9/18/2015

MIGHTY PEACE WATERSHED ALLIANCE

TERMS OF REFERENCE FOR THE PEACE AND SLAVE WATERSHEDS INTEGRATED WATERSHED MANAGEMENT PLAN

IWMP TOR | MPWA

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2 Overview of the Mighty Peace Watershed Alliance

Alberta's *Water for Life*[1] strategy looks at how we can better manage water on a watershed basis and achieve the strategy's three goals including:

- safe, secure drinking water supplies,
- healthy aquatic ecosystems, and
- reliable, quality supplies for a sustainable economy.

In the Peace River watershed, work to achieve these goals is being led by the Mighty Peace Watershed Alliance (MPWA). The Mighty Peace Watershed Alliance Society, a multi-stakeholder not-for-profit organization, is one of 11 Watershed Planning and Advisory Councils created under Alberta's *Water for Life* strategy. The implementation of the *Water for Life* strategy and its goals in the Peace Watershed is guided by the MPWA's vision and mission:

Vision - *The Peace is a healthy, sustainable watershed that supports our social, environmental and economic objectives.*

Mission - *To promote watershed excellence, the Mighty Peace Watershed Alliance will monitor cumulative effects from land use practices, industry and other activities in the watershed and work to address issues through science, education, communication, policy and by supporting watershed stewardship.*

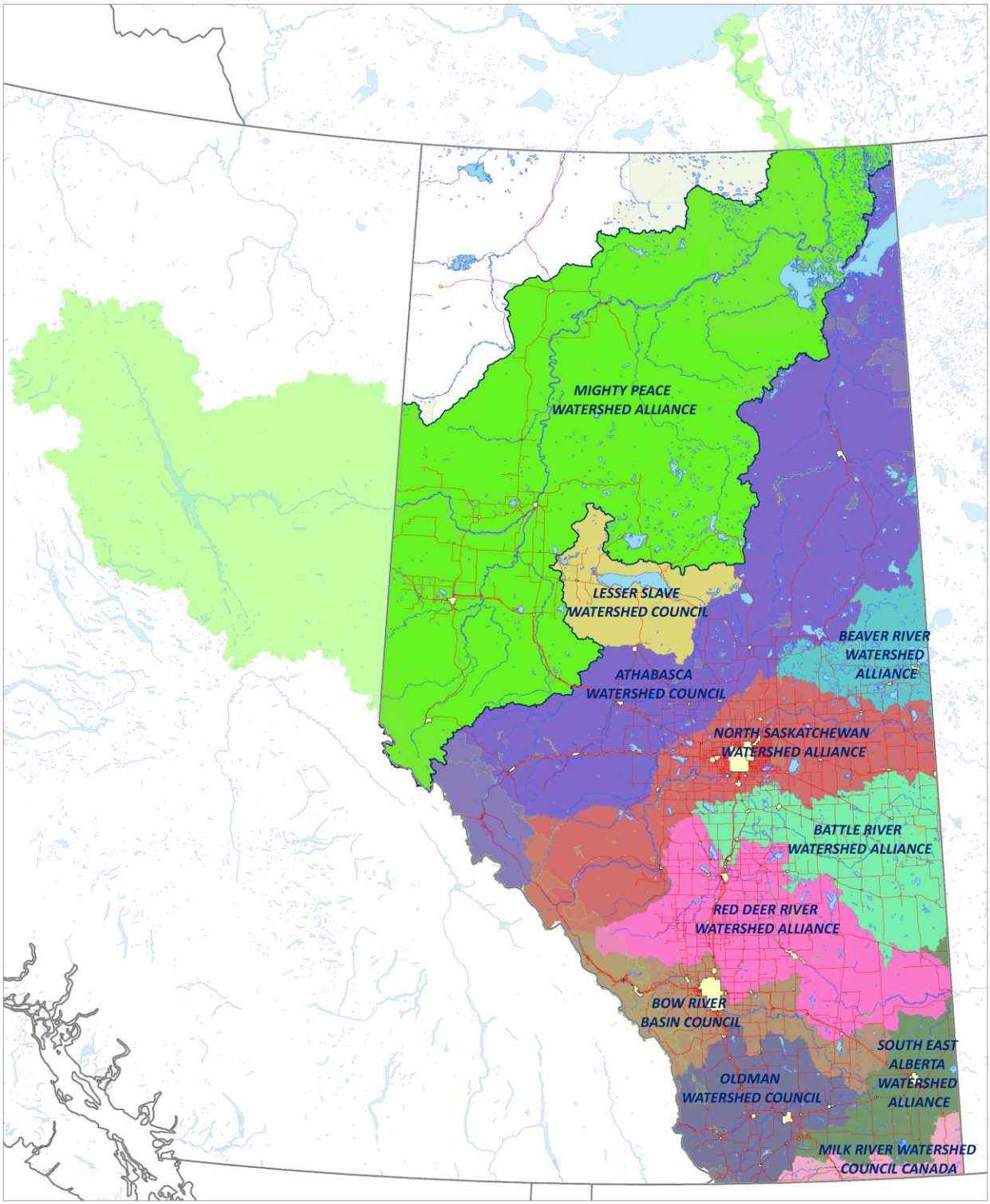
The MPWA uses consensus, adaptive management and innovation to understand and promote living within the Peace River watershed. Key tasks of the organization include reporting on the state of the watershed, leading watershed planning activities, preparing Integrated Watershed Management Plan(s) promoting beneficial management practices and developing educational programs.[2]

2.1 Geographic scope

The geographic scope of this plan includes the Alberta portions of the Peace and Slave Watersheds (see Figure 2). Although this is the defined scope of the Integrated Watershed Management Plan, consideration will be given to the portion of the Peace Watershed that is in British Columbia and significant tributaries if the need or concerns arise.

[1] For more on the Government of Alberta's *Water for Life* strategy, see **http://www.waterforlife.alberta.ca**.
[2] For more information about the work of the MPWA, see **http://www.mightypeacewatershedalliance.org/**.

Figure 1. Map depicting the geographic range of the Peace and Slave Watersheds. Other Watershed Planning and Advisory Councils in Alberta are also depicted.



3 Biophysical context

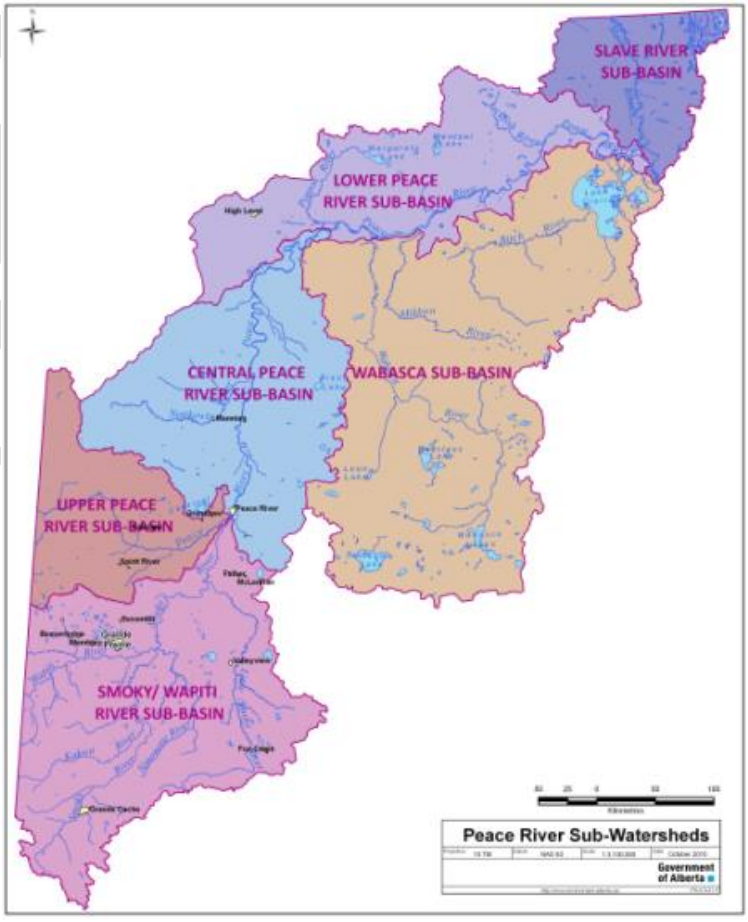
3.1 Biophysical and Socio-economic context

The main stem of the Peace River is about 1,923 kilometres (km) in length. The river stretches from the head of the Finlay River, in the Rocky Mountains of British Columbia, to where it meets the Slave River in northeastern Alberta. In turn, the Peace River watershed is a sub-basin of the larger Mackenzie Basin.[3] The Slave River flows from the Peace-Athabasca Delta in Alberta into the North West Territories where it empties the flows of the Peace River, Athabasca River and Lake Athabasca into Great Slave Lake.

Looking from the height of land, the Peace Watershed drains an area of approximately 302,500 square kilometres (km^2), of which 60% (182,500 km^2) is in Alberta. Together the Alberta portions of the Peace and Slave Watersheds drain 208,834 km^2. As Alberta's largest watershed, the Peace accounts for about 31.6% of the provincial landmass.

The Peace Watershed can be further divided into six sub-basins (see Figure 2). These include three sub-basins that make up the mainstem of the river (Upper, Central and Lower Peace), two for its major tributaries (Smoky-Wapiti and Wabasca rivers) and one for that portion of the Slave River that is in Alberta. The Peace watershed also includes of a number of smaller tributaries, streams, creeks, lakes, wetlands, springs and aquifers. Finally, this watershed is also known for the Peace-Athabasca Delta, one of the world's largest inland deltas.

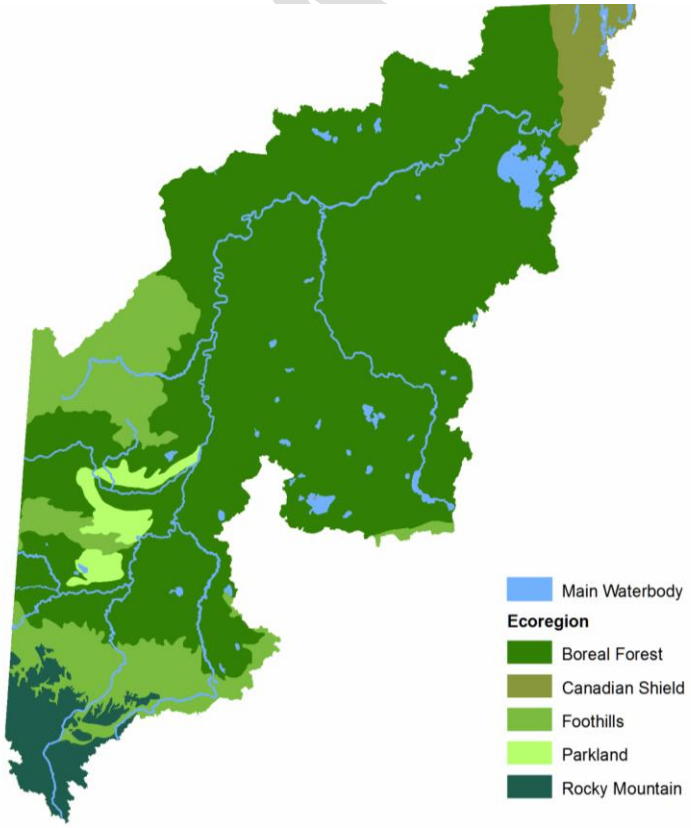
Figure 2 Sub-watersheds of the Peace Watershed



Mackenzie River Watershed, see http://www.mrbb.ca/information/9/index.html.

Today, the land cover of the Peace and Slave watersheds is often described using the National Ecological Framework, which combines climate, landforms, soils and plants. Areas that contain similar associations of these components are grouped in progressively more detailed categories. The broadest is the Natural Region, which is sufficient to provide an overview of the character of the Peace and Slave watershed.

Figure 3. Natural ecoregions of the Peace and Slave Watersheds



Source: ESRD, Alberta Community Development and Agri-food Canada

Rocky Mountains: Found only at higher elevations in the southwestern part of the watershed, this region is characterized by a mix of closed forests and vegetated areas, bare rock and, above the tree line, glaciers. The headwaters of many streams and rivers begin here.

Foothills: The lower slopes of the mountains are characterized by extensive forests, principally composed of lodgepole pine.

Parkland: Found only within a small portion of the Peace and Slave watershed, parklands are dominated by a mix of grasslands and aspen forests.

Boreal Forest: The Peace and Slave watershed is mostly boreal forest, also known as the Taiga — a vast circumpolar vegetation zone characteristic of the northern latitudes. It varies greatly, but the dominant trees are cold-hardy pine, spruce, larch, aspen, poplar, fir and birch. It also features treeless areas, lakes and rivers, extensive wetlands and, in the drier areas, grasslands. Overlying formerly glaciated areas, the boreal zone consists of broad lowland plains over which

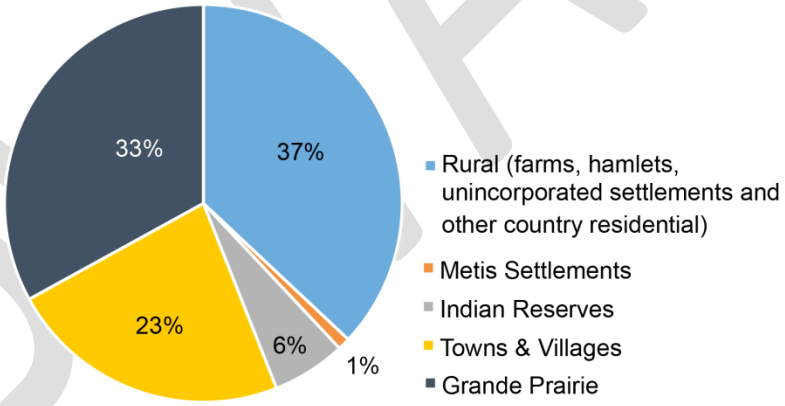
glaciers deposited sands and gravels, and extensive hill systems created by glacial moraines. The bedrock is typically deep, with outcrops only along major waterways that have eroded the overlying layers.

Canadian Shield: Restricted to the extreme northeastern part of the watershed, this is open forests of jack pine with black spruce in the wetter areas and outcroppings of granite bedrock.

3.2 Socio-economic context

According to the 2011 census, some 165,000 people live in the Peace and Slave watershed. Grande Prairie, with a population of slightly more than 55,000, is the only city in the watershed and ranks as one of the fastest-growing in the province. Towns, villages, hamlets, Indian Reserves and Métis Settlements are scattered throughout the watershed.

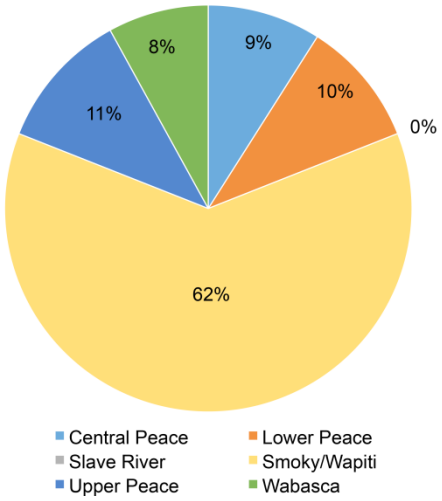
Figure 4. Where people live within the watershed



Another 23% of the population lived in a town or village. About 6% of the population lived on an Indian reserve. The remainder (37%) lived in rural parts of the watershed

Almost two-thirds of the Alberta portion of the population (62%) lived in the Smoky/Wapiti sub-basin. About 11% of the population lived in the Upper Peace sub-basin, 9% lived in the Central Peace sub-basin, 10% lived in the Lower Peace sub-basin, and 8% lived in the Wabasca sub-basin. Only about 100 people lived in the Slave sub-basin; this represents 0.06% of the population in the Peace and Slave watersheds.

Figure 5 Population by sub-watershed



Aboriginal people accounted for 16.7% of the population of the Peace and Slave watersheds. However, this ranged from a low of about 10% in the Upper Peace and Smoky/Wapiti sub-basins to 67% in the Wabasca sub-basin. The Aboriginal proportion of the population increases in the downstream sub-basins.

4 The Policy and Legislative context

The most relevant piece of policy for this Integrated Water Management Plan is the *Water for Life* strategy (see Section 1).

There are a plethora of plans, initiatives, policy, guidelines and legislation (see Appendix A) that are relevant in this watershed and as such will be considered by this plan. Many of these are industry, community or practice specific and will only be specifically addressed as needed. There are however a few key plans that are generally applicable to the watershed, some of which have already come into effect and some which will soon come into effect. A few of the most relevant plans, strategies and legislation are the following:

- Water Act (R.S.A. 2000, c. W-3)
- *Water for Life*
- Land Use Framework
    - Lower Athabasca Regional Plan
    - Athabasca River Water Management Framework
- Mackenzie River Basin Transboundary Waters Master Agreement
- Mackenzie River Basin Bilateral Water Management Agreement (Alberta – Northwest Territories bilateral agreement)
- Canada National Parks Act (S.C. 2000, c. 32)

5 Vision, Purpose and Objectives

5.1 Vision

The Integrated Watershed Management Plan of the Peace and Slave Watersheds balances and supports our social, environmental and economic objectives.

5.2 Purpose

The purpose of this plan is to address effective and sustainable management and use of the water resources. It will also address the maintenance of other benefits provided by the ecological functioning of the watershed. Ensuring that cumulative effects are understood and communicated among all users of the watershed is necessary to improve decision-making about human activity in the watershed. Creation and implementation of this plan will support the achievement of *Water for Life's* 3 main goals of: safe, secure drinking water; healthy aquatic ecosystems; and reliable, quality water supplies for a sustainable economy.

This plan will identify the areas with the greatest need for coordinated management and create a roadmap of how to lay the foundation for ongoing watershed management in the

Peace and Slave Watersheds. This plan is not a one-time effort, but rather the beginning of a systematic and prioritized adaptive management process at the watershed scale.

The purpose of this process is to coordinate the efforts of governments, residents, stakeholders, and communities in the Peace and Slave Watersheds regarding watershed management. It is the intention of the MPWA to get the support of as many governments, stakeholders, communities and residents for this plan as possible in order to make it successful. This process will be a marathon and not a sprint. The MPWA will prioritize the areas of greatest concern based on input from those in the watershed and then consider how best to address those issues. Implementation is critical to the utility of this work and the challenge of having the plan implemented will take place once the plan is complete. The MPWA will ensure that recommendations are carried forward to decision-makers who then can implement the recommendations.

5.3 Objectives

In this IWMP, objectives refer to concrete recommendations for policy and planning related to the watershed issues of concern. These recommendations will be developed through a consensus process and draw on the sector(s) directly involved, as well as input from a broad cross-section of those who live, play and work in the Peace and Slave watersheds. Policy and planning recommendations will be supported by the development of an implementation strategy. This implementation strategy will be the roadmap for garnering support and encouraging decision-makers to implement the objectives of this plan.

Some recommendations will go to the Director, some to cross-ministry teams and some to other appropriate agencies including recommendations to the Mighty Peace Watershed Alliance. Issues that fall under the domain of the *Water Act* will be submitted to the Director and those issues falling under legislation other than just the *Water Act* will be submitted to a cross-ministry team. Other agencies such as municipalities, industries or community groups may be the recipients of other recommendations should they be the ones able to implement the recommendation. This plan will contribute to and inform the Land Use Framework for the Upper Peace, Lower Peace and Lower Athabasca.

To sum up, the purpose of this plan is to create a plan for the Peace and Slave Watersheds based on the functional scale of a watershed. The outcomes of this plan will be objectives that are concrete recommendations (polices, Beneficial Management Practices, regulations, etc.) established for areas of concern. Implementation will involve taking these recommendations to the appropriate decision-maker whether that is the Director, a cross-ministry team, an industry, municipality, community group or otherwise.

6 Highlighted Watershed Issues of Concern

Sufficient water quality and quantity are critical to the watershed and the people who use the water resource. It is recognized that water quality and quantity are two broad categories that provide us with a sense of how the watershed is functioning. Each of the highlighted issues of concern addressed falls under the umbrella of either water quantity or water quality. This is by no means an exhaustive list but rather a prioritized list that will guide initial planning efforts (see Table 1). Subsequent rounds of planning may tackle other issues depending on the conditions at that time.

6.1 Non-saline ground water

Groundwater is a crucial source for many residents and communities throughout the watershed. More needs to be understood about the extent of these reserves, how sustainable their current use is and an appropriate means of managing them into the future. This plan will lay out a strategy to fill the data gaps in this area.

One good example of very valuable groundwater is the Grimshaw Gravels Aquifers, which is a very high quality source of ground waters within the watershed. This aquifer is also at high risk due to its proximity to the surface so it is an issue of concern. This Integrated Watershed Management Plan will look at means of protecting and safeguarding this valuable resource.

6.2 Water Quality and availability away from the mainstem

The Peace River is one of the least allocated rivers in the province. Compared with the average natural flow, the Peace has less than 1% surface water allocation.[4] Although the water allocations on the Peace River and Slave River mainstems are minimal at present, the need for water is often not on these large mainstems. Several tributaries of the Peace River, where water is withdrawn for municipal and industrial uses face water restrictions. Generally, these involve a restriction to levels of flow when water can be drawn. This may result in the need to withdraw at high flows and store, both of which create an increase in costs for municipalities and residents. Similarly, some lakes used as source water for municipalities are facing similar issues.

This plan will explore options for ensuring a sustainable supply of water for municipal use away from the Peace River mainstem.

6.3 Wetlands and Wetland loss

Wetlands cover slightly more than 29% (52,898 km²) of the Peace and Slave watershed (not including national parks, for which information was not readily available). The extent of

[4] http://environment.gov.ab.ca/info/library/8713.pdf

wetland area is a reflection of the natural land cover and land use. The regions with high coverage of wetlands correspond with extensive boreal forest areas and little human activity. Particularly in the lower watershed, First Nation's mode of life relies heavily on a wetland dominated ecosystem.

This plan will lay out a strategy for dealing with the lack of data around wetlands, look for solutions to address the loss of wetlands and explore the role of restoration in safeguarding wetlands in the watershed.

6.4 Peace River flow regime

The Peace is considered a "regulated" river because it can be and is controlled by dams. The dams have levelled the hydrograph, significantly reducing flows in spring, summer and autumn and significantly increasing them in winter. The impact of the dam must be considered when management practices are being considered that adjust the flows. The specific effects of the dam on aquatic ecosystems of the Peace and Slave watershed have not been fully characterized. Most of the water in the Peace River comes from British Columbia, so the timing, quality and quantity of this water has many ramifications for the Peace and Slave Watersheds. Similarly, the water passes through to other jurisdictions and this raises transboundary issues.

This plan will explore, relying heavily on the work being done by the Peace Athabasca Delta Ecological Monitoring Program, the impact of flow regime on the Peace Athabasca Delta and recommendations to maintain its ecological functioning. Flow regime will be reviewed in terms of the risk it poses to communities, farmland and infrastructure so that recommendations for their safeguarding can be made.

6.5 Consumptive Use of fresh water (both ground and surface water)

As of 2011 water licences and registrations issued to people and companies allow withdrawals of up to 148,728 cubic decametres (dam^3), which is the amount of water in 60,000 Olympic sized swimming pools, of surface water for use. Withdrawals represent 89% of water allocations in the watershed. Allocations of surface water account for about 0.3% of the average annual flow of the Peace River at Peace Point. Nearly two thirds of these allocations are for commercial purposes, including pulp mills, coal mines and thermal power projects. Another 19% of surface water allocations are for municipal purposes, with 7% for industrial purposes (oil and gas). Allocations for agricultural use account for 5% of total allocations.

This plan will develop a strategy to better understand the extent of the consumptive industrial use of water including the practice of deep disposal. The Oil and Gas, Mining and Power Generation, Agriculture and Forestry industries will be examined and options explored for reducing the consumptive use of fresh water.

Table 1. Overview of the prioritized issues of concern

Issues of Concern	Why it is an Issue? (What we learned from SOW)	Issue Focus
Non-saline ground water	1. The SOW has identified a lack of information, data and knowledge of regional aquifers, their sustainability, flows, and susceptibility for contamination. There is also lack of knowledge of recharge areas. **2.** Ground water is an important source of drinking water for many people (for example, Grimshaw Gravels Aquifers.	**The quantity and the quality of non-saline groundwater for human consumption and other uses.**
Water Quality and Availability away from the mainstem	1. Water treatment is expensive for municipalities. 2. Withdrawal from water bodies with low water levels raises concerns about impacts on the aquatic ecosystem. 3. Many communities are located along tributaries and do not have access the large quantity of water flowing through the Peace River. 4. Monitoring needs to be put in place to establish baselines. 5. Source water protection plans are necessary to ensure safe drinking water into the future. 6. Water quality for the tributaries are poorly known with limited information on water quality and are exposed and susceptible to cumulative effects of land use, agriculture practices, water withdrawal, municipal and effluent discharge. 7. Lakes in the watershed are naturally enriched with high nutrient and are susceptible for fish kill, algae growth.	**Sustainability of reliable drinking water sources for small communities along the tributaries and the functioning of aquatic ecosystems.**
Wetlands and Wetland Loss	1. Wetlands compromise a large portion of the watershed and are known to be critical for the hydrological cycle, water quality, flood control, drought mitigation and biodiversity. 2. Peatlands are particularly poorly understood and very prominent in the boreal regions. 3. First Nation's mode of life has and does make extensive use of wetlands. 4. The new Alberta Wetland Policy (2013) is just coming into effect.	**The level of understanding of the role and values of wetlands in the watershed.**
Peace River Flow Regime	1. Drastic reduction of water fluctuation and its effects on the Peace Athabasca Delta. 2. Change in the vegetative landscape of the Peace Athabasca Delta. 3. Impact on the regional biodiversity. 4. Risk of flooding at the towns of Peace River, Fort Vermilion and Garden River due to changes in flow regime or ice conditions.	**The Peace River Flow Regime and hydrograph.**
Consumptive use of fresh water (both ground and surface water)	1. Concerns about the loss of fresh water from the hydrological cycle and small water bodies.	**Industrial use of water in the context of human consumption needs and aquatic ecosystem health.**

7 Roles and responsibilities

7.1 Board

The Mighty Peace Watershed Alliance (MPWA) Board of Directors will be responsible for and guide the process of the Integrated Watershed Management Plan (IWMP). The Board can delegate responsibilities or duties to committees or consultants. Nevertheless, the final responsibility for the IWMP lies with the Board of Directors. The board consists of all directors in good standing at the time.

Consensus decision-making is how the MPWA Board of Directors operates and this will also be the approach for the IWMP. This does not mean that each interest represented around the table has every concern addressed exactly as they might wish, but rather that all those around the table can live with the compromises that are being made. As stated in the MPWA Process Guidelines, "Consensus is reached when everyone agrees they can live with the outcome, although the decision may not achieve all the desired outcomes of every sector."

In the case that no consensus can be reached, "Those who do not support the direction or decision are expected to explain what they cannot agree to, provide the rationale for their position and offer alternative solutions or changes that would make the idea acceptable." (MPWA process guidelines) If there is still no consensus reached, the group will agree on the remainder of the IWMP, noting the areas and reasons why consensus could not be reached and then accept the IWMP including caveats with consensus.

The Board of the MPWA is responsible to ensure that the recommendations in the plan are taken to the appropriate decision-makers.

7.2 Committees

Committees (or sub-committees) will be struck by decision of the board and may include both members of the board, stakeholders, community members and those with appropriate knowledge. The responsibilities of the committee will be determined by the board and the committee reports to the board. Committees should complete the work assigned to them and return to the full board with the appropriate information and recommendations to inform decision-making. Staff will be involved in committee work and will provide support to them. Appropriate expertise will be sought where applicable and those individuals will be involved at the discretion of the board or Steering Committee.

The IWMP Steering Committee is made up of 7 – 9 Directors representing each sector of the Board. The committee members will be selected by consensus of the Board of Directors.

7.3 Consultants

Consultants may be engaged by the board of directors as determined to be useful. All consultants will be engaged through a Request for Proposals process and then vetted. The point of contact with the organization will be the staff but the reporting will go back to either the Steering Committee or Board.

7.4 Staff

Staff will support the Board of Directors in the creation of IWMP and fulfill those tasks assigned to them by the board or committees. Staff will liaise, inform and ensure management of the IWMP development process.

7.5 Responsibilities and reporting

All reporting eventually goes to the MPWA Board of Directors as they have responsibility for this project. Committees report directly to the Board at all Board meetings and in-between meetings as required. Consultants will report directly to the Steering Committee. Staff may be the contact for the Board or the committee so that the Consultant reports first to the staff as a liaison and then Staff carry the report to either the Committee or Board. Staff report to committees and the Board on a regular basis and are responsible for fulfilling the tasks assigned to them. The Board of Directors needs to approve the final report in a consensus process.

8 Various Participation processes

Public participation is crucial to the success of this plan and every reasonable effort will be made to obtain that participation. In the past the MPWA has sought public participation on watershed issues through different media including: open houses, guided forums, print articles, interviews, advertisement, online and hard copy surveys, small group discussions, social media and feedback forms. To help validate the relevance and ensure the utility of this Integrated Watershed Management Plan, public participation will be achieved by means of 5 primary approaches:

- Education and Awareness – this is a general push to make those in the watershed aware of the watershed, our shared uses of it, the need for a management plan and opportunities for input. This will be done both digitally and with hardcopy, in person and per correspondence, in group and one-on-one settings.
- Guided review and discussion – presentation and directed questions will be used in a facilitated setting to gather input
- Open forum – opportunities for questions and non-directed discussion

- Social media – to engage all possible residents in a digital fashion using platforms such as Twitter and Facebook
- Aboriginal community engagement - they will be asked how they would like to participate.

Public input for the Terms of Reference will also be sought using this approach. Depending on what feedback is received during the public participation for the Terms of Reference, input may be sought from all stakeholders in a particular industry if an issue of concern is to be addressed. On the other hand, if the plan employs more of a strategic overview approach then a mix of community members, stakeholders and residents will be brought together at the same time. The public participation format will be aligned to the purposes of the plan.

Several workshops will be held to identify issues, put forth solutions and consider implementation. Workshops may be held either with a geographical focus in the watershed or specific to a sector. The multi-stakeholder Board of the MPWA will determine who should be involved in these workshops and seek their involvement. These workshops will be facilitated events where the MPWA brings the appropriate people to the table to deal with particular issues. Those around the table will collaborate to consider and develop solutions and recommendations regarding targets, outcomes, BMPs and implementation.

9 Plan Development Sequence

Table 2. Draft workplan and schedule

DRAFT WORKPLAN			
PHASE	**TASK**	**WHO IS RESPONSIBLE**	**TIMELINE**
Finalization of Terms of Reference	Incorporate feedback from public participation process	• Staff	February 2015
	Approve any changes and confirm direction, scope and purpose of the document	• Board	February 2015
	Define and clarify IWMP goals	• Board	March 2015
	Finalize all components of the document – consensus of board	• Board • IWMP SC	September 2015
	Submit TOR to AESRD Director and cross-ministry group for approval	• IWMP SC	September 2015

Develop Communications strategy	Develop message, identify audience, identify effective media, begin communications strategy implementation -let people we know that we doing an IWMP	• Committee(s)	Autumn 2015
	Hire consultants where needed	• Committee(s) • Staff	Winter 2015
Initiate working groups	Identify the appropriate people who need to be involved in the working groups and request their participation	• IWMP SC • Staff	October 2015
	Gather public input on issues, potential solutions and implementation strategies.	• IWMP SC	Winter/ Spring 2016
	Working groups develop a scope of work, clarify the issue, search out possible solutions	• IWMP SC	Winter 15 /Spring 2016
Hire consultant	Hire a consultant where needed to provide background information, present management options and inform the working group's work.	• IWMP SC • Staff	Autumn 2015/ Winter 2016
Working groups make recommendations to Board	Working groups submit their recommendations to the Board for review	• IWMP SC • Staff	February 2016
Hold invited stakeholder forums	Hold forums to build support for the management recommendations and adjust as necessary	• IWMP SC • Staff	April 2016
Second wave of working groups begin	This follows the process outlined above.	• IWMP SC • Staff	August 2016
Write plan	Review plan	• Board • IWMP SC • Staff	February 2017
	Accept plan	• Board	March 2017

	Submit plan to Director	• IWMP SC	March 2017

*workplan may change depending upon funding and operational issues

MPWA recognizes that funds are required to complete each stage of this plan development sequence and is committed to securing them through a variety of means. The entire process requires collaboration from many partners in the sectors of Non-Governmental Organizations, Aboriginal Communities, Industry and Governments. As the process proceeds funding will be sought from the most appropriate sources.

This process will require the following.

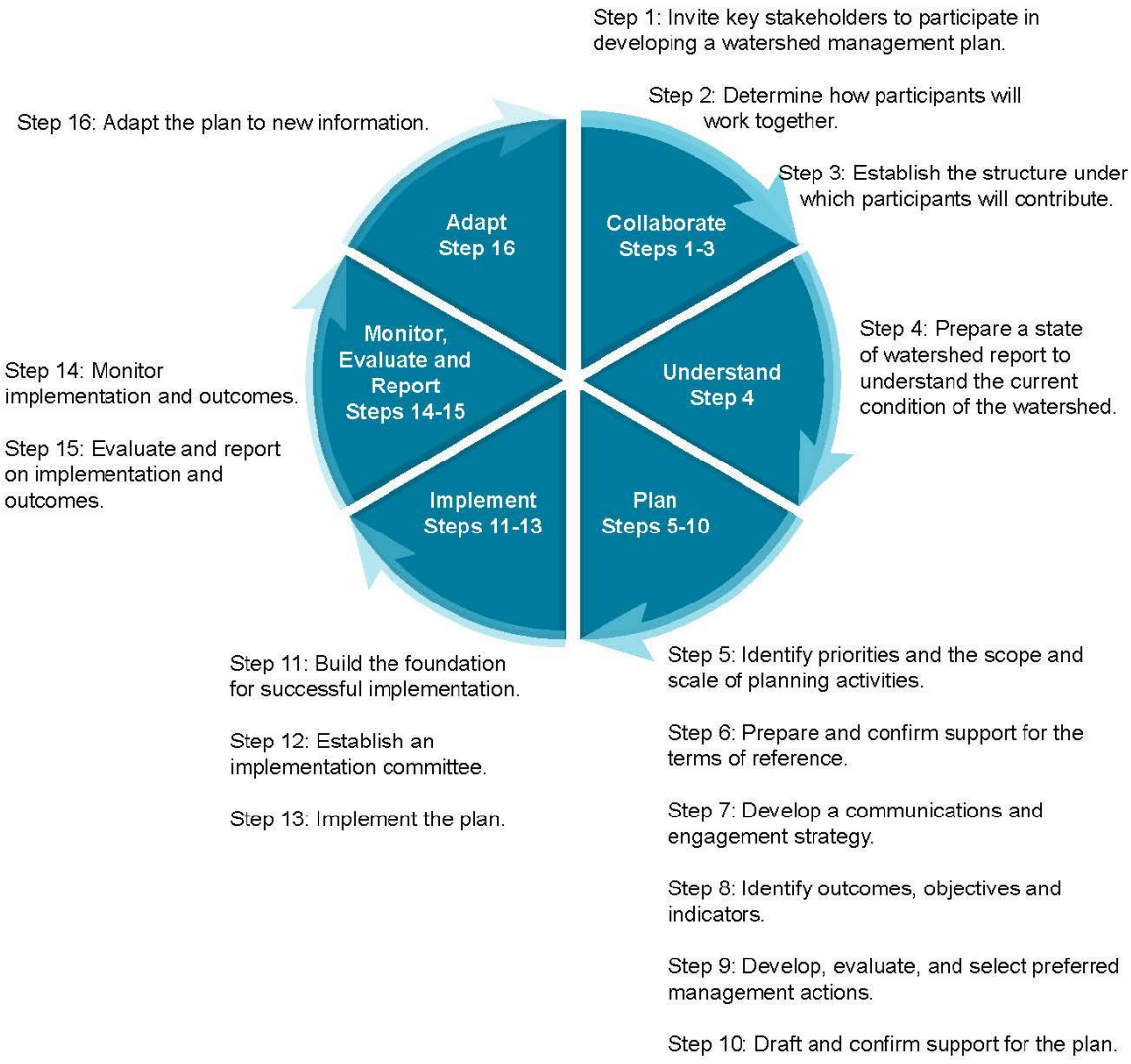
	Fiscal year 2015/2016	Fiscal year 2016/2017	Total
IWMP SC meeting	$4,000	$4,000	$8,000
Working Group meetings	$8,000	$8,000	$16,000
Invited stakeholder meetings	$14,000	$14,000	$28,000
Workshop facilitator	$6,000	$6,000	$12,000
Communication and Education	$10,000	$10,000	$20,000
Contracted Services	$48,500	$48,500	$97,000
Total	$90,500	$90,500	$181,000

10 Evaluation and Approval

This plan will follow the guidelines as laid in the Guide to Watershed Management Planning in Alberta (2015) and where applicable the Guide to Water Management Planning in Alberta. The purpose in doing this is to ensure the greatest possibility of the plan being approved by the Director and increasing the reach of the plan. The TOR will be submitted to the Director.

Consistent with adaptive management principles, this plan will be regularly reviewed on a 10 year cycle to assess it. The plan will be assessed for its effectiveness and relevance and the results of this assessment will guide any necessary revision of the plan. Integral to effective planning is appropriate, relevant and current information; as such the State of the Watershed will also be renewed regularly to inform the planning process. The end of the planning cycle is 10 years.

Figure 5: Watershed Management Planning Process (Taken from the Guide to Watershed Management Planning in Alberta, page 5)



The success of this plan can be measured by several performance indicators. One performance indicator is the approval of this Integrated Watershed Management Plan by the Director. Another performance indicator is the recognized support for the plan from all the stakeholders identified by the working groups. The number of recommendations that are adopted is also a performance indicator. A final means of evaluating the success of this planning process will to be review the plans using the indicators identified in the State of the Watershed Report. Several approaches are available to do this are listed below:

1) Statistically significant – have the indicators changed in a way that is statistically significant (this is the most rigorous approach)?

2) Biologically significant – are there changes in the indicator (e.g., fish community) that are noticeable but not statistically significant?

3) Environmentally significant - has there been a change in the environment that affects the indicator (e.g.., an improvement in dissolved oxygen for fish communities)?

4) Socially significant – are there changes in the societal values and their availability to those in the watershed (maybe there is no counts of increased visits to a lake but anecdotally people are going there more)?

5) Economic significant – is there a change to the economic costs of implementation (is the plan providing cost-effective ways of improving and maintaining watershed function)?

Once the plan has identified targets and been implemented, then it will be possible to evaluate the effectiveness of the plan using the above approach.

11 Appendix

Throughout the IWMP process existing legislation, policies and plans will be reviewed to ensure linkages, alignment and agreement. The following sections outline Federal and Provincial legislation that the Terms of Reference and IWMP will adhere to. This section uses excerpts from both the Lesser Slave Integrated Watershed Management Plan Draft Terms of Reference (http://www.lesserslavewatershedcouncil.ca/) and the Oldman Watershed Council Integrated Watershed Management Plan Headwaters Terms of Reference (http://oldmanbasin.org/).

Alberta Land Stewardship Act (S.A. 2009) – Alberta Environment and Sustainable Resource Development (AESRD)

(https://landuse.alberta.ca/Governance/ALSA/Pages/default.aspx)

The *Alberta Land Stewardship Act* is the legal basis for all land-use planning in Alberta. "The purposes of this Act are:

- To provide a means by which the Government can give direction and provide leadership in identifying the objectives of the Province of Alberta, including economic, environmental and social objectives,
- To provide a means to plan for the future, recognizing the need to manage activity to meet the reasonably foreseeable needs of current and future generations of Albertans, including aboriginal peoples,
- To provide for the co-ordination of decisions by decision-makers concerning land, species, human settlement, natural resources and the environment, and
- To create legislation and policy that enable sustainable development by taking account of and responding to the cumulative effect of human endeavor and other events."

Canada National Parks Act (S.C. 2000, c. 32) – Parks Canada

(http://laws-lois.justice.gc.ca/eng/acts/n-14.01/)

This Act is the governing legislation for the national parks of Canada and states its intent as providing parks for the people of Canada for their benefit, education and enjoyment. Furthermore it indicates the need to "leave them unimpaired for the enjoyment of future generations."

Environmental Protection and Enhancement Act (R.S.A. 2000) - AESRD

(http://esrd.alberta.ca/air/legislation/default.aspx)

"The purpose of this Act is to support and promote the protection, enhancement and wise use of the environment." EPEA covers a wide range of activities including environmental assessments, reclamation, conservation easements, wastewater, storm drainage and substance releases.

Fisheries (Alberta) Act (R.S.A. 2000) – AESRD

(http://esrd.alberta.ca/fish-wildlife/fisheries-management/default.aspx)

The purpose of the *Fisheries (Alberta) Act* is to regulate commercial fisheries in Alberta through licensing and regulation of fish buyers, processors, aquaculture operations and fresh water

fishing licenses. This act gives the legal framework to establish regulation pertaining to fishing seasons and catch restrictions.

Fisheries Act (R.S.C. 1985, c. F-14) - Department of Fisheries and Oceans

(http://www.dfo-mpo.gc.ca/acts-lois/acts-lois-eng.htm)

The Fisheries Act is federal legislation dating back to Confederation and was updated it 2012 to focus on commercial, recreational and aboriginal fisheries. It was established to manage and protect Canada's fisheries resources. It applies to all fishing zones, territorial seas and inland waters of Canada and is binding to federal, provincial and territorial governments. As federal legislation, the Fisheries Act supersedes provincial legislation when the two conflict. Consequently, approval under provincial legislation may not necessarily mean approval under the Fisheries Act.

Forests Act (R.S.A. 2000, c. F-22) – AESRD

(http://esrd.alberta.ca/lands-forests/land-management/compliance-enforcement/default.aspx) This Act establishes an annual allowable cut in coniferous and deciduous forests. It prohibits persons from damaging the forest in any way and allows the Minister to construct and maintain forest recreation areas.

Forest Reserves Act (R.S.A. 2000, c. F-20) – AESRD

(http://esrd.alberta.ca/lands-forests/land-management/compliance-enforcement/default.aspx)

The Forest Reserves Act provides a process for acquisition of land in order to sustain a forest reserve.

Migratory Birds Convention Act (S.C. 1994, c. 22) – Environment Canada

(http://www.ec.gc.ca/nature/default.asp?lang=En&n=7CEBB77D-1)

"The purpose of this Act is to implement the Convention by protecting and conserving migratory birds — as populations and individual birds — and their nests." Some species may have more rigorously legislated requirements under the Species at Risk Act (http://www.ec.gc.ca/alef-ewe/default.asp?lang=en&n=ED2FFC37-1).

Municipal Government Act (R.S.A. 2000) – Alberta Municipal Affairs

(http://www.municipalaffairs.alberta.ca/mc_about_municipalities.cfm)

"The *Municipal Government Act* (MGA) is the legislative framework in which all municipalities and municipal entities across the Province of Alberta operate. The MGA has three main areas of focus, governance, planning and development and assessment and taxation." The MGA provides municipalities the direction, control and management of the rivers, streams, watercourses, lakes and other natural bodies of water within the municipality, including the air space above and the ground below. It also provides municipalities with authority to regulate water on municipal lands, management of private land to control non-point sources and authority to ensure that land use practices are compatible with the protection of aquatic environment. It enables a municipal government to take the entirety of ravines, floodplains or

unstable ground as environmental reserve and establish a buffer zone around any body of water to allow access or prevent pollution.

Navigation Protection Act (R.S. 1985, c. N-22, s. 1; 2012, c. 31, s. 316.) – Transport Canada

(http://laws-lois.justice.gc.ca/eng/acts/N-22/)

The main purpose behind the Navigation Protection Act is to ensure public access to, and efficient use of, our water ways.

Provincial Agricultural Operations Practices Act (RSA 2000 Chapter A-7) –Alberta Agriculture and Rural Development

(http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/all/acts5986)

Outlines manure management standards for all farming and ranching operations in Alberta. It also provides producers and other stakeholders with a process for siting new and expanding confined feeding operations (CFOs).

Provincial Safety Codes Act (R.S.A. 2000, c. S-1) – Alberta Municipal Affairs

(http://www.qp.alberta.ca/documents/acts/s01.pdf)

Regulates and enforces septic system management practices, including installation of septic field and other subsurface disposal systems.

Provincial Parks Act and Wilderness Areas, Ecological Reserves, Natural Areas and Heritage Rangelands Act -Alberta Tourism, Parks and Recreation

(http://www.albertaparks.ca/albertaparksca/management-land-use/legislation-regulations.aspx)

Both Acts can be used to minimize the harmful effects of land use activities on water quality and aquatic resources in and adjacent to parks and other protected areas.

Provincial Wildlife Act (R.S.A. 2000, c. W-10) – AESRD

(http://www.qp.alberta.ca/documents/Acts/w10.pdf)

Regulates and enforces on protection of wetland-dependent and wetland associated wildlife and endangered species (including plants).

Public Lands Act (R.S.A.2000, c. P-40) – AESRD

(http://esrd.alberta.ca/lands-forests/land-management/compliance-enforcement/default.aspx)

The purpose of the *Public Lands Act* is to outline the administration of public lands within the province and the powers of the Alberta Government to manage this land. This land is referred to as Crown Land and does not include land occupied by private land owners, Provincial Parks, and held by the federal government, or First Nations Reserves. Crown Land includes the beds and shores of all permanent and naturally occurring bodies of water. It prohibits the disturbance of any public land in a manner that results or is likely to result in injury to the bed or shore of any river, stream, watercourse, lake or other body of water or land within the vicinity of that public land.

Regional Health Authorities Act (R.S.A. 2000, c. R-10) - Alberta Health

(http://www.health.alberta.ca/about/health-legislation.html)

Regional Health Authorities have the mandate to promote and protect the health of the population in the region and may respond to concerns that may adversely affect surface and groundwater.

Soil Conservation Act (R.S.A. 2000, c. S-15) – Alberta Agriculture and Rural Development

(http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/acts6138)

The purpose of the *Alberta Soil Conservation Act and Regulations* is to impose a duty upon every landholder to take appropriate measures to prevent soil loss or deterioration or to mitigate the same where it has occurred. Where a breach of duty occurs, the landholder may be served with a notice to take remedial action. If the landholder fails to comply, the authorized authority may take remedial action at the landholder's expense. The legislation also provides appeal and dispute settlement mechanisms.

Species at Risk Act (S.C. 2002, c. 29)

(http://www.ec.gc.ca/alef-ewe/default.asp?lang=en&n=ED2FFC37-1)

"The purposes of the Act are to prevent Canadian indigenous species, subspecies, and distinct populations from becoming extirpated or extinct, to provide for the recovery of endangered or threatened species, and encourage the management of other species to prevent them from becoming at risk." Destruction of the critical habitat of a SARA listed species is also prohibited under the *Species at Risk Act*.

Water Act (R.S.A. 2000, c. W-3) - AESRD

(http://esrd.alberta.ca/water/legislation-guidelines/default.aspx)

"The purpose of this Act is to support and promote the conservation and management of water, including the wise allocation and use of water, while recognizing:

- The need to manage and conserve water resources to sustain our environment and to ensure a healthy environment and high quality of life in the present and the future,
- the need for Alberta's economic growth and prosperity,
- The need for an integrated approach and comprehensive, flexible administration and management systems based on sound planning, regulatory actions and market forces,
- The shared responsibility of all residents of Alberta for the conservation and wise use of water and their role in providing advice with respect to water management planning and decision-making,
- The importance of working co-operatively with the governments of other jurisdictions with respect to transboundary water management, and
- The important role of comprehensive and responsive action in administering this Act."

Willmore Wilderness Park Act (R.S.A. 2000, c. W-11) – AESRD

(http://www.albertaparks.ca/albertaparksca/management-land-use/legislation-regulations.aspx#Legislation)

This piece of legislation protects the unique Willmore Wilderness Park and describes that permitted uses and activities for this area.

Plans, Planning and Policy

Athabasca Watershed Council

http://www.awc-wpac.ca/

Recognizing that the Athabasca River is a tributary to the Slave River, the MPWA Integrated Watershed Management Plan (IWMP) Team has worked hard to share information and make linkages where possible.

Alberta Wetland Policy (2013)

(http://aep.alberta.ca/water/programs-and-services/wetlands/alberta-wetland-policy.aspx)

The goal (or purpose) of the *Alberta Wetland Policy* (2013) is to conserve, restore, protect and manage Alberta's wetlands to sustain the benefits they provide the environment, society, and economy." This policy will help to maintain wetland values in Alberta such that the ecological, social, and economic benefits that wetlands provide are maintained, thereby helping to ensure Albertans have healthy watersheds that provide safe and secure drinking water supplies, healthy aquatic ecosystems, and reliable, quality water supplies for a sustainable economy. In recognition of the high rate of wetland loss in some watersheds, this policy also encourages Albertans to be proactive in increasing wetland area.

Land-use Framework (2008)

(https://landuse.alberta.ca/Pages/default.aspx)

Alberta's Land-use Framework (LUF) is aimed at managing growth in the province by maintaining a growing economy while also addressing the cumulative pressures and effects that increasing land use has on the environment. The LUF divides the province into seven regions, each region falling under its own regional plan to manage the impacts of development on land, water and air. The LUF contains seven strategies, two of which focus on watershed management.

Municipal Government Plans

Regional sustainability plan

(http://www.cityofgp.com/index.aspx?page=1091)

This plan combines the sustainability plans of six municipalities including: the City of Grande Prairie, the County of Grande Prairie, the Town of Sexsmith, the Town of Beaverlodge, the Town of Wembley and the Village of Hythe.

Wapiti Corridor Management Plan

(http://www.wapiticorridor.ca/)

This is a multi-use plan that is being developed for an area of intensive recreational use.

Water for Life: A renewal (2008)

(http://www.waterforlife.alberta.ca/index.html)

The purpose of *Water for Life* strategy is to recognize that Alberta's population and economic growth is changing, and the Government of Alberta needs to ensure three basic outcomes for all Albertans:

1. Safe, secure drinking water supply,
2. Healthy aquatic ecosystems, and
3. Reliable, quality water supplies for a sustainable economy.

The goals of *Water for Life* will be met through knowledge and research, partnerships and water conservation.

Water Management Plans

- Wapiti River Water Management Plan (still in planning process)
- Heart River Watershed Management Plan (http://aquality.ca/uploads/news/id93/Heart_River_WMP.pdf)
- **Framework for Water Management Planning (n.d.) and Framework for Watershed Management Planning (2008)**
    - The *Framework for Water Management Planning* (n.d.) and *Framework for Watershed Management Planning* (2008) both outline the process for water management planning and the components required for completing water and watershed management plans (respectively) in the provinces.

Water Conservation Objectives

(**http://esrd.alberta.ca/water/legislation-guidelines/water-conservation-objectives.aspx**)

Water Conservation Objectives set flow targets relating to the quality and quantity of water that is to remain in specific rivers.

Transboundary

The Mackenzie River Basin Transboundary Waters Master Agreement, 1997

(http://www.waterforlife.alberta.ca/03330.html#Agreement)
(http://www.mrbb.ca/uploads/files/general/28//mrbb-bilateral-guidance_document-final-1.pdf)

This agreement that lays out the principles for what water resources each province or territory needs to pass on to the downstream jurisdictions.

Mackenzie River Basin Bilateral Water Management Agreement, 2015

(http://aep.alberta.ca/water/education-guidelines/documents/MackenzieBasinAgreement-AB-NWT-Feb2015.pdf)

This agreement is a bilateral water management agreement between Alberta and the Northwest

Territories and provides a framework to achieve the principles of the Mackenzie River Basin Transboundary Waters Master Agreement.

Métis Elders Knowledge Gathering Workshop

(http://www.mightypeacewatershedalliance.org/peace-river-watershed/basin-informaton-resources/)

This report details efforts to gather Métis traditional knowledge through an Elders workshop.