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AUMA Water Conservation, Efficiency and Productivity Plan

Interim Report on Implementation

October 2013



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Background

Founded in 1905, the Alberta Urban Municipalities Association (AUMA) represents all of Alberta's 272 urban municipalities including cities, towns, villages, summer villages and specialized municipalities, representing over 85% of Albertans. A dynamic and evolving association, AUMA advocates on behalf of members to provincial and federal government, as well as other stakeholder organizations.

In 2009, Alberta Urban Municipalities Association members adopted the [AUMA Water Conservation, Efficiency and Productivity Plan](#). As a framework for future action, the plan describes how urban municipal water conservation, efficiency and productivity (CEP) efforts will be undertaken, and sets out four targets for the sector. Abridged, these targets are as follows:

- (1) To report municipal water use to the province's water use reporting (WUR) system;
- (2) To develop municipal water conservation and efficiency plans;
- (3) To conduct and respond to the findings of water audit of the municipal water system;
- (4) To promote the adoption of water efficient fixtures and technologies.

The overall goal of the AUMA plan is to build the capacity of member municipalities to develop and implement their own water CEP initiatives in support of the Government of Alberta's target of realizing a 30% improvement in overall water conservation, efficiency and productivity from 2005 levels by 2015.

As per the recommendation in the Alberta Water Council report *Sector Planning for Water Conservation, Efficiency and Productivity* (March 2013), the AUMA has prepared this interim progress report on the actions of the urban municipal sector to achieve the targets set out in the AUMA Water CEP Plan (2009) based on data as of December 31, 2012.

To assess the status of implementation of the AUMA plan and progress toward achieving the set targets, the AUMA distributed a survey to its membership in 2012 and another in 2013, and made extensive efforts to directly contact municipalities from which no response to the surveys was received.

Current Status of Implementation

Through its surveys and personal communications with members, the AUMA collected information on 73 (32.7%) of the AUMA’s 223 municipalities for whom the plan’s targets are applicable. **These 73 municipalities however represent 88.7% of Alberta’s urban municipal population** (with the exception of Summer Villages for whom the AUMA CEP Plan targets were not applicable).

Reporting on the implementation efforts of the urban municipal sector solely in terms of the number of municipalities taking action toward contributing to the achievement of AUMA targets does not reflect the full impact and benefits of these efforts. Consider for instance two municipalities with similar per capita water demands undertake identical water conservation and efficiency measures. Municipality A is a small village of 350 people. Municipality B is a city of 400,000 people. Each achieves a reduction of 10% in residential water use as a result of their program. Although each municipality has achieved an equivalent level of success, the total savings achieved in terms of volume of water conserved by these municipalities is not identical.

Without considering the population served by each municipal water system, reporting the achievements of the urban municipal sector would be misleading. For that reason the following discussion will present and interpret the findings to fully illustrate the impact and achievements of the actions of the municipal urban sector to date.

The current status of implementation for each of the AUMA’s targets is also presented according to the AUMA’s standardized categories of municipal size based on population (i.e., population >10,000; population between 2,500 and 10,000; and population <2,500). Targets established in the AUMA water CEP plan of 2009 were set out according to the same municipal population-based categories.

Breakdown of Municipalities Represented in this Report

Municipal Population	Total Number of Municipalities	Number of Municipalities Reported on in Interim Report	Percentage of Municipalities Reported on in Interim Report	Percentage of Urban Population Represented
>10,000	28	25	89.3 %	93.9 %
between 2,500 and 10,000	46	28	60.9 %	65.7 %
<2,500	149	20	13.4 %	16.9 %
	223	73	32.7 %	88.7 %

Status of Implementation of AUMA Targets

The following section discusses the findings of the AUMA as they reflect municipal actions toward the implementation of the four targets outlined in the AUMA Water CEP Plan (2009).

Target #1:

By December 31, 2010, all urban municipalities with water systems in place will report water use data through Alberta Environment's electronic Water Use Reporting (WUR) System.

	Municipal Population			Total
	>10,000	2,500 – 10,000	<2,500	
Hold water license for municipal use	20	37	125	182
Report water use to WUR system	17	27	51	95
Percent reporting water use to WUR system	85.0 %	73.0 %	40.8 %	52.2 %

Water Use Reporting (WUR) System data provided by the Department of Environment and Sustainable Resource Development (ESRD) reveals that of the 182 AUMA member municipalities currently holding water licenses for "municipal use", 95 (52.2%) of municipalities are in fact reporting their water use on a regular basis. **These 95 municipalities, however, represent 92.5% of the urban municipal population.** It can thus be extrapolated that the urban municipal water use that is being reported to the Province of Alberta accounts for approximately 90% of that being used by the urban municipal sector.

Recent amendments by the provincial government to Water Act licenses for municipal use now require that such license holders report water use on a regular basis as a condition of that license. As such it would seem that not only has the AUMA not achieved its target, but that 47.8% of AUMA member municipalities holding water licenses are currently out-of-compliance with the reporting requirements attached to their license.

Target 2:

By December 31, 2011, urban municipalities will develop Conservation, Efficiency and Productivity Plans according to the following participation rates:

- 100% of municipalities with populations greater than 10,000;
- 75% of municipalities with populations between 2500 and 10,000;
- 50% of municipalities with populations under 2500.

Status of CEP Plan	Municipal Population					
	>10,000		2,500 – 10,000		<2,500	
	#	%	#	%	#	%
Complete	12	48.0	4	14.3	4	20.0
In progress	3	12.0	2	7.1	2	10.0
Not yet started, but plan to do so	5	20.0	11	39.3	12	60.0
No plans to do so	5	20.0	11	39.3	2	10.0
Total	25		28		20	

Of the 73 municipalities for which AUMA has information on implementation, 20 report having completed a water CEP plan for their municipality. Further analysis of the findings suggests that the actual percentage of municipalities who have developed water CEP plans by December 31, 2012 (one full year after the original target date) is as follows:

- 48% of municipalities with populations greater than 10,000;
- 14% of municipalities with populations between 2,500 and 10,000;
- 20% of municipalities with populations under 2,500.

To note however is that **the 20 municipalities who have completed a water CEP plan account for 72.7% of the urban municipal population.** Another 35 municipalities report either currently being in the process of drafting a water CEP plan for their respective municipalities, or are planning to do so soon. These additional municipalities represent another 10.8% of the urban municipal population. Once completed, these known CEP plans will cover 83.5% of the urban municipal population.

Without knowing the actual number of water CEP plans completed by member municipalities, it is impossible to confidently present the status of municipal implementation toward this target, but it is clear that municipalities have not adopted the preparing of water CEP plans at the rate that was originally proposed.

It is also important to note here that in recent years, many municipalities have shifted away from drafting formal stand-alone water CEP plans, and are instead incorporating targets and strategies for achieving water conservation and efficiency into other municipal planning initiatives, such as their broader municipal sustainability plans or an environmental master plan. This is encouraging as water use and the sustainability of supply are influenced by, and in turn impact all aspects of municipal development.

Target 3:

By December 31, 2012, urban municipalities will complete a water audit and identify ways to reduce leaks according to the following distribution:

- 100% of municipalities with populations greater than 10,000;
- 75% of municipalities with populations between 2500 and 10,000;
- 50% of municipalities with populations under 2500.

Status of Water Audit	Municipal Population					
	>10,000		2,500 – 10,000		<2,500	
	#	%	#	%	#	%
Complete	11	47.8	14	50.0	5	25.0
In progress	6	26.1	4	14.3	5	25.0
Not yet started, but plan to do so	5	21.7	3	10.7	7	35.0
No plans to do so	1	4.3	7	25.0	3	15.0
Total	23		28		20	

Findings suggest that as of the target date for this action, 30 of the 71 municipalities for which the AUMA has information on have completed a water audit. The actual percentage of municipalities reporting to have completed a water audit is as follows:

- 48% of municipalities with populations greater than 10,000;
- 50% of municipalities with populations between 2,500 and 10,000;
- 25% of municipalities with populations under 2,500.

To note is that **the collective infrastructure of these 30 municipalities who have completed water audits delivers drinking water to 75.9% of the urban municipal population.**

It is apparent that the number of municipalities carrying out water audits again falls short of the target set in all three population categories. It is however encouraging to note that the findings indicate that an additional 15 municipalities are currently in the process of carrying out water audits, and another 15 plan to do so. In other words, 85% of municipalities see value in undertaking a water audit of their water distribution system.

The additional 30 municipalities reporting to be either in the process of carrying out a water audit or planning to do so, account for the water delivery infrastructure of an additional 10.7% of the urban municipal population.

Target 4:

By December 31, 2011, urban municipalities will implement incentives and/or disincentives of their own choosing to increase the uptake of water efficient fixtures and technologies. Different programs may apply to new and existing developments. Participation rates will be:

- 100% of municipalities with populations greater than 10,000;
- 75% of municipalities with populations between 2500 and 10,000;
- 50% of municipalities with populations under 2500.

Status of Incentives and/or Disincentives	Municipal Population					
	>10,000		2,500 – 10,000		<2,500	
	#	%	#	%	#	%
In place	21	84.0	18	64.3	7	35.0
In progress	0	0	2	7.1	3	15.0
Not yet, but plan to do so	1	4.0	2	7.1	6	30.0
No plans to do so	3	12.0	6	21.4	4	20.0
Total	25		28		20	

Findings suggest that as of December 31, 2012, 46 of the 73 municipalities for which the AUMA has had direct communication have taken action to promote the uptake of water efficient fixtures and technologies. Actual percentages of municipalities reporting action toward achieving this target are as follows:

- 84% of municipalities with populations greater than 10,000;
- 64% of municipalities with populations between 2,500 and 10,000;
- 35% of municipalities with populations under 2,500.

Again, it would seem that AUMA members fell short of the targets set for all three population categories, it is important to note that **these 46 municipalities who are taking action to promote water efficient fixtures and technologies represent 87.0% of the urban municipal population.** With 87.0% of the urban population being exposed to incentives and disincentives aimed at curbing water demand, the adoption of water-wise fixtures and behaviors is becoming more common-place.

Of note is that education programs and water pricing are the most common municipal mechanisms for promoting the adoption of water efficient fixtures and technology. Both of these are instrumental mechanisms to the implementation of additional water CEP measures. Offering rebate programs was also common, although the number of municipalities offering these programs has dwindled since the termination of the Climate Change Central water efficient fixtures rebate program in 2012. Some rebate programs are also considered to have run their course as consumer and market trends make technology more accessible and affordable.

The enactment of bylaws stipulating conditions for installation of water efficient fixtures is another mechanism being implemented in a growing number of municipalities. The challenge with the latter measure however is that as conservation and efficiency is not currently identified in the national plumbing code or in the provincial plumbing code regulation, enforcement of these bylaws is outside of the authority of municipal safety codes officers, and is enforceable only by municipal bylaw officers.

Examples of Notable Achievements

City of Red Deer

In 2007, the City of Red Deer adopted a Water Conservation Strategy. Although the strategy didn't set any official targets for water use, implementation of the conservation initiatives identified in strategy was expected to yield a 20% reduction in water use from 2006 levels within the next five years. At the time, residential use was estimated at approximately 290 l/c/d, and ICI water use at approximately 170 l/c/d.

In 2009, residential water use had dropped to 242 l/c/d and ICI water use was down to 135 l/c/d.

Then, in 2011, the city approved an Environmental Master Plan and using the 2009 consumption values as a baseline set a series of water conservation targets, with a long-term target of achieving a 25% reduction in all categories of water use by 2035.

The city recently released its 2012 Report to the Community on the progress towards implementation of its Environmental Master Plan. Findings reveal that residential water use had decreased to 210 l/c/d and ICI water use to 122 l/c/d. For both uses, the city has surpassed the initial water conservation targets of its 2007 Water Conservation Strategy, and is on track toward achieving the targets set out in its 2009 Environmental Master Plan.

Town of Morinville

With a total water demand of 227 l/c/d and residential water use measuring only 149 l/c/d (55% lower than the national average of 329 l/c/d), one might think there would be little incentive to further conserve water, however, the Town of Morinville has plans to achieve additional savings. Having already reduced total water demand by 20% from 2006 levels, the town developed a water CEP plan in 2012 with a target of reducing total per capita water use by an additional 5% by 2020.

The long term target set out in the town's Municipal Sustainability Plan (2011) is for Morinville to have the lowest per capita water consumption rate of comparable municipalities in the Capital Region by 2035.

Discussion

Contribution of Urban Municipal Sector to *Water for Life* Goals

Not surprisingly, the water-related goals of the province's urban municipal sector are not unlike the goals of Alberta's *Water for Life* Strategy. As outlined in the AUMA's Water Policies (2012), water is essential to municipal sustainability, in terms of its contribution to a community's economic viability, environmental integrity, social well-being, cultural vibrancy, and good governance.

Continued municipal efforts to improve water conservation and efficiency, and decrease per capita water use will ensure that these communities have a safe and secure supply of drinking water, will lessen the impact of municipal water allocations and withdrawals upon the aquatic ecosystems, and will provide for reliable, quality supplies to support continued growth and economic development.

Because the AUMA does not collect municipal water use data, it is reliant on the data reported to and provided by the provincial government's water use reporting (WUR) system. AUMA will need to work closely with staff from the Ministry of Environment and Sustainable Resource Development to develop a mechanism to illustrate the water savings from the urban municipal sector, and this sector's contribution to the province's target of realizing a 30% improvement in water conservation CEP from 2005 levels by 2015.

AUMA's water conservation initiative is not the only way AUMA is contributing to the goals of the *Water for Life* Strategy. AUMA is in the process of developing a comprehensive water policy. In 2012 AUMA's Municipal Water Policies focused on water management and the viability of municipal water and wastewater systems. These policies covered a wide range of topics including the need for strategic investments in monitoring and reporting to better assess the impact of water use on the health of aquatic ecosystems, and for municipalities to become more actively engaged in water watershed planning and advisory councils. The policies also touched on the need to incent and support full cost accounting and greater cost recovery for water services in order to improve the ability of water systems to supply safe drinking water and provide an incentive for residents and businesses to save water. AUMA's 2013 Municipal Water Policies are focused on wetlands with the goal of creating an enabling environment for municipalities and other partners to protect these essential aquatic ecosystems. The development of policies in 2014 will focus on stormwater, including what municipalities can do to reduce the impact of stormwater on receiving environments.

Opportunities and Challenges for Implementation and Reporting

In terms of reporting on the efforts and successes of the urban municipal sector, the targets identified in the AUMA water CEP plan of 2009 do not cover the full suite of actions being taken by municipalities to achieve water conservation and efficiencies. For example, a number of structural and operational tools, such as water pressure management, water reuse and recycling, rainwater harvesting, water-wise landscaping, and the implementation of voluntary and mandatory watering restrictions, are being implemented by AUMA members and are contributing to water savings, but are not captured under the targets of the AUMA plan being reported on here. Furthermore, as previously stated, many municipalities are taking action without going through the process of drafting a formal water CEP plan for their municipality, and are instead incorporating targets and strategies for achieving water conservation and efficiency into other municipal planning initiatives.

Full cost accounting and greater cost recovery are perhaps one of the most effective methods that municipalities can use to incentivize conservation. Unfortunately some municipalities report finding themselves in a negative cycle where increased water rates combined with other conservation initiatives leads to a reduction in water consumption which in turn reduces revenue. To make up for the loss of revenue required to pay the fixed and operational costs of water treatment and distribution, water treatment plants raise water rates, which in turn promotes additional conservation and further reductions in revenue. Careful planning is required to avoid this negative spiral which is why AUMA seeking the support Government of Alberta to work with us in helping municipalities set water rates and manage their system in manner more sustainable manner.

It should also be noted that the reported lag in the status of municipal actions toward achievement of the targets of the AUMA CEP plan is not indicative of a lack of desire on the part of the urban municipal sector to improve water conservation and efficiency, but is a reflection of the capacity of many municipalities, particularly smaller ones.

Challenges and obstacles reported by AUMA members suggest the need for additional tools and resources to support their efforts. These include: the development of pertinent templates and “how to” manuals; the sharing of completed municipal CEP plans and audits; the profiling of best management practices; and the showcasing of municipal success stories.

In response, the AUMA has updated and developed a number of tools and resources to support its members, and continues to share this information via its Water Conservation microsite <http://water.auma.ca>.

Moving Forward

The findings reported in this interim report on municipal sector implementation of the AUMA Water CEP Plan of 2009 reveal that municipalities across Alberta are taking action toward achieving water conservation and efficiencies, although not at the rate that was originally anticipated. The reported achievements and impact of the urban municipal sector are however encouraging, and the AUMA believes that there is potential for municipalities to accomplish even more if provided the appropriate tools and resources.

These findings coupled with input and feedback from AUMA members will guide AUMA development of new tools and resources to assist municipalities with their water CEP efforts and initiatives. The recent release of *Planning for Water Conservation and Efficiency: A Handbook for Small Municipalities* is an example of an AUMA resource intended to support and build the capacity of AUMA members to develop and achieve their own water conservation and efficiency goals.

Over the next year, AUMA will work with member municipalities to revisit the original targets and renew the AUMA water CEP plan for the urban municipal sector. This report on the status of implementation along with lessons learned will be used to inform the renewal. It is anticipated that a renewed water CEP plan for the urban municipal sector will focus on outcomes (e.g. average water use in liters per capita per day) rather than process and outputs.

Appendix 1

Municipalities with Completed Water Conservation and Efficiency Plans

Population over 10,000

- City of Brooks
- City of Calgary
- City of Camrose
- City of Edmonton
- City of Red Deer
- City of Spruce Grove
- City of St. Albert
- Town of Canmore
- Town of Cochrane
- Town of High River
- Town of Okotoks
- Strathcona County

Population 2,500 – 10,000

- Town of Drayton Valley
- Town of Morinville
- Town of Olds
- Town of Raymond

Population under 2,500

- Town of Magrath
- Town of Penhold
- Village of Innisfree
- Village of Marwayne

Appendix 2

Municipalities with Completed Water Audits

Population over 10,000

- City of Calgary
- City of Edmonton
- City of Fort Saskatchewan
- City of Grande Prairie
- City of Lethbridge
- City of Medicine hat
- City of St. Albert
- Town of Cochrane
- Town of High River
- Town of Okotoks
- Town of Sylvan Lake

Population 2,500 – 10,000

- Town of Banff
- Town of Bonnyville
- Town of Cairstairs
- Town of Claresholm
- Town of Edson
- Town of Fairview
- Town of Morinville
- Town of Olds
- Town of Peace River
- Town of Ponoka
- Town of Raymond
- Town of Taber
- Town of Vegreville
- Municipality of Jasper

Population under 2,500

- Town of Black Diamond
- Town of Hardisty
- Town of Magrath
- Town of Penhold
- Village of Marwayne

Appendix 3

Municipalities Promoting Water Efficient Fixtures

Population over 10,000

- City of Brooks
- City of Calgary
- City of Camrose
- City of Edmonton
- City of Fort Saskatchewan
- City of Grande Prairie
- City of Leduc
- City of Lethbridge
- City of Lloydminster
- City of Red Deer
- City of Spruce Grove
- City of St. Albert
- Town of Beaumont
- Town of Canmore
- Town of Cochrane
- Town of High River
- Town of Okotoks
- Town of Stony Plain
- Town of Strathmore
- Town of Sylvan Lake
- Strathcona County

Population 2,500 – 10,000

- Town of Athabasca
- Town of Banff
- Town of Bonnyville
- Town of Cardston
- Town of Carstairs
- Town of Claresholm
- Town of Crossfield
- Town of Didsbury
- Town of Drayton Valley
- Town of Edson
- Town of Innisfail
- Town of Morinville
- Town of Olds
- Town of Peace River
- Town of Pincher Creek
- Town of Ponoka
- Town of Raymond
- Town of Rocky Mountain House
- Town of St. Paul
- Town of Stettler

Population under 2,500

- Town of Black Diamond
- Town of Hardisty
- Town of Nanton
- Town of Penhold
- Town of Rimbey
- Town of Turner Valley
- Village of Alliance
- Village of Beiseker
- Village of Clive
- Village of Longview