

MUNICIPAL

Water Primer and Discussion Paper



**The full report can be found at water.auma.ca
and www.auma.ca under reports.**



Executive Summary

Purpose

No water, no municipality. Water is a finite resource essential to all dimensions of municipal sustainability.

For the past several years, AUMA and its members have been working on developing and implementing a [Water Conservation, Efficiency and Productivity Plan](#). This work will continue, but AUMA recognizes that municipalities are facing a broader range of water related issues, many of which are central to municipal viability.

In acknowledgement of these issues, AUMA has written this *Water Primer and Discussion Paper* to:

- Serve as a catalyst for discussion of these broader water issues among AUMA members and other partners.
- Attempt to provide the background information necessary for informed decision making, but not to provide recommendations.
- Ask members questions.

This *WPDP* is just a first step. Over the next year, AUMA will engage its members in discussions about how municipal water issues should be addressed through our policies, programs and business services.

This executive summary provides an overview of the topics covered and questions throughout the paper. (Each section of the summary is hyperlinked to the corresponding section of the *WPDP* that provides more background.)

Water in Context

The first section of this paper outlines the current water context, framing the issues facing Alberta municipalities. Current water issues are driven by concerns about the availability of water for economic and population growth.

For instance, water demand is expected to increase by 50 per cent in developing countries and 19 per cent in developed countries by 2025. At the same time, less than one percent of global water supplies are readily accessible for human consumption and these supplies are unevenly distributed (UN Water, 2011).

In North America, Canada has a relative abundance of water compared to the United States, but Alberta only has two per cent of Canada's freshwater (Vander Ploeg, 2010). There is also a strain on Alberta's water supplies as 80 per cent of this water flows north, while 80 per cent of the population resides in the southern areas of the province. This distribution of freshwater resources has serious consequences for the health of aquatic ecosystems and the reliability of supply required for municipal sustainability.



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Jurisdiction

Another important aspect to understanding the Alberta water context is the jurisdictional breakdown of responsibility for water in Canada. Responsibilities are outlined in the following table:

Government of Canada
<ul style="list-style-type: none">•Management of boundary waters•National policies and standards•Fish and fish habitat•Navigation
Government of Alberta
<ul style="list-style-type: none">•Water ownership•Regulator control over flow, access, pollution and treatment
Municipalities
<ul style="list-style-type: none">•Day to day operation and management of water and wastewater systems•Bodies of water within the municipality

The section on jurisdiction provides more detail on this breakdown and provides a brief overview of federal and provincial legislation governing water.

DISCUSSION QUESTIONS:

Is this an appropriate breakdown of authority and responsibility? If not, what are the alternatives?

Water for Life Strategy


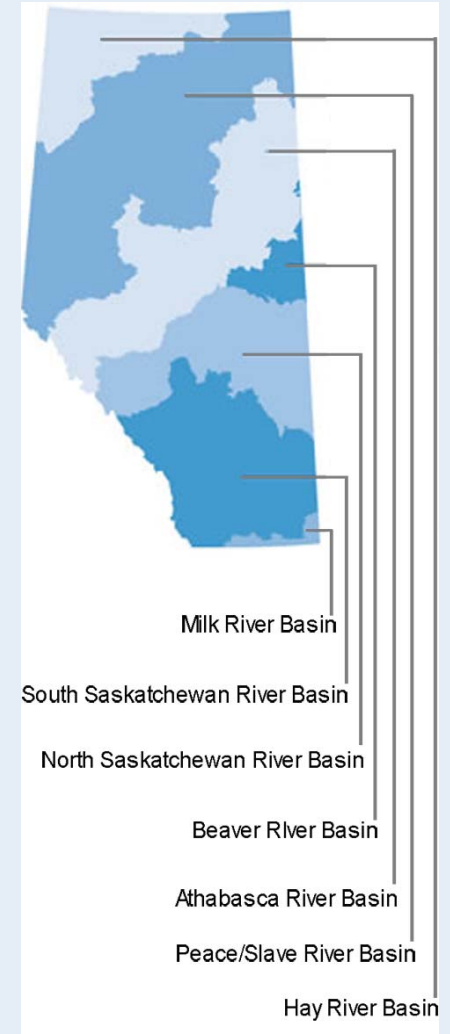

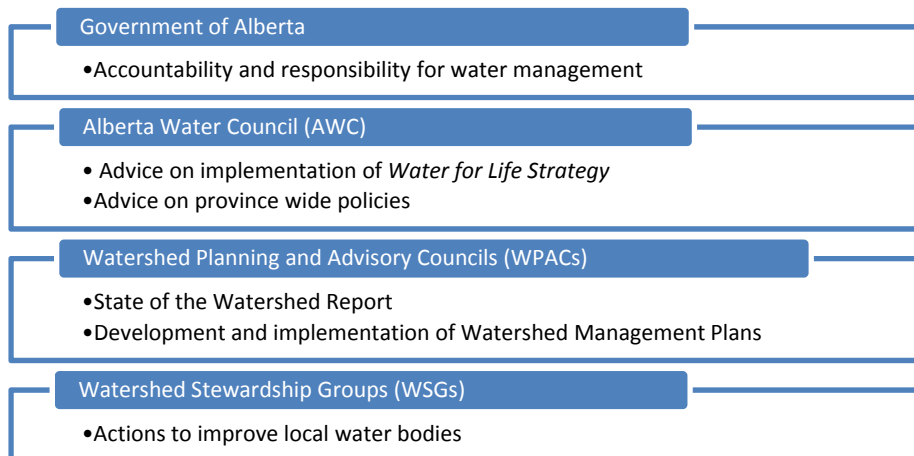
To understand water management in Alberta, one must be familiar with the *Water for Life Strategy*, which introduced a collaborative, **place-based**  approach to water management.

Figure 1a:



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The *Strategy* introduced a water management approach based on the seven major **watersheds or basins** outlined in the [Water Act](#) . It has also moved the province toward a **shared governance** model with multi-stakeholder partnerships taking responsibility for various aspects of water management. The governance model is outlined below:



AUMA is a member of the Alberta Water Council (AWC). Individual municipalities can participate in Watershed Planning and Advisory Councils (WPACs) and partner with Water Stewardship Groups on initiatives at the regional and local level. The AWC is currently working to improve communication and coordination among the *Water for Life* partnerships.

At this time, there is no consistent process to facilitate municipal engagement with WPACs or to fund the work that the councils do. This lack of consistency raises the following questions:

- *What are the main barriers to municipal participation in WPACs and watershed decision-making?*
- *Should a more formal system for appointing municipal representatives to WPACs be established?*
- *What role should AUMA play, if any?*
- *Should watershed planning be funded exclusively by the Government of Alberta?*
- *What, if anything, should municipalities be asked to contribute?*

Water for Life and the Land-use Framework

The Land-use Framework is meant to coordinate a collaborative, integrated approach to managing the cumulative effects of development on the province’s air, land and water at the regional watershed level. The implementation of the Framework is in its infancy, and it is unclear how existing water management initiatives will be integrated with the Framework.

Municipalities have also expressed uncertainty as to their exact role in the multi-sectoral approach to planning. As implementation of the Framework continues, questions such as the following need to be considered:

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- *Are municipalities informed and ready to participate in the cumulative effects management approach to water and other resources ushered in by the Land-use Framework?*
- *If not, how can their capacity to participate be improved?*
- *What should the AUMA do to support its members' engagement in the Land-use Framework cumulative effects management?*

Issues

The second portion of the paper examines the issues municipalities are facing, through the three goals of *Water for Life*. These goals are:

- **Safe, secure supply of drinking water:** Albertans are assured their drinking water is safe
- **Healthy aquatic ecosystems:** Albertans are assured that aquatic ecosystems are maintained and protected
- **Reliable, quality water supplies for a sustainable economy:** Albertans will be assured that water is managed effectively to support sustainable economic development

Goal: Safe, Secure Drinking Water Supply

Many municipalities are struggling to maintain drinking water systems due to:

- Rising standards
- Aging infrastructure
- Limited revenues
- A shortage of skilled water operators.

The way standards are set and implemented is often cited as a source of frustration and confusion for municipalities. This is due to municipalities being responsible for implementing standards that are set and enforced by the Government of Alberta, but derived from national guidelines. These standards and guidelines are meant to take into account operational considerations, while protecting public health.

This *WPDP* first reviews how the **Guidelines for Canadian Drinking Water Quality**  are determined and then asks:

- *Are you aware of, or have you participated in, a consultation process for updating the Guidelines that facilitated the input of municipalities?*
- *Should more be done to alert and engage municipalities when consultations are being held on changes to the Guidelines?*

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This paper then reviews how these guidelines are translated into the **Alberta Drinking Water Regulations and Standards** and asks:

- *Are there any concerns with current drinking water standards or how they are being enforced?*
- *What works well in the current approach to drinking water regulations? What needs to be improved?*

Drinking Water Safety Plans

The Government of Alberta is examining whether the adoption of Drinking Water Safety Plans can resolve some of the issues around the implementation of standards and water safety assurance.

Drinking Water Safety Plans adopt a risk management approach and focus on increasing the knowledge of regulators and operators of the unique circumstances of individual water systems. Key aspects of this approach include:

- System assessment
- Operational monitoring
- Management and communication
- External surveillance for quality verification

Before moving forward, the following questions need to be addressed:

- *Are there potential barriers to implementing Water Safety Plans?*
- *What would be required to overcome these barriers?*

Water Operators

No matter what the standards and protocols in place are, the provision of a safe, secure drinking water supply depends on the people who operate water systems. Concern is growing because smaller municipalities in particular are struggling to attract and retain qualified water operators.


The Alberta Water and Wastewater Operators Association (AWWOA) is leading a number of initiatives to encourage more people to choose water operations a career. Municipalities are also collaborating through operational consortiums to provide backup and support to water operators.

- *Are you using resources supplied by the AWWOA to help attract operators?*
- *If so, are they working well?*
- *What could be improved or added to existing programs to better deal with the labour shortage?*
- *If your municipality is part of an operational consortium, is it working well?*
- *What are the pros and cons?*

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Distribution Systems

In Canada, an average of 20 per cent of water leaving municipal drinking water treatment facilities cannot be accounted for. The majority of this loss is attributed to leaks from aging distribution systems.

As a part of AUMA's [Water Conservation, Efficiency and Productivity Plan](#) , AUMA members are conducting water audits that measure the health of distribution systems. Once these water audits are complete, leaks in the system will need to be found and fixed. This can be challenging because some municipalities are having difficulty accessing the equipment and expertise required to repair leaks.

- *What challenges is your municipality facing in terms of maintaining its distribution system?*
- *What are some potential solutions?*
- *Is there a role for AUMA and/or AMSC to assist?*
- *If so, what should that role be?*

Funding

Issues such as leaking distribution systems are tied to the fact that revenues have not kept pace with the costs of maintaining water systems. Municipalities face a wide variety of funding pressures, including:

- The cost of maintaining large systems built to meet sprawling land uses
- Maintaining systems in the face of population decline or expanding systems in the face of growth
- Meeting increased standards and expectations

The common denominator for most municipalities is that residents and businesses do not pay for the full cost of the water services they use, nor is money put in reserves for future upgrades. To fill this financial gap, municipalities turn to overtaxed general revenues and oversubscribed grants. The resulting shortfall leads to deferred maintenance and upgrades, which in turn contribute to the municipality's overall infrastructure deficit and concerns about the ongoing ability of the system to provide safe drinking water.

Many municipalities have recognized this situation and have begun working toward full cost accounting and recovery. Accounting for all the operational and capital costs involved requires detailed knowledge of water systems and cooperation among various municipal staff.

Once the process of accounting is complete, the challenge becomes establishing a price that covers current costs, builds reserves for future expenditures and is acceptable to rate payers. Alberta Environment and Alberta Transportation have recently agreed to work with AUMA to support greater adoption of full cost accounting and recovery.

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Answers to the following questions will help guide this work:

- *What are the biggest obstacles to implementing full cost accounting and recovery in your municipality?*
- *Should certain levels of grant funding remain available to deal with increasing standards?*
- *Should grant funding remain available for very small systems, where users may not be able to cover system costs?*
- *How can land use planning prevent the type of sprawl that requires servicing by costly distribution systems?*
- *What are the most important issues AUMA, Alberta Environment and Alberta Transportation should address in the development of a strategy to support full cost accounting and recovery?*

Regional Systems

Given the challenges facing municipal water systems, an increasing number of municipalities are turning to regional systems to maximize economies and increase access to skilled operators. However, regional systems come with their own challenges including:

- Concerns over governance structures
- Funding
- Long term pricing
- Land use implications.

When it comes to regionalization, what should be done to:

- *Mitigate the concerns of municipalities about regionalization of water services?*
- *Manage the risks associated with regional integration?*
- *Develop tools to achieve effective regional integration?*
- *Reduce the vulnerability of small treatment facilities?*

Related questions include:

- *Is hiring external service providers (including private companies) a good option for individual systems?*
- *Are municipalities getting the right support from Alberta Environment?*
 - *Municipal Affairs?*
 - *Transportation?*
 - *If not, what should be changed?*
 - *How can the departments work more effectively together?*
- *What role should AUMA play?*

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Goal: Healthy Aquatic Ecosystems

Aquatic ecosystems provide many essential services to municipalities. They are:

- The source of a safe, secure supply of drinking water
- A buffer against the impacts of extreme weather events
- A place of recreation
- A contributor to the aesthetic appeal of a community

Yet, of all the *Water for Life* goals this is the one for which there has been the least progress.

Efforts are underway to rectify the situation, including:

- Initiatives dealing with land use planning
- ***Non-point source pollution***
- ***Wetland maintenance***
- ***Riparian area management***

Some municipalities have taken actions that can serve as models for others, such as passing sewer use bylaws or partnering with stewardship groups to protect ecosystems.

- *Should AUMA and its members give greater priority to protecting aquatic ecosystems?*
 - *If so, how can AUMA best support its members in protecting aquatic ecosystems?*
- *Is your municipality undertaking programs that could serve as a model for others?*
 - *Are you working with WPACs or WSGs on these initiatives?*
- *How should the Land-use Framework protect aquatic ecosystems?*

Wastewater Regulations

Wastewater treatment is one of the biggest contributions municipalities make to the protection of aquatic ecosystems. The treatment standards municipalities must meet have been the exclusive domain of the provincial government until recently, when the federal government introduced draft *Waste Water System Effluent Regulations* in an attempt to harmonize standards across the country. AUMA supported and facilitated member input in the development of the *Canada-wide Strategy for Management of Municipal Wastewater Effluent* on which the regulations are based.

These regulations will have less impact in Alberta than in the rest of the country as standards in the province are already high, but there are some concerns over the potential impact of increased reporting requirements and aspects of the regulations that may deviate slightly from the original *Strategy*. AUMA is working with

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Alberta Environment to advocate for a one-window approach to reporting and with FCM in calling for a federal-provincial funding strategy.

- *Do you support AUMA's approach to working with Alberta Environment and FCM to monitor the potential impact of Federal Wastewater System Effluent Regulations and to collectively advocate for funding within in the broader call for a long-term national plan to eliminate the infrastructure deficit?*

Goal: Reliable Quality Water Supplies for a Sustainable Economy

With growing demands and constraints on supply the allocation of water has become an increasingly contentious issue, particularly in regions of southern Alberta where the market based allocation transfer system is one of the only ways to access additional supply. The Government of Alberta is engaged in a protracted review of the allocation system.

AUMA contributed to this review through its participation in an Alberta Water Council project team that put forward a number of recommendations to improve the current system, including the need to set aside water for environmental purposes and provide incentives for conservation.

- *Do you support the approach AUMA has taken to water allocation system review?*
 - *What else, if anything, should the Association be doing?*
- *Are you comfortable with a market-based system for water allocation? Would you support such a system if:*
 - *There was a higher degree of oversight by the government or a water authority coupled with a higher degree of transparency?*
 - *If licences could only transfer water that they have conserved? That is, licensees would not be able to transfer water that they had been allocated but never used?*
 - *If protected water was set aside for environmental and non-consumptive purposes as determined by the process established for creating a water management plan?*
- *Do current provisions in the Water Act go far enough in protecting water for human and environmental use?*
 - *If not, how should the Act be changed?*
- *Are there other non-market policy options that should be explored?*
 - *If so, what are they?*

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Climate Change Impacts – Expect the Unexpected

Recent floods in southern Alberta and fires in northern regions are reminders of the impact that climate has on municipalities and their citizens. The reliability of water supplies depends a great deal on climate. Alberta has historic experience with costly floods and drought, and climate change makes their occurrence less predictable and their impact more extreme.

Local Governments for Sustainability (ICLEI) Canada has recently released a climate change adaptation guide to help municipalities be proactive rather than reactive when it comes to the changes that are occurring.

- *Does your municipality have a water shortage risk management plan in place to address long-term drought?*
- *Does your municipality have a flood management plan?*
- *Are municipalities provided adequate support to prevent and respond to extreme weather events?*
- *Are additional resources or new approaches needed?*

DISCUSSION QUESTIONS:

The sheer number of water issues is perhaps the biggest challenge for AUMA and its members. A strategic discussion about how to most effectively address the myriad of issues is required. This paper is meant to serve as the foundation for that discussion. As you read it consider:

Does the WPDP accurately capture the diverse reality facing municipal water systems throughout the province?

Are there key issues and potential solutions missing from the WPDP that need to be explored?

How can AUMA and its members realistically and effectively address the myriad of issues?

How should issues be prioritized?
