and issues of their organizations, while working through a consensus-based approach to develop the Watershed Plan. TAC members are a key component of the planning process as they provide technical content to support decision-making and provide recommendations on plan components. Lastly, the planning team works collaboratively with both the WAC and TAC to facilitate and guide plan development.

The WAC included local representatives from rural and urban municipalities, First Nations, Métis, resort villages, fish and wildlife groups, agricultural producer groups and private industry. The Lower Qu'Appelle River Watershed was separated into two planning areas for logistical considerations; specifically, to reduce travel times for the members of the WAC. These two planning areas were the Eastern and Western Lower Qu'Appelle River WACs (see Figure 2).

During the initial planning meetings, each of the WACs reviewed and ratified terms of reference prepared and introduced by a member of the planning team. This document included the principles of the planning process and an explanation of the consensus-based decision-making process.

The TAC included representatives from agencies with expertise or regulatory responsibilities in natural resource management and human health protection. Several divisions of the WSA provided staff for this project, including drinking water, water quality and surface and ground water specialists. External agencies represented on the TAC included:

- Federation of Saskatchewan Indian Nations;
- Fisheries and Oceans Canada;
- Ministry of Agriculture;
- Ministry of Economy;
- Ministry of Environment;
- Ministry of Government Relations;
- Ministry of Health;
- Regina Qu'Appelle Health Region;
- Saskatchewan Wildlife Federation; and
- Sunrise Health Region.

The planning team consisted of staff from the WSA. Key responsibilities of the planning team included establishing and managing the WAC and TAC, compiling and presenting background information, and facilitating the development of the plan. The planning team guided participants in round table discussions to identify interests and issues and set priorities. Each WAC selected a chairperson as the main point of contact between the WAC and the planning team.

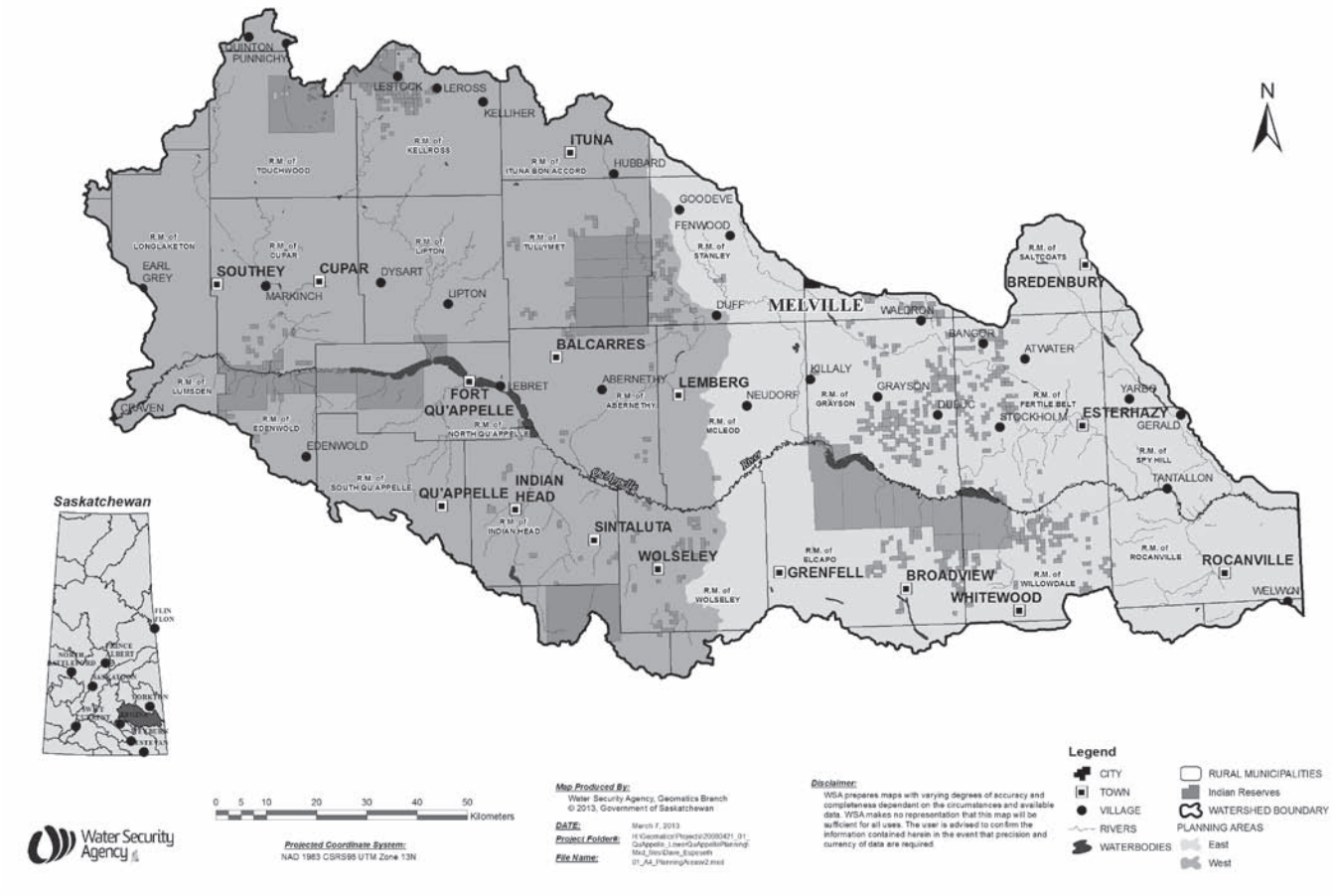

Figure 2 – Lower Qu'Appelle River Watershed Planning Areas

Discussion of Interests and Issues

In March and April of 2009, the planning process began with delivery of a series of open houses. Potential WAC members were invited to attend the events to learn about the watershed planning process and discuss their interests and issues. Through the rest of 2009 the planning team compiled background information on the watershed and confirmed the membership of the two WACs.

The first WAC meetings were held in January 2010. The members of the WACs were provided with an overview of the planning process and then began discussing interests and issues. Presentations by TAC agency representatives served to inform discussions related to each specific technical topic. At the completion of the presentations phase, each WAC developed a list of interests and issues. These interests and issues were used to establish the vision and goals.

Issues represent a problem or concern.

Interests are the drivers behind an issue and identify the values held by an individual.

Representatives from the TAC delivered presentations on:

- 2010 State of the Watershed
- Agriculture and water quality
- Environmental Code
- Environmental Farm Planning
- Interest based process
- Potash mining
- Riparian health
- Sewage regulations
- Upland water management
- Water quantity and water control
- Water quality
- Watershed plan implementation
- Wastewater management for the City of Regina

The planning team and the TAC members collaborated to prepare the background folio, which was designed to assist the WAC members in understanding the watershed and to inform decision-making. Information in this folio includes an explanation of demographics, economic activities, land use, climate, surface and ground water supplies, water quality, ecological health and physical and topographic characteristics including soils. This background folio was consolidated by the planning team and distributed to the WAC members following the final endorsement of the document by the TAC members. The background folio was distributed at a joint WAC meeting in September 2011.

Watershed tours were held to inspire the emergence of interests and issues in June 2010 and were open to all WAC and TAC members. The tours gave participants the opportunity to discuss issues on-site and enhance their understanding of the issues. Participants visited drinking water and wastewater treatment facilities, farms and ranches that utilize agricultural beneficial management practices, potash mining operations and water control and fish habitat projects.

Additional activities were undertaken to inform watershed residents of the watershed planning process. These included making information about the process, including meeting notes and presentations, available online. In partnership with the local Agri-Environmental Group Plans (AEGP), the planning team developed a newsletter that discussed the purpose of watershed planning, described the planning process and profiled projects completed by the AEGPs.

Agri-Environmental Group Plans (AEGP) are local, producer operated organizations that provide education and awareness on agri-environmental issues and help individual producers implement beneficial management practices (BMP) to protect water quality. These BMPs are targeted to deal specifically with the issues that have been identified for their area.

Development of the Watershed Plan

At the completion of the interests and issues identification phase, the interests and issues were categorized and prioritized by the WAC members. Once this was complete, the planning team facilitated a visioning and goal setting process during a series of WAC meetings in 2011. The watershed vision established the desired future state of the watershed. The goals, based on desired uses of water and expectations of the WAC members, are specific qualitative statements that achieve the vision. As depicted in Figure 3, the vision and goals were principally developed by the WAC members. The arrows and divisions within the vision, goals, objectives and key actions in the figure represent the relative level of input from the WAC and TAC members.

Once the vision and goals were established, the TAC members developed objectives and key actions intended to achieve the goals and align with the vision, as depicted in Figure 3. The planning team and members of the TAC worked collaboratively during 2012 to develop the objectives and key actions. The objectives are quantitative statements describing the desired future state of each goal. The key actions are quantifiable actions which, if successfully implemented, will over time change the current conditions to achieve the state defined by the objective.

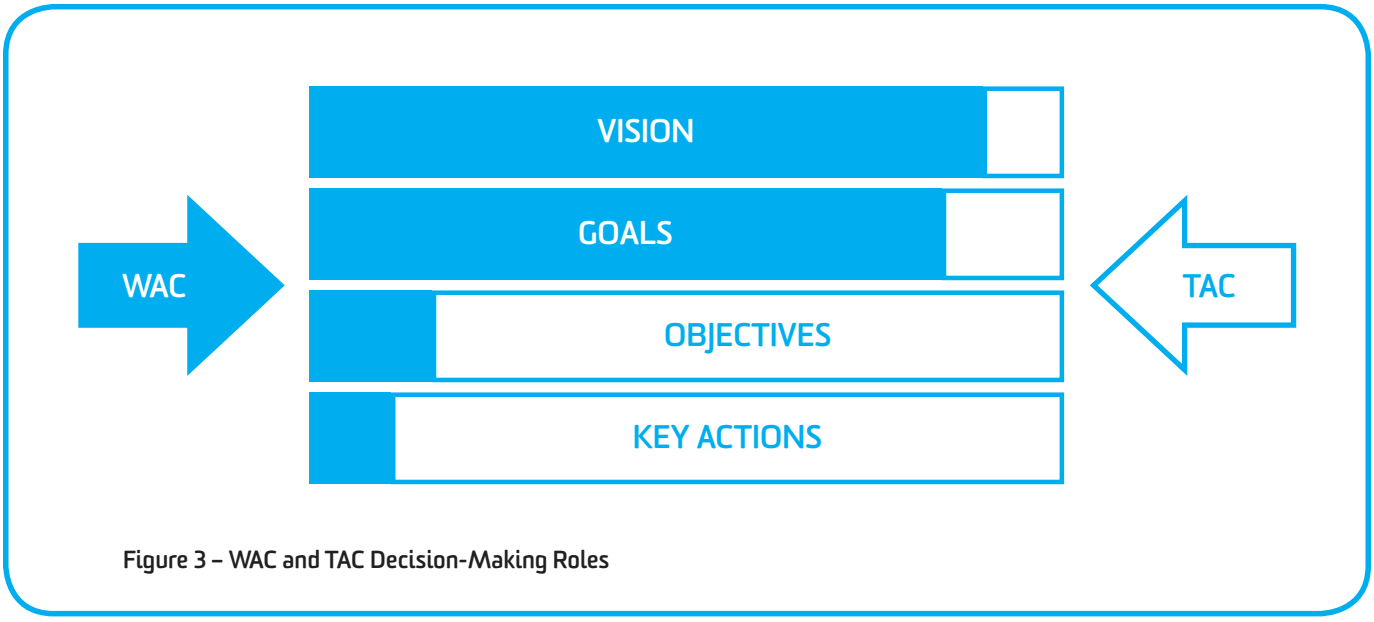

Figure 3 – WAC and TAC Decision-Making Roles

The draft objectives and key actions were presented to the WAC members for discussion and review. In certain cases, TAC members delivered presentations to explain the draft objectives and key actions.

Finally, the vision, goals, objectives and key actions were reviewed and agreed upon at a joint WAC meeting in December 2012. This marked the completion of the draft Watershed Plan.

Decision-Making Process

In the development of the Watershed Plan, an enhanced decision-making process was applied to develop a comprehensive and integrated plan and assure the technical accuracy. In previous watershed plans the objectives and key actions were often developed by the WAC members and received varying levels of input, review or endorsement from the TAC members or the regulatory agencies. This led to the creation of some objectives and key actions that have proven to be technically inaccurate. As a result, in certain cases, support from the TAC member agencies in the watershed plan implementation phase was constrained.

To address this perceived shortcoming, this Watershed Plan utilized a process wherein the development of the objectives and key actions was undertaken by relevant TAC members and then refined and endorsed by the WACs. This piloted approach increased the involvement of TAC members in the drafting of accurate, measurable and achievable objectives and key actions that strive to achieve long-term provincial water management goals in an integrated manner. This decision-making process is depicted in Figure 3 above.

Development of the Watershed Stewardship Organization

The first steps toward plan implementation were initiated prior to the publication of the Watershed Plan.

An interim board was formed from the WAC membership to establish the Stewards. The interim board, which was composed of three members of each WAC, met regularly for six months to lead the incorporation process, hire an interim watershed coordinator, develop bylaws, build membership and develop project proposals to support plan implementation. The Stewards were incorporated in July 2012.

The interim board will manage implementation of the Watershed Plan and associated business until a formal board is elected at the first annual general meeting of the Stewards.

Review of the Watershed Plan

The draft Watershed Plan was distributed to agencies involved with the TAC for review and comment. Other agencies, identified as partners that typically support plan implementation, were also asked to review the plan and provide comments.

A joint meeting of the WACs and TAC was held in March 2013 to review all comments and finalize the plan's vision, goals, objectives and key actions.

4. Vision for the Watershed

During a series of WAC meetings in 2011, the planning team collaborated with the WAC members to develop a vision for the watershed and a vision for the Stewards and the watershed residents. The vision provided the foundation for the development of the Watershed Plan and the direction for the Stewards to implement the Watershed Plan.

Vision for the Watershed:

- A long-term, stable, high-quality water supply for people and for the environment.
- Healthy ecosystems. Water quality in the Lower Qu'Appelle Lakes will be able to support recreation, fishing and economic development within the ecological limits of the system.

Vision for the Stewards and the Watershed Residents:

- The Stewards will act to improve water quality in the watershed.
- The Stewards will assist and promote the improvement of current management practices (agricultural, industrial, municipal, recreational and residential).
- The Stewards will consider the financial viability of watershed communities in its activities.

Qu'Appelle Valley slope and floor
Credit: Water Security Agency

Creeks on the valley floor in early winter
Credit: Water Security Agency

5. Watershed Plan Goals, Objectives and Key Actions

The Watershed Plan goals, objectives and key actions are the fundamental components of this document. The following 8 goals, 25 objectives and 65 key actions are the product of dedicated volunteerism and government and non-government staff efforts. These components are grouped into the following eight categories:

5.1. Source water protection and safe drinking water;

5.2. Water quality;

5.3. Water quantity and flow;

5.4. Industry (agriculture and other);

5.5. Upland water management;

5.6. Wastewater management;

5.7. Landfills and solid waste management; and

5.8. Governance, implementation and collaborative processes.

5.1 Source Water Protection and Safe Drinking Water

Goal 1: *Safe drinking water will be available to all Lower Qu'Appelle River Watershed residents.*

Safe drinking water is a core component of the Watershed Plan vision. Interests related to safe drinking water were expressed by members of the WAC during planning meetings. These interests include the demand for safe drinking water, the prevention of contamination, the protection of human health and the recognition of the economic burden on small communities to provide safe drinking water. These interests were utilized in the development of the safe drinking water goal.

The provision of safe drinking water is best accomplished by the application of the multi-barrier approach. The multi-barrier approach is defined by the Canadian Council of Ministers of the Environment as an "integrated system that prevents or reduces the contamination of drinking water, from source to tap, in order to reduce risks to public health (2002, 4)." The multi-barrier approach establishes barriers along the water supply route, from source to tap to prevent or reduce potential contaminants from reaching the end user. Typically, these barriers fall under the board categories of:

- Source water protection;
- Water treatment and operation; and
- Water monitoring and testing.

Municipal drinking water systems are regulated systems that are accessible to the public and deliver more than 18 cubic metres of water per day.

Public drinking water systems are regulated systems that are accessible to the public but deliver less than 18 cubic metres of water per day.

Private drinking water systems are unregulated systems intended for private use.

Some barriers are established through the regulation of water treatment facilities by the WSA and Saskatchewan Health Regions. Although many components of the multi-barrier approach are entrenched in agency mandates and operations outside the scope of the Watershed Plan, opportunities do exist for the Stewards to support the application of the multi-barrier approach in the watershed, particularly through applications of source water protection.

The objectives and key actions for the safe drinking water goal have been designed to address the risks identified in the WSA Risk Assessment (Hanley 2012). The WSA Risk Assessment identifies the risks (the types of events that will pose a risk) to the WSA in achieving the goals outlined in the 25 Year Saskatchewan Water Security Plan. Goal two of the 25 Year Saskatchewan Water Security Plan, *Ensure our drinking water is safe by protecting supplies from the source to tap,* scored a high residual risk. The WSA Risk Assessment outlines the risk scoring of threats to municipal, public and private drinking water systems and outlines potential risk management activities to reduce these threats. Three risk management activities for drinking water that may guide activities for this plan include:

- 51 percent of Saskatchewan municipalities report that their waterworks revenues do not cover expenditures and debt payments and may need a sustainable infrastructure plan;
- Public systems that require more consistent and frequent monitoring of source water; and
- Private well owners who require more frequent testing and shock chlorination of their wells.

The following objectives and key actions were developed in collaboration with WSA drinking water experts and are designed to achieve the source water protection and safe drinking water goal.

Objective 1.

Municipalities with waterworks will have the opportunity to partner with the Stewards to establish funding to support the promotion of water conservation and the awareness of the costs associated with delivery of safe drinking water.

KEY ACTION 1.

The Stewards will identify municipal drinking water utilities in the Lower Qu'Appelle River Watershed (information found on www.SaskH20.ca) and contact them to determine their interest or need to encourage water conservation and to create an awareness of the costs associated with the delivery of safe drinking water in their municipality. If they are interested, the Stewards can work with local municipal waterworks to assist them in accessing funding to facilitate the distribution of water conservation or water pricing information to local water users.

Objective 2.

Small businesses providing public drinking water will have the opportunity to partner with the Stewards to establish funding to support additional monitoring and/or treatment of their source water.

KEY ACTION 2.

The Stewards will provide an opportunity for small businesses in the Lower Qu'Appelle River Watershed that provide public drinking water to contact the Stewards to determine their interest or need for financial assistance for increased source water quality monitoring and/or installation of water treatment equipment (on the advice of the relevant provincial regulator).

Objective 3.

Private landowners that utilize either a private well or a dugout for drinking water will have the capacity to protect their private drinking water source from contamination and decrease potential health risk exposures associated with consumption of ground water or surface water.

KEY ACTION 3.

The Stewards will encourage and promote the benefits of well water quality testing and shock chlorination of private drinking water wells as per information on the SaskH20 website (www.SaskH20.ca). The Stewards will also encourage and promote the benefits of water quality testing of dugouts used for human consumption and the importance of effective water treatment as per information on the SaskH20 website.

KEY ACTION 4.

The Stewards will act to increase awareness and education of the human health risks associated with consumption of contaminants potentially present in ground water and dugouts used as human drinking water sources as they compare to drinking water standards and objective *(Saskatchewan Drinking Water Quality Standards and Objectives 2006; Guidelines for Canadian Drinking Water Quality 2012)* through the distribution of information provided on the SaskH20 site.

KEY ACTION 5.

The Stewards will refer individuals consuming water from private wells and dugouts to the SaskH20 website and/or the appropriate Saskatchewan Health Region if they require advice on treatment methods typically used to remove specific contaminants.

KEY ACTION 6.

The Stewards will promote private well management “best practices” to protect ground water sources as detailed in the WSA’s (formerly Saskatchewan Watershed Authority) *A Landowner’s Guide to Water Well Management* and protection of ground water as provided on SaskH20.

KEY ACTION 7.

The Stewards will promote landowner land-use “best practices” to protect surface water sources according to information provided on SaskH20.

KEY ACTION 8.

The Stewards will attempt to identify available funding and partnership opportunities to facilitate the protection of ground water and surface water.

KEY ACTION 9.

The Stewards will develop programming that will help private well owners shock chlorinate their drinking water wells. Programs could include providing private well owners with access to equipment to enable them to shock chlorinate their own drinking wells or assistance in accessing qualified individuals trained to conduct shock chlorination.

5.2 Water Quality

Goal 2: *Water quality in the Lower Qu'Appelle Lakes will be able to support various uses, including supporting aquatic life, industry, and recreation.*

Water in the Lower Qu'Appelle River Watershed is used for many purposes. These include environmental needs for the flora and fauna of the watershed and the many human needs including source water, recreation, industry and agriculture. To support these uses it is critical that the quality of the water does not limit or constrain the important functions of water.

During the planning process, the members of the WAC were challenged to develop a clear understanding of the uses and values of water in the watershed. WAC members focused on the need for water for ecological, recreational and industrial uses. The principal water quality interest expressed by WAC members was the concern that the contribution of nutrients, sediment, chemicals and pathogens to watercourses in the watershed has or will reduce water quality and that this reduction in water quality will affect the important functions and uses of water.

Notional nutrient concentration targets are an initial non-binding attempt at describing the desired state of water quality.

The interest expressed by WAC members is also stated in Goal 3 of the 25 Year Saskatchewan Water Security Plan, *Ensure water quality and ecosystem functions are sustained.*

In order to assess, understand and manage nutrient concentrations in the Lower Qu'Appelle Lakes with the aim to prevent a decline in water quality from current levels, notional nutrient concentration targets have been set for the individual lakes. The targets in the Watershed Plan represent the first step in the process toward establishing the water quality objectives as discussed in the 25 Year Saskatchewan Water Security Plan.

In setting notional nutrient concentration targets, it is important to consider that the watershed has relatively high natural concentrations of nutrients. Henry Hind's 1859 description of Echo Lake stated that "An abundant growth of green confervae (filamentous green algae) covered the surface…" Pasqua Lake's description stated that, "The lake is full of weeds and its water emits a very disagreeable odour…" (Hind 1860, 327-28). Studies of the sediments in the lakes in the Qu'Appelle River system suggest that the lakes have been eutrophic in the past; however, these studies do suggest that the abundance of algae in Pasqua Lake has risen (Levitt et al. 2006, 2262-7). Nutrient targets must therefore consider the nutrient-rich nature of the watershed and must not be based on water quality objectives from regions with lower naturally occurring nutrient loads.

Eutrophic: Having waters rich in phosphates, nitrates, and organic nutrients that promote a proliferation of plant life, especially algae.

The method used to develop the notional nutrient concentration targets in the Watershed Plan is consistent with the approach used in the current objective review process by the Prairie Provinces Water Board (PPWB). The method uses the 90th percentile of background concentrations in the respective lakes and is designed to protect against the degradation of water quality from the present condition. The Watershed Plan notional nutrient concentration targets are designed to be a benchmark to compare the state of water quality and provide the Stewards with a tangible value to compare lake nutrient concentrations.

The Prairie Provinces Water Board (PPWB) is a federal/inter-provincial board that administers the Master Agreement on Apportionment.

The following objectives and key actions were developed in collaboration with WSA water quality experts and are designed to set targets for the biophysical state of the watershed. The processes by which the water quality targets will be achieved are outlined in the objectives and key actions under the industry, upland water management, wastewater management and landfill and solid waste goals.

Objective 4.

The Stewards will work with the WSA and other stakeholders to assess, understand and manage nutrient concentrations in the Lower Qu'Appelle Lakes to prevent a decline in quality from current levels and to achieve the notional targets that have been set for the various lakes. The nutrient concentrations targets for Pasqua and Echo Lakes will be set at 0.34 mg/L for total phosphorus and at 2.31 mg/L for total nitrogen. The nutrient concentration targets for Crooked and Round Lakes will be set at 0.35 mg/L for total phosphorus and 1.86 mg/L for total nitrogen.

KEY ACTION 10.

The nutrient site-specific targets for Pasqua, Echo, Crooked and Round lakes will periodically be reviewed by the WSA. The Stewards will work with the WSA to understand any future changes and provide feedback to the local community on these changes and how they affect water quality.

KEY ACTION 11.

The Stewards, in the development of a comprehensive watershed education program, will develop and implement a component for residents in the watershed to inform them of:

- The important findings from the water quality testing programs conducted on the rivers and lakes in the watershed.

Objective 5.

The Stewards will work with the WSA and other partners to understand and communicate the risks to water quality in the Lower Qu'Appelle River lakes.

KEY ACTION 12.

The Stewards, in the development of a comprehensive watershed education program, will develop and implement a component for residents in the watershed to inform them of:

- An assessment of changes in water quality over time; and
- Water quality concerns in the Lower Qu'Appelle River Watershed including established and emerging issues.

Echo Lake from Fort San
Credit: Water Security Agency

5.3 Water Quantity and Flow

Goal 3: *Water quantity and flow in the Lower Qu'Appelle Lakes will be able to support industry, recreation and fishing activities under a wide range of conditions including drought, flood and everything in between, within the ecological limits of the system.*

The water quantity and flow goal is a critical component of the watershed vision and is directly related to the water quality goal. Simply stated, water quantity and flow and water quality must be considered jointly to ensure an effective and comprehensive approach is employed to manage the watershed.

The residents of the Lower Qu'Appelle River Watershed place a significant value on the Lower Qu'Appelle Lakes. These lakes are valued in terms of their economic, recreation, aesthetic and cultural significance. The lakes include Pasqua, Echo, Mission, Katepwa, Crooked and Round Lakes. Throughout the planning process members of the WAC expressed interests related to the recreational uses, ecological health, maintenance of water levels and property values relative to these lakes. These interests formed the foundation for the development of the water quantity and flow goal.

The interests identified by WAC members which are reflected in the water quantity and flow goal are also embedded in Goal 1 of the 25 Year Saskatchewan Water Security Plan, *Ensure the sustainability of our surface and ground water supplies.* This goal is key to the WSA mandate, including maintaining and operating dams and conveyance channels and making significant investments in the rehabilitation and upgrading of this infrastructure each year.

The interests identified by WAC members and the water quantity and flow and water quality goals were communicated to WSA water managers during the planning phase. The resulting key actions were developed in collaboration with WSA water managers and are designed to achieve the water quantity and flow goal by enhancing the sharing of information between the WSA and watershed residents, further examining the relationship between water quality and water quantity and flow, and enhancing the level of understanding of flow needs within the Lower Qu'Appelle River Watershed.

KEY ACTION 13.

Members of the Stewards will meet with WSA water managers to discuss their needs and interests in relation to water quantity and flow in the Lower Qu'Appelle system. This discussion may take the form of identifying how the current operating practices influence the activities and the challenges the WSA has in dealing with multiple demands and expectations.

Katepwa Lake Control Structure
Credit: Water Security Agency

KEY ACTION 14.

Technical staff from the WSA and the Stewards will examine "loading" of nutrients in the system using water quality, water quantity and flow related parameters to better understand the relationship between nutrient build-up and water flow. In addition, water quality parameters affected by flow will be identified.

KEY ACTION 15.

The WSA will work with the Ministry of Environment and the Stewards to determine fish species of recreational and ecological concerns (Valued Ecosystem Components) and the water quantity and flow necessary (Instream Flow Needs) to support sustainable populations of these species.

5.4 Industry (Agriculture and Other)

Goal 4: *Industry practices (agriculture, manufacturing, oil and gas, mining) will be managed to achieve the water quality and quantity objectives contained in the Watershed Plan.*

The agricultural and mining sectors are two important industries present in the watershed. A significant portion of the watershed land base is dedicated to agricultural production. The mining sector is another important economic driver, especially potash mining in the eastern portion of the watershed and anticipated potash development in the western portion of the watershed. Supporting such industries requires a reliable supply of appropriate quality water.

Throughout the planning process, the WAC expressed interests related to the maintenance of economic activity through the agricultural and other industrial sectors and balancing economic growth with considerations for water quality, quantity and ecosystem health.

The agricultural objectives and key actions under the industry goal were developed through communication between WAC members and technical advisors. Specifically, the agricultural portion was developed in partnership with the members of the WACs, board members and staff from the local AEGPs and representatives from the Saskatchewan Ministry of Agriculture. This process allowed the development of specific, science-based and measurable objectives and key actions which are sensitive to the interests of the WAC members.

Although agriculture was the focus of deliberations around the industry goal, objective 13 and key action 35 are designed to improve communication and to encourage future partnerships with other industry stakeholders. This type of engagement with industries such as the mining sector has only begun for the Stewards, but the Watershed Plan provides direction to develop future relationships.

Agricultural land within the valley
Credit: Water Security Agency

The following objectives and key actions were developed in collaboration with representatives from the industrial sector and are designed to achieve the water quantity and flow and water quality goals of the Watershed Plan.

Objective 6.

An incentive and education based approach is used to reduce the impact of agricultural practices in the watershed. This approach is driven by local producers. Such an approach may need public and industry based incentive programs to be economically feasible at the farm level.

KEY ACTION 16.

The Stewards will support programs and groups such as the Agri-Environmental Group Plans to deliver BMP programming. As a component of these programs, producers currently cost-share the funding necessary to implement these projects.

KEY ACTION 17.

The Stewards, in the development of a comprehensive watershed education program, will develop and implement a component for residents in the watershed to inform them of:

- Success stories of the agriculture sector reducing its impact on the watershed.

Objective 7.

Agriculture producers are made aware of the water quality goals of the Watershed Plan. They are provided the information to understand these issues and gain the knowledge to implement BMPs to address the goals of the Watershed Plan.

KEY ACTION 18.

The Stewards will conduct and form partnerships with other organizations to undertake awareness activities such as field days, workshops and communication activities.

KEY ACTION 19.

The Stewards, in the development of a comprehensive watershed education program, will develop and implement a component for residents in the watershed to inform them of:

- The water quality goal of the Watershed Plan and the BMPs that will address this goal.

KEY ACTION 20.

The stewards will measure the awareness of producers of the relationships between water quality and agriculture and the knowledge of agricultural BMPs through regular surveys.

Objective 8.

Specific BMP uptake is promoted across the entire agricultural community.

Objective 9.

Upland management techniques for both cropland and perennial forage are implemented to reduce nutrient loading from upland areas into watercourses.

KEY ACTION 21.

The Stewards and partners will conduct literature reviews to determine nutrient loading rates from upland areas into watercourses.

KEY ACTION 22.

The Stewards and partners will identify BMPs that reduce nutrient loading rates such as zero till, forage conversion, pasture management and nutrient management.

KEY ACTION 23.

The Stewards and partners will identify and support science needed to validate and revise this list of BMPs.

KEY ACTION 24.

The Stewards and partners will monitor the implementation of BMPs.

KEY ACTION 25.

The Stewards, in the development of a comprehensive watershed education program, will develop and implement a component for residents in the watershed to inform them of:

- the adoption of BMPs where necessary.

Objective 10.

Streams mapped at a scale of 1:50,000 are targeted for programming to achieve a result of a healthy and functioning rating as defined by the Saskatchewan Riparian Health Assessment technique.

KEY ACTION 26.

The Stewards and partners will assess and monitor the health of stream riparian areas in the watershed.

KEY ACTION 27.

The Stewards and partners will encourage beneficial land management practices on streams that are affected by agricultural activity to achieve a healthy and functioning state.

Objective 11.

All drainage works are managed to reduce the impact on water quality and quantity. An approach will be taken to promote responsible drainage which supports 1) avoidance of drainage where possible; 2) adoption of good drainage practices through demonstration and extension; and 3) mitigation of the impacts of drainage through BMPs.

KEY ACTION 28.

The Stewards and partners will identify appropriate BMPs for drainage works such as grassing ditches, drop structures and control gates.

KEY ACTION 29.

The Stewards and partners will encourage adoption of BMPs where necessary.

KEY ACTION 30.

The Stewards and partners will encourage communication and cooperation between parties involved in drainage projects. This may involve encouraging the formation of new Conservation and Development Areas or Watershed Associations (as defined under the Conservation and Development Act and Watershed Associations Act) or working with existing Conservation and Development Areas and Watershed Associations. This may improve the environmental sustainability and legal standing of the drainage projects.

Objective 12.

Livestock overwintering sites will be properly managed and sited.

KEY ACTION 31.

The Stewards and partners will identify BMPs for livestock overwintering sites.

KEY ACTION 32.

The Stewards and partners will identify and support science needed to validate and revise this list of BMPs.

KEY ACTION 33.

The Stewards and partners will monitor the implementation of BMPs.

KEY ACTION 34.

The Stewards, in the development of a comprehensive watershed education program, will develop and implement a component for agricultural producers in the watershed to encourage:

- the adoption of BMPs.

Objective 13.

The Stewards will work with industry in the manufacturing, oil and gas, and mining sectors to achieve the water quality and water quantity goals of the watershed.

KEY ACTION 35.

The Stewards will identify key stakeholders in the manufacturing, oil and gas and mining sectors interested in developing partnerships to achieve the water quality and water quantity goals of the Watershed Plan. Partnerships will be focused on undertaking joint projects that meet the interests of all parties.

5.5 Upland Water Management

Goal 5: *Water Quantity in the upland areas of the watershed will be managed to minimize infrastructure damage and to maintain wetlands and environmental quality.*

Upland water management activities, including agricultural drainage, affect watershed hydrology. While drainage developments can deliver efficiencies in farming the land and enhance economic returns to agricultural producers, there are also negative ecological impacts of uncontrolled drainage such as the loss of wetlands and potential infrastructure impacts such as erosion of roads and canals which can also impact water quality. During the planning process, WAC members communicated interests related to preserving wetland wildlife habitat and mitigating the impact of drainage on infrastructure and water quality.

Drainage works are defined under The Saskatchewan Watershed Authority Act, 2005 *as being "any action taken or intended for the removal or lessening of the amount of water from land and includes the deepening, straightening, widening and diversion of the course of a stream, creek or other watercourse and the construction of dykes."*

These interests are also reflected in Goal 5 of the 25 Year Saskatchewan Water Security Plan, *Ensure measures are in place to effectively respond to floods and droughts.* The WSA can issue permits to approve the construction and operation of drainage works as well as resolve drainage disputes. Construction of drainage works may also require an Aquatic Habitat Protection Permit from the WSA.

Disseminating information to landowners around drainage issues and encouraging wetland retention are important activities reflected in the Watershed Plan. The objective and key actions were developed in collaboration with staff from Ministry of Agriculture and WSA to address the interests communicated by WAC members. The following objective and key actions are designed to achieve the upland water management goal.

Wetland in canola field
Credit: Water Security Agency

Objective 14.

All drainage works are managed to reduce the impact on water quality and quantity. An approach will be taken to promote responsible drainage that supports 1) avoidance of drainage where possible; 2) adoption of good drainage practices through demonstration and extension; and 3) mitigation of the impacts of drainage through BMPs.

KEY ACTION 36.

The Stewards will identify appropriate BMPs for drainage works such as grassing ditches, drop structures and control gates.

KEY ACTION 37.

The Stewards will encourage adoption of BMPs where necessary.

KEY ACTION 38.

The Stewards and partners will encourage communication and cooperation between parties involved in drainage projects. This may involve encouraging the formation of new Conservation and Development Areas or Watershed Associations (as defined under the Conservation and Development Act and Watershed Associations Act) or working with existing Conservation and Development Areas and Watershed Associations. This may improve the environmental sustainability and legal standing of the drainage projects.

5.6 Wastewater Management

Goal 6: *Wastewater will be managed over time to incrementally move toward the water quality goal contained within the Watershed Plan, while considering the financial viability of watershed communities.*

Wastewater effluent has the potential to influence nutrient and pathogen concentrations in a watershed. Through the planning process, WAC members developed a clearer understanding of the uses and values of water in the watershed. In doing so, WAC members expressed the need to reduce the contribution of nutrients and pathogens to watercourses in a manner that considers affordability and the economic sustainability of public and private wastewater and sewage systems.

Wastewater systems in the watershed include community systems owned by municipalities and First Nations and private sewage systems in communities without centralized wastewater facilities. Municipal wastewater collection and treatment systems are regulated by the WSA. To support the management of municipal wastewater, the Canadian Council of Ministers of the Environment has developed a Canada-wide Strategy for the Management of Municipal Wastewater Effluent.

The Canada-wide Strategy for the Management of Municipal Wastewater Effluent "articulates the collective agreement reached by the 14 ministers of the environment in Canada to ensure that wastewater facility owners will have regulatory clarity in managing municipal wastewater effluent under a harmonized framework that will protect of human health and the environment (ii, 2009)."

The provision and management of wastewater systems (including both municipal scale and private sewage systems) on First Nations is shared among Band Councils, Aboriginal Affairs and Northern Development Canada, Health Canada and Environment Canada. Off-reserve private systems are regulated by the Saskatchewan Ministry of Health and the health regions.

The wastewater management objectives and key actions were developed collaboratively between the WAC members and officials from the agencies identified above to meet the water quality interests of the WAC members while considering the financial sustainability of watershed communities.

The objectives and key actions for the wastewater management goal have been designed to address the risks identified in achieving Goal three of the 25 Year Saskatchewan Water Security Plan, Ensure water quality and ecosystem functions are sustained. Dr. Terry Hanley, a water quality expert with the WSA involved in the planning process, identified that "assessing the current status of existing municipal wastewater facilities does little to address the issue of 'loading' in a watershed" (2012). Therefore, the following objectives and key actions recognize the importance of total loading of nutrients in order to achieve the water quality goals of the plan.

Objective 15.

The impact of total loading of wastewater effluent will be assessed.

KEY ACTION 39.

The Stewards will support the WSA assessing the impact of total loading of wastewater effluent in the Lower Qu'Appelle River Watershed.

Nutrient loading refers to the quantity of nutrients (such as nitrogen and phosphorus) entering the water in a given period of time (Department of Natural Resources Maryland).

Objective 16.

Municipal wastewater operators will have the opportunity to partner with the Stewards to establish funding and develop partnerships to manage the nitrogen and phosphorus loading in municipal wastewater effluent entering the Lower Qu'Appelle Lakes in order to meet the water quality goal of the Watershed Plan.

KEY ACTION 40.

The Stewards will assist municipalities in obtaining funding or building partnerships to improve capacity to manage wastewater.

Objective 17.

Private sewage system operators will have the opportunity to partner with the Stewards to investigate funding opportunities and to develop partnerships to manage the nitrogen and phosphorus loading in private wastewater effluent entering the Lower Qu'Appelle Lakes in order to meet the water quality goal of the Watershed Plan.

KEY ACTION 41.

The Stewards will partner with the WSA, the Ministries of Environment and Health, Aboriginal Affairs and Northern Development Canada and the Health Regions (Regina Qu'Appelle Health Region and Sunrise Health Region) to improve the operation, management and compliance of private sewage systems in communities without centralized wastewater collection systems. One community will be targeted per year.

a. The Stewards will collect background information in one community per year. This information will include the extent of the concerns with private sewage systems, the history of communication and compliance for non-conforming residents and a municipal plan for how to improve the management of sewage in the community where necessary. The Stewards will consult with partners and assist in collecting this information.

b. The Stewards will provide information to municipalities and act as a liaison between municipalities, health regions and other partners to assist municipalities in making the changes that may be required in order to allow for appropriate sewage handling and effective enforcement for non-compliance issues for private sewage systems. These actions may include:
   - Changes to municipal bylaws to control the collection, storage and disposal of sewage;
   - Improving management and operation of structures and processes; and
   - The development of communication and education material for residents.

   These changes will assist municipalities with compliance and give them the tools to subsequently better manage sewage collection, storage and disposal for private systems.

c. If necessary and where the collected information warrants, a sewage survey will be conducted by the community and the Stewards. Technical assistance will be sought from the health region and other partners. Background information and future plans should be in place prior to initiating any survey to ensure that additional future surveys are not required.

KEY ACTION 42.

Inform watershed communities that need to upgrade centralized wastewater facilities of examples of innovative approaches to wastewater management where practical. Examples of such approaches may include constructed wetlands and zero-discharge facilities. Specific designs will require approval from regulatory agencies and construction and design by qualified experts. Some communities may wish to consider onsite wastewater treatment systems instead of centralized ones. Provide interested communities with assistance in building partnerships and obtaining funding. If adopting such innovative approaches requires changes to municipal bylaws, the Stewards will provide assistance to partner municipalities and communities and to the Ministries of Health and Environment and the Health Regions.

KEY ACTION 43.

The Stewards will encourage municipalities to expand or to construct sewage treatment facilities in order to accommodate increased demand by septic haulers to haul domestic sewage to an approved sewage treatment facility, as the Environmental Code will have eventual restrictions on disposal practices such as the land spreading of septic or holding tank pump-out effluent. Provide interested communities with assistance in building partnerships and obtaining funding.

Objective 18.

The residents of the watershed will be aware of current wastewater management practices and the effects and the consequences of improper disposal of greywater and sewage on the watershed and in the lakes along the Lower Qu'Appelle River.

KEY ACTION 44.

The Stewards, in the development of a comprehensive watershed education program, will develop and implement a component for residents in the watershed to inform them of:

- The effects of disposing of greywater and sewage directly into the lakes;
- The environmental impact and health hazards of wastewater disposal, including the land spreading of wastewater from holding tanks;
- Changes to the Environmental Code that will affect sewage hauling practices; and
- The changes in the regulatory requirements for wastewater discharge, including changes in un-ionized ammonia releases from the City of Regina.

5.7 Landfills and Solid Waste Management

Goal 7: *Solid waste management will be incrementally improved in the watershed to accomplish water quality goals contained within the plan, while considering the financial viability of watershed communities.*

Effective management of solid waste, specifically landfills, helps protect the environment and the health and safety of watershed residents. During the course of the planning process, WAC members communicated interests related to the reduction of solid waste accumulation along watercourses and illegal dumping throughout the watershed.

Landfills are regulated by the Saskatchewan Ministry of Environment. Prior to the development and implementation of the Landfill and Transfer Station Chapters of the Saskatchewan Environmental Code (Code), landfills were regulated in accordance with the requirements set out in *The Municipal Refuse Management Regulation, 1986.* Once introduced, the Code will apply to all non-hazardous landfills and transfer stations.

While the Code is designed to regulate landfills, opportunities exist for the Stewards to undertake activities that support the awareness of the Code, discourage illegal dumping and actively remediate riparian areas impacted by illegal dumping.

The landfills and solid waste management objectives and key actions were developed by Ministry of Environment solid waste management experts during the planning phase to address the interests communicated by WAC members. The following objectives and key actions are designed to achieve the landfill and solid waste management goal.

Objective 19.

All landfills will comply with the Code.

KEY ACTION 45.

The Stewards will inform watershed residents of the requirements of the Code as they relate to landfills and solid waste management.

Objective 20.

The illegal disposal of solid waste will be reduced, especially in areas where disposal may affect surface water quality, such as riparian areas.

KEY ACTION 46.

The Stewards, in the development of a comprehensive watershed education program, will develop and implement a component for residents in the watershed to inform them of:

- The environmental impact and health hazards of the improper disposal of solid waste; and
- The locations of approved waste management facilities.

KEY ACTION 47.

In partnership with municipalities and Ministry of Environment, the Stewards will identify areas where illegal disposal is a concern and work with partners to identify locations for the development of transfer stations.

KEY ACTION 48.

The Stewards will conduct a shoreline or riverbank cleanup project within two years of the completion of the plan in order to raise awareness of the importance of watershed issues.

5.8 Governance, Implementation and Collaborative Processes

Goal 8: *The activities described within the Watershed Plan will be implemented in a manner that respects local values and the input, the mandates and the responsibilities of the various levels of government (federal, provincial, municipal and First Nations). All parties will supply resources and collaborative efforts to implement the plan.*

Common values, sound decision-making processes and effective conflict resolution are key organizational capacity components necessary to implement the plan successfully. As well as striving to achieve this organizational capacity, WAC members communicated interests related to applying fairness, trust and respect for local knowledge toward the implementation of the plan.

An interest-based process "promotes communication that is open, honest and persuasive. It creates an atmosphere in which attitudes of respect and trust can develop" (Ministry of Justice and Attorney General).

The WSA currently supports the implementation of watershed plans by providing funding, assisting with organizational capacity building, and providing ongoing technical expertise. In addition to the support provided by the WSA, other government and non-government agencies typically provide support to watershed groups. The interests expressed by WAC members outline the approach for the Stewards to implement the Watershed Plan in collaboration with the technical and regulatory agencies.

The foundation for development of the objectives and key actions under this goal is the application of an interest-based process. This is an approach which identifies what participants need in a solution by identifying their interests. This approach moves beyond positions and seeks a solution that can accommodate the greatest number of participant interests (Ministry of Justice and Attorney General).

Overlooking Fort Qu'Appelle
Credit: Water Security Agency

The objectives and key actions were developed by WSA staff well-versed in interest-based processes, staff from the Federation of Saskatchewan Indian Nations and the Lands, Resources and Consultation Branch of the Ministry of Government Relations. The following objectives and key actions are designed to achieve the governance, implementation and collaborative processes goal.

Objective 21.

Incorporate and organize a watershed group to implement the Watershed Plan.

KEY ACTION 49.

Incorporate a watershed group called the Lower Qu'Appelle Watershed Stewards Inc. under the Non-Profit Corporations Act.

KEY ACTION 50.

The Stewards will develop an interim board for directors to guide the incorporation and initial activities of the Stewards until a board is formed after the first annual general meeting.

KEY ACTION 51.

The Stewards will develop a comprehensive watershed education program, communications plan, business strategy, human resources strategy and other policy documents to support and build capacity within the Stewards.

Objective 22.

Develop a decision-making process that reflects a set of common values. The decisions of the Stewards will be actively guided by this set of common values.

KEY ACTION 52.

The Stewards will develop an interim set of common values. This will involve conducting a facilitated session (with the assistance of the WSA) to:

- Define a value;
- Glean from the committee draft value statements;
- Select a set of values;
- Approve the set of values;
- Explore options for how to incorporate these values into the decision-making process (e.g. posted at meetings, ground rules, bylaws);
- Test the functioning of the group or design of bylaws; and
- Consider modifying the decision-making process if required.

Objective 23.

The members of the Stewards will treat each other fairly and with respect. Members of the Stewards will also continually seek to gain an understanding of the interests of all parties and to find solutions that serve the broadest set of these interests to the greatest degree possible.

KEY ACTION 53.

The Stewards will develop a common understanding of what is meant by fairness and respect within the Stewards.

KEY ACTION 54.

The Stewards will ensure the set of common values takes into account the need for fairness and respect relative to how members treat each other.

KEY ACTION 55.

The Stewards will ensure the set of common values takes into account the need to understand and the value of constructive conflict resolution that maintains open communication, defuses resentment and promotes effective problem solving.

KEY ACTION 56.

The Stewards will develop a set of ground rules to support the need for fairness and respect. This will include bylaws that promote fairness and respectful procedure.

KEY ACTION 57.

The Stewards will develop a set of ground rules that incorporate an interest-based process into the discussions and decision making of the organization. This will include bylaws that promote the use of interest-based process.

KEY ACTION 58.

The Stewards will ensure partner agencies are aware of the common values of the Stewards and the associated decision-making processes.

Objective 24.

Board members of the Stewards will seek learning and training opportunities to incorporate processes and knowledge, based on the set of common values into the working of the organization. This will include an understanding of the range of interpretations of Treaty and Aboriginal rights in First Nations, Métis and non-First Nations communities.

KEY ACTION 59.

The Stewards will provide collaborative problem solving workshops to Stewards board members based on the interests and needs identified by the committee.

KEY ACTION 60.

The Stewards will ensure ongoing access to these concepts and skills for current and new Stewards board members.

KEY ACTION 61.

The Stewards will ensure the use of the collaborative problem solving concepts taught to Stewards board members is incorporated into the functioning of the committee.

KEY ACTION 62.

The Stewards will provide a workshop for Stewards board members that will offer an understanding of the range of interpretations of Treaty and Aboriginal rights in First Nations, Métis and non-First Nations communities.

KEY ACTION 63.

The Stewards will provide opportunities for future Stewards board members to learn of these interpretations from current Stewards board members.

Objective 25.

Members of the Stewards demonstrate a shared commitment to the Watershed Plan and a shared investment of resources and time.

KEY ACTION 64.

The Stewards will ensure the Watershed Plan is openly and actively endorsed and supported by the members of the Stewards.

KEY ACTION 65.

The Stewards will ensure a common and annually updated understanding and acceptance of what is meant by a shared investment of resources and time by each agency.

6. Conclusion

The Watershed Plan is the product of more than three years of dedicated volunteerism and provincial, federal and non-government staff efforts. The Watershed Plan establishes a vision for water quality and quantity and the protection of the aquatic ecosystem in the watershed and a comprehensive and integrated approach to deliver on this vision. The publication of this Watershed Plan marks the completion of an all-stakeholder, collaborative, consensus-based planning process and the beginning of plan implementation.

The Lower Qu'Appelle Watershed Stewards Inc., a grassroots, community-based, not-for-profit corporation, have been established to lead the implementation of the Watershed Plan. In support of this, the Stewards are eligible to receive funding for the operation of a secretariat should government budgets remain as in 2012-2013. The Stewards are encouraged to leverage this funding to access additional project funding to deliver on the actions set out in this plan. To be successful, the Stewards must also continue to enhance partnerships with the government and non-government organizations that participated in the planning process. These partnerships will be vital to the success of making positive change toward achieving the vision and goals of the Lower Qu'Appelle River Watershed Plan.

The members of the Watershed and Technical Advisory Committees, the planning team and the board and staff of the Lower Qu'Appelle Watershed Stewards Inc. are pleased to present the Lower Qu'Appelle River Watershed Plan for the benefit of all watershed residents and are confident that the direction and inspiration contained within will make a meaningful contribution toward supporting sustainable growth, a high quality of life and environmental well-being.

Katepwa Lake from the weir
Credit: Water Security Agency

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