City of Brooks

Water Conservation, Efficiency & Productivity Plan

Alberta's Centennial City™

BROOKS

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November 2011

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EXECUTIVE SUMMARY

In 2009 during the AUMA's Annual Convention, member municipalities adopted a series of targets within AUMA's Water Conservation Efficiency and Productivity Plan (Water CEP Plan). These targets are as follows:

1. By December 31, 2010, all AUMA member municipalities with water systems in place will report water use data through Alberta Environment's electronic Water Use Reporting System (WURS);
2. By December 31, 2011, urban municipalities will develop Conservation, Efficiency and Productivity Plans;
3. By December 31, 2012, urban municipalities will complete a water audit and identify ways to reduce leaks; and
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.

AUMA's expected participation rates for the targets will be:

- 100% of municipalities with populations greater than 10,000
- 75% of municipalities with populations between 2,500 and 10,000
- 50% of municipalities with populations under 2,500

The City of Brooks has had success with water conservation efforts in the past and will participate fully in this program. Work towards achieving the AUMA targets began in 2010 and in the summer of 2011, a Water CEP Task Force was created to assist in the development of the Water CEP Plan. Representatives on this task force include:

- Kimberley Sharkey, City Councillor;
- Maggie Romuld, Environmental Advisory Committee and Citizen at Large;
- Margo Redelback, Environmental Advisory Committee and representative from the Eastern Irrigation District;
- Don Saari, Manager of Works and Utilities;
- Alvin Axworthy, Utility Operator; and
- Lisa Tiffin, Sustainability Coordinator.

The Water CEP Task Force utilized the AUMA Conservation, Efficiency and Productivity Planning Guide to facilitate the planning process. The Task Force compiled a Municipal Water Profile, set targets for a sustainable water future, and selected water conservation programs/initiatives to help achieve those targets.

Within the Municipal Water Profile, water supply and demand figures were analyzed to reveal statistics about the City of Brooks' water consumption and forecasts for the future. Currently, the Average Daily Demand (ADD) for water in the City of Brooks is 8,800,500 litres and the Gross per Capita Demand is 648 litres per day. Peak Day Demand is 19,977,651 litres, which represents nearly 50% of the current water distribution system capacity.

The Water CEP Task Force set the following targets for water consumption:

1. Reduce Peak Day Demand

In 2010 peak day demand was 19,977,651 litres. The City of Brooks desires to reduce peak day demand to postpone municipal infrastructure upgrades for a minimum of 10 years.

2. Reduce Per Capita Usage

City of Brooks 2010 per capita usage of potable water was 423 litres per day (0.423 m^3 per person per day), which does not include residential, industrial, commercial and institutional applications. The 2009 Canadian average was 274 litres per capita per day[1]. The City of Brooks aims to reduce per capita usage to the Canadian average by 2025.

In order to achieve these targets, a number of water conservation programs/initiatives were selected and evaluated, and recommendations for local implementation were created. These water conservation programs/initiatives include:

- Conservation Based Pricing;
- Rebate Programs;
- Water Management Systems (raw and treated);
- Education and Outreach Programs; and
- Voluntary Restrictions.

Looking to the future, the City of Brooks will remain committed to water conservation, efficiency and productivity goals. Work will continue through city staff, municipal partnerships and the Brooks Environmental Advisory Committee.

[1] Taken from the 2011 Municipal Water Use Report - Government of Canada, 2009 Statistics.

SECTION 1: UNDERSTANDING THE MUNICIPAL WATER PROFILE

The City of Brooks has developed a Municipal Water Profile in order to better understand current water use, regional water supply and the municipal treatment and distribution system. The water profile was developed using relevant information from water meters, water utility records, billing records, municipal planning documents and municipal reporting documents.

1.1 Water System Profile

Water sources and supply

The greatest areas of concern when discussing municipal water in southern Alberta are where the water comes from, and how much is available. The City of Brooks is located on the boundary between the Bow River Basin and the Red Deer River Basin. Currently, the City of Brooks holds three (3) water licenses from the Bow River:

- Licence #1967-07-31-002 (740,040m^3, or 600acft) – 1967
- Licence #1985-10-23-004 (4,193,560m^3, or 3,400acft) – 1985
- Licence #00220669-00-00 (2,994,695m^3, or 2,428acft) – 2011

The total approved diversion of water for the City of Brooks is 7,928,295m^3, or 6,428acft and current growth projections suggest that this volume will serve the community until 2024. The Bow River is one of the major rivers in the South Saskatchewan River Basin. In 2006 the entire basin – with the exception of the Red Deer River - was closed to any new water licenses. In the future therefore, any additional water required by the City of Brooks will have to come from another source, either a different surface water source (groundwater) or through conservation efforts.

Water used by the City of Brooks is conveyed by the Eastern Irrigation District. It is diverted from the Bow River at the Bassano Dam and then passes through a number of canals and is stored in Lake Newell. Water stored in Lake Newell Reservoir is pumped to a treatment facility located within the City of Brooks.

Geographically, the City of Brooks is located within the mixedgrass prairie natural region and has a semi-arid climate. Precipitation is minimal and there are few naturally occurring water bodies. The infrastructure of the Eastern Irrigation District, constructed almost 100 years ago, brought water into the area which allowed agriculture, industry and population growth.

While licensed water supports the human population in the region, water licenses are also used to great extent to support agriculture. The Eastern Irrigation District, established in 1935, supplies water to farmers and ranchers through an intricate network of reservoirs, canals and pipelines. The Eastern Irrigation District holds a number of high volume water licences. Many of these licenses were granted in the early 1900's and under the "First-in-time, First-in-right" system of water allocation in the province are considered "Senior Licenses." Today, the Eastern Irrigation District is an important partner in water management and regional sustainability.

Distribution System

The City of Brooks is supplied with treated water from the Newell Regional Services Corporation (NRSC). The NRSC is a regional corporation whose only shareholders are municipalities within the region; NRSC is responsible for the treatment of potable water and the distribution system lines which transport the water to each member municipality. Currently, members of the NRSC include the City of Brooks, County of Newell, Town of Bassano, Village of Tilley, Village of Rosemary, and the Village of Duchess.

Before treatment, fresh water is diverted from the Bow River via the Bassano Dam. The water then travels through a canal and is stored throughout the year in Lake Newell, Alberta's largest manmade lake. Lake Newell, although used quite extensively for recreation, is actually a storage reservoir that assists in the conveyance of water throughout the region. The NRSC pumps water out of Lake Newell directly into the water treatment plant located in Brooks. The water is treated and tested then sent to the one million gallon clear well and pumped into the distribution system.

The water is metered in three important stages: as the raw water enters the water treatment plant, after treatment when it is sent into the distribution system, and at each customer. Within the City of Brooks, there are 12.14km of potable water lines in the distribution system and there are 4,339 connections.

Wastewater Treatment System

The City of Brooks operates a wastewater system which includes 10km of gravity-fed lines, 5km of force mains, 8 lift stations and a lagoon system. After being collected throughout the community, wastewater is pumped to the lagoon system, 3km outside the City of Brooks limits. The lagoon system is comprised of 11 cells and the City of Brooks currently discharges wastewater from the system twice a year. When discharged, the treated wastewater flows into One Tree Creek/Canal which eventually drains into the Red Deer River. At this time, there is no land application for treated wastewater.

Table #1.1 – Essential Water and Wastewater System Data

	Brooks	**NRSC**
Total Service Population	13,581	25,658
Total Service Area	17.7 km^2	5,900 km^2
Annual Water Supply Capacity (m^3)	14,600,000 m^3	14,600,000 m^3
Annual Water Production (m^3)	2,837,205 m^3	Info not available yet
Annual Wastewater Rated Flow Capacity	2,194,136 m^3	n/a
Annual Wastewater Discharge	1,292,355 m^3	n/a
Maximum Daily Water Supply Capacity (m^3)	40,000 m^3/day	40,000 m^3/day
Peak Hour Water System Capacity (m^3)	1,667 m^3/day	1,667 m^3/day

1.2 Actual Water Use

Municipal water licence holders are required to submit water use data to Alberta Environment via the Water Use Reporting System (WURS). Tracking actual water use is important in regard to conservation;

it allows decision makers access to complete, quantitative data. The information will be available to support sound decisions about how water resources are managed in our province.

The information listed in the table below, obtained from Alberta Environment's Water Use Reporting System, helps the City of Brooks get an overall sense of the relationship between the volume of water supply and user demand.

Table #1.2 – Annual Water Use 2005-2010

Year	Licensed Quantity / Allocation (m^3)	Amount diverted (m^3)	% Licence used	Return Flow (m^3)	Consumptive Use (diverted less returned) (m^3)	% Returned relative to diverted
2005	4,933,600	3,056,700	61.96%	1,529,022	1,527,678	50.02%
2006	4,933,600	3,254,515	65.97%	843,463	2,411,052	25.92%
2007	4,933,600	3,040,894	61.64%	711,702	2,329,192	23.40%
2008	4,933,600	2,927,162	59.33%	1,368,959	1,558,203	46.77%
2009	4,933,600	2,897,702	58.73%	685,599	2,212,103	23.66%
2010	4,933,600	2,961,067	60.02%	1,292,355	1,668,712	43.64%

Terms Defined:

Licensed Quantity is the amount of water a municipality has access to through their water license. This is also referred to as an *allocation*.

Amount Diverted shows how much water a municipality has used (diverted) from the source into the municipal system. In Brooks' case, the water is diverted from the Bow River via the Eastern Irrigation District.

The difference between the amount diverted and the licensed quantity is calculated in order to show the *Percentage of License Used*.

Return Flow is the amount of water returned to a water source after treatment.

The difference between the amount of water diverted and the return flow is the *Consumptive Use*. This water may have soaked into the ground as a result of irrigation or it could have been used in any number of industrial processes.

Returned Relative to Diverted shows how much water went through the municipal system and was "used" by municipal residents and businesses and then returned through the wastewater system. The remaining percentage represents what was consumed.

1.3 Community Water Use

Water use can further be broken down and measured by demand. The information listed in the table below illustrates a variety of different ways to gauge demand.

Table #1.3 – Daily Water Demand

Daily Water Demands	Volume	% of daily supply capacity
Average Daily Demand (ADD)	8,800,500 litres per day	22.0%
Gross per Capita Demand	648 litres per capita per day	22.0%
Peak Day Demand	19,977,651 litres per day	49.9%

Terms Defined:

Average Daily Demand (ADD) is calculated by taking the total annual water production and dividing it by the number of days in a year. This figure represents the average amount of water that is consumed per day in the City of Brooks. Taking the data one step further, the *Gross per Capita Demand* takes the ADD and divides it by the population, providing the average volume of water consumed per resident, per day.

Peak Day Demand (PDD) is one of the most important figures used to evaluate water demand. PDD is the highest total water use experienced by a water supply system on any given day in the year. Although it only happens once per year, water supply infrastructure *must* be able to meet this demand. If a municipality can reduce their PDD, they may be able to postpone expensive infrastructure upgrades.

1.4 Sectoral Water Use

Although Gross per Capita Demand is a useful figure in measuring an individual person's water use, it also includes water used by industrial, commercial and institutional (ICI) sectors. In Brooks, the ICI sector plays an important role in the community ensuring economic viability, supplying a diversified job market, providing essential services to residents, and contributing towards a sustainable tax base. Without the presence of a stable, reliable water source, the ICI sector will be jeopardized. And without a strong ICI sector, the sustainability of the community will be at risk.

It is important to measure the volume of water being used by different sectors so that a true per capita residential demand can be established. Further, it is useful to be aware of what percentage of daily water use is being consumed by the various sectors.

Table #1.4 – Water Use by Sector

Sector	# of Connections	% of Connections	# of Connections metered	# of Connections not metered	% of Connections Metered (per sector)	Annual demand (m^3/year)	Annual demand per capita m^3/capita
Residential	3887	90.29%	3887	0	100%	2,097,445	154.44 m^3
Institutional, Commercial & Industrial	418	9.71%	418	0	100%	863,622	
Total	4305	100%	4305	0	100%	2,961,067	

Terms Defined:

A *Connection* is defined as a water user within the City of Brooks' municipal water distribution system. This applies to any household, business, or organization that receives municipal water and is part of the utility billing system.

Annual Demand shows the total amount of water distributed to all the users in any given sector.

Annual Demand per Capita is the total amount of water distributed to residential sector, divided by the total population. This number represents how much water each resident of Brooks uses each year.

Using these figures, it can be determined that the annual demand per capita (for residential consumption only) is 154 m^3 (154,440 litres) or 423 litres per capita per day.

Residential Water Use

Water use statistics show that residential water use can be further split into indoor and outdoor consumption. Comparing the amount of residential water consumed in the winter versus the summer allows the municipality to calculate how much water is being used for indoor purposes as opposed to outdoor purposes. This information can assist in future water conservation planning as it will clarify where the greater water usage is and where the greatest potential exists for conservation.

Table #1.5 – Monthly Water Demands

Monthly Water Demands	
Month	**Demand (lcd)**
January	480.9
February	481.3
March	477.8
April	510.2
May	550.8
June	566.6
July	756.6
August	727.0
September	591.2
October	483.3
November	517.5
December	471.2
Total Average	551.2

Indoor water use:

477.8 lcd

- Sum of demand for December, January, February and March, divided by 4.

Percentage of water use

Indoor: 86.7%

Outdoor: 13.3%

Note: These figures represent overall water demand, including industrial, commercial and institutional applications.

Due to the hot, dry climate, in summer months City of Brooks water users depend heavily on municipal water for irrigation for yards, gardens and other plants. As such, an extensive surface water irrigation system has been installed and is maintained by the municipality.

The surface water irrigation system consists of an inland lake (Lake Stafford) which collects storm and surface water; this water is then transported to irrigation users and City parks via a pipeline network. Additional water is delivered from the Eastern Irrigation District to ensure high quality levels and then cycled through the system. Currently, untreated surface water is used to irrigate City parks and boulevards, the cemetery, and a number of residential properties.

Unfortunately, the surface water irrigation system is currently unmetered due to the quality of the water being delivered. This makes it difficult for staff to monitor usage and recognize wasting. However, the potable water system is fully metered and staff use this information to compare water consumption in the winter months versus the summer.

1.5 Water Losses and Non-Revenue Water

Non-revenue water is the difference between the volume of water that is treated and put into the distribution system and the total volume of water that is consumed and billed. It is useful to examine non-revenue water as it may indicate water losses caused by system leaks, theft through bypasses, or meter errors. Detecting and repairing leaks becomes extremely valuable as the recovery of lost water becomes a source of new water.

One method used to help gauge water loss and non-revenue water is to conduct a water audit. As with the other AUMA targets for Water Conservation, Efficiency and Productivity, the City of Brooks has committed to completing Target #3, conducting a water audit before December 31, 2012.

1.6 History of Water Conservation Efforts

The City of Brooks is committed to water conservation and has dedicated significant human and financial resources towards water conservation efforts. Such initiatives include:

- Municipal Sustainability Plan which includes specific focus on water conservation.
- A Water Shortage Response Plan that guides municipal actions in the event of a low water year or drought.
- Effective September 1, 2006, it is mandatory to install low flow water fixtures in all new buildings constructed in Brooks. An occupancy permit will not be issued until it has been demonstrated through physical inspection that low flow fixtures have been installed.
- Indoor Water Conservation Rebate Program for residents that were replacing their toilet, washing machine or dishwasher with a new, water efficient model. The $100 rebate is applied to the utility account, opening the program to commercial properties as well.
- Rain Barrel program in which 300 rain barrels were sold to residents at a discounted price. In 2011, the program continues as a rebate program (100 rebates available each year)
- In 2010, the Environmental Advisory Committee began a three-phase xeriscaping plan for a local park. In the first phase, a Junior High class designed and planted a xeriscaped flowerbed to act as a demonstration bed for residents. In the second year, the Girl Guides planted an additional two flowerbeds in the park. In the third year (planned for 2012), the turf will be removed from

the park, the irrigation lines shut off, and the entire space will be xeriscaped. Plans also include a rain water capture system and water feature.

SECTION 2: SETTING TARGETS FOR A SUSTAINABLE WATER FUTURE

In this section, the City of Brooks looks to the future by reviewing projected water demands and setting realistic targets for the future. Forecasting has allowed the City of Brooks to view the potential water future if no action is taken towards protection and conservation. In reaction to this forecasted demand, targets have been created to allow the municipality to reach a sustainable water future.

2.1 Future Water Demand

Forecasting by Population

Population growth projections were combined with per capita annual water usage (154.44m^3 or 154,440 litres per person, per year) to forecast the future water demands for the community. Population projections were based on data from Statistics Canada.

Table #2.1 – Annual Water Demand Forecast

Total Annual System Demand		Current Year	5 Years	10 Years	20 Years	50 Years
Population Served		13,581	16,697	18,435	20,400	25,800
Annual Water Demand		2,961,067 m^3	3,639,946 m^3	4,018,830 m^3	4,447,200 m^3	5,624,400 m^3
Annual Supply Capacity	Per License Allocation	7,928,295 m^3	7,928,295 m^3	7,928,295 m^3	7,928,295 m^3	7,928,295 m^3
	Water Plant Production Capacity	14,600,000 m^3	14,600,000 m^3	14,600,000 m^3	14,600,000 m^3	14,600,000 m^3
Difference between Annual Supply Capacity and Annual Water Demand		4,967,228 m^3	4,288,349 m^3	3,909,465 m^3	3,481,095 m^3	2,303,895 m^3

Note: These figures represent overall water demand, including industrial, commercial and institutional applications.

Table #2.2 – Daily Water Demand Forecast

Daily Water Demand	Current Year	5 Years	10 Years	20 Years	50 Years
Average Day Demand (m^3)	8,801 m^3	10,820 m^3	11,947 m^3	13,220 m^3	16,719 m^3
Peak Day Demand (m^3)	19,978 m^3	24,562 m^3	27,118 m^3	30,009 m^3	37,952 m^3

For definition of terms, please see page six.

2.2 Setting Targets for Brooks' Water Future

The City of Brooks has set the following targets for water consumption:

1. **Reduce Peak Day Demand**

   In 2010 peak day demand was 19,977,651 litres. The City of Brooks desires to reduce peak day demand to postpone municipal infrastructure upgrades for a minimum of 10 years.

2. **Reduce Per Capita Usage**

   City of Brooks 2010 per capita usage of potable water was 423 litres per day (0.423 m^3 per person per day), which does not include residential, industrial, commercial and institutional applications. The 2009 Canadian average was 274 litres per capita per day[2]. The City of Brooks aims to reduce per capita usage to the Canadian average by 2025.

[2] Taken from the 2011 Municipal Water Use Report - Government of Canada, 2009 Statistics.

SECTION 3: WATER CONSERVATION STRATEGIES AND INITIATIVES

In this section, the City of Brooks considers a number of different conservation tools and initiatives and evaluates each to determine appropriateness and feasibility with regard to the municipal water profile and municipal targets.

3.1 Water Conservation Initiatives

Water conservation initiatives include both supply and demand management techniques and can range from very simple to very advanced. When reviewing techniques, the City of Brooks considered the most appropriate and feasible initiatives for the population and geographic region. A combination of supply management and demand management practices were selected with a focus on both "hard" and "soft" techniques. Hard conservation initiatives, such as legal tools, policies and organizational procedures, are more rigid and enforceable. Conversely, soft conservation initiatives, such as voluntary restriction, outreach programs and education campaigns, rely more on voluntarism and attitude change.

While reviewing and selecting the water conservation initiatives, the Water CEP Task Force evaluated a number of potential programs around a criteria matrix (Table #3.1). The matrix, which gave each initiative a score based on the weighting of several criteria, allowed the Task Force to gauge the overall appropriateness of the initiatives and compare scores. Once selected, a timeline for the initiatives to be implemented can be determined based on the score of each initiative. For example, if a program received a low score within the Operations and Maintenance Capacity category, perhaps implementation could be postponed until other initiatives are implemented.

The following water conservation initiatives have been selected by the City of Brooks to help achieve water use targets:

Conservation Based Pricing

Description: Across Canada, water prices generally fall short of the actual cost of providing the service. Aside from the full financial cost, the immeasurable environmental costs are not often considered. In order to make people more aware of the cost of water, the rates need to reflect the true cost. At the same time, studies suggest that water demand is sensitive to changes in pricing structures. Pricing can provide an effective financial incentive and send a message about efficiency and conservation.

Implementation: Senior Administration and City Council, with support from the Environmental Advisory Committee and applicable departments (Public Works, Financial Services), will work together to create a new pricing structure.

Desired results: With a pricing structure put in place that financially affects high volume users, the intent is that those high volume users recognize that more has to be done to ensure efficiency and conservation.

Selection: The initiative scored high in ranking because it targets high users and may have a relatively, smooth implementation. However, this initiative may be relatively contentious and may not have high social acceptance.

Rebate Programs

Description: The City of Brooks will encourage residents to purchase water conservation/efficiency fixtures by providing monetary rebates.

Implementation: The Environmental Advisory Committee will coordinate and implement rebate programs for both indoor and outdoor fixtures.

Desired results: An increase in installation of water conservation/efficiency fixtures will decrease wasting of water and thus reduce residential water consumption. Water efficient fixtures such as low-flow toilets can save several thousand litres per year.

Selection: This initiative scored the highest overall for a number of reasons. Rebate programs for water efficient fixtures have already been implemented in the community so implementation would be straightforward and there are already high levels of political and social acceptance.

Water Management System

A) Surface

Description: Currently, the City of Brooks irrigation system relies on surface water which is pumped an inland lake. A more cohesive management system for this network must be developed to track water use and ensure water is being used productively. There are also 367 residential customers that utilize surface water for irrigation but are not currently metered. Unfortunately, due to the quality of the water being delivered, metering is not an option; in order to ensure that water is being used efficiently, Council may have to consider converting residential unmetered surface water irrigation to metered potable water.

Implementation: The Public Works and Parks Services Departments will work together to establish a surface water management system. If needed, the Environmental Advisory Committee will provide support.

Desired results: With new technologies and a management system in place for the surface water irrigation network, staff will be able to track exactly how much water is being used for irrigation and allow for the most efficient use of that water.

B) Treated

Description: Currently, all potable water customers are metered and billed every two months. However, there are significant technological controls that could be implemented to allow for more reliable information about usage and greater control.

Implementation: The technology – a combination of hardware and software – currently exists and could be installed relatively easily. There would be a learning curve for use of the new system and perhaps a time period in which the hardware would be tested before efficiencies could be capitalized on.

Desired Results: With more reliable information and greater control, staff would have the ability to monitor use more closely and alert customers about leaks and abnormally high use. Having access to greater information will allow staff and council to make more informed decisions about water management.

Selection: This initiative – for both surface water and treated water applications – has the highest initial cost and therefore scored relatively low. However, because the necessary technology and expertise to develop a surface water management system already exist, the implementation would be relatively simple.

Education and Outreach Programs

Description: The City of Brooks will continue to run periodic educations programs, lunch'n'learns, produce publications, and generally provide ongoing education regarding water conservation, efficiency and productivity.

Implementation: The Environmental Advisory Committee will create and implement the programs.

Desired results: In order to change behaviours there must be outreach programs and education about the issue of water supply. As more residents become aware of the issues, there will be a greater behavioural change and increased participation in programming.

Selection: This initiative scored high points in the Operations and Maintenance Capacity section because there are already existing venues and systems in place to develop and provide programs. However, the reliability and actual reductions inspired by these programs are not always obvious or measurable.

Voluntary Restrictions

Description: Through education and outreach programs, residents will be encouraged (but not required) to restrict their use of potable water and conserve the resource.

Implementation: The Environmental Advisory Committee will create the program and implement it.

Desired results: As residents choose to voluntarily reduce their water consumption, the City of Brooks can expect to see a decrease in demand for potable water.

Selection: This initiative does not necessarily target high users and is not always reliable in terms of actual reductions. Therefore, it scored poorly under those criteria. However, there is virtually no initial cost or operations cost so high points were awarded.

Table # 3.1 – Water Conservation Initiatives Criteria Matrix

Initiative	Targets High Users	Reliability and Actual Reductions	Ease of Implementation	Political and Social Acceptance	Initial Cost	O&M Cost	O&M Capacity	Total Score
	20	**15**	**10**	**15**	**15**	**15**	**10**	**100**
Conservation Based Pricing	20	7	10	7	10	13	10	**77**
Rebate Programs	20	15	10	15	7	10	10	**87**
Water Management Systems (raw and treated)	15	10	10	15	2	10	7	**69**
Education and Outreach Programs	10	7	7	15	10	13	10	**72**
Voluntary Restrictions	5	3	10	10	15	15	10	**68**

Terms Defined:

Targets High Users – does this initiative target the high users in the community?

Reliability and Actual Reductions – is the water conservation measure reliable and will there be actual, quantifiable results?

Ease of Implementation – are there any barriers that exist to implement the initiative? Is the technology needed to carry out the measure easily available?

Political and Social Acceptance – is this measure politically and socially viable? Acceptance is an important factor because it relates to the potential market penetration of an initiative.

Initial Cost – what is the implementation cost and it is a barrier to implementation?

Operational and Maintenance Cost – what is the ongoing cost to operate/maintain the initiative? Is this cost a barrier to implementation?

Operational and Maintenance Capacity – does the organization currently have the operational capacity to effectively implement the initiative? Will there be any increase in staff or staff workload?

SECTION 4: CONCLUSION

4.1 The Future of Water in Brooks

Looking to the future, the City of Brooks will remain committed to water conservation, efficiency and productivity goals. Initiatives recommended through the Water CEP Plan will be implemented and reviewed annually to ensure compliance and relevancy.

Partnerships, now and in the future, will be vital in achieving conservation targets. Strong relationships with other municipalities, service corporations, irrigation districts and watershed advisory committees will allow for accurate information and efficient implementation. Work will continue through city staff, municipal partnerships and the Brooks Environmental Advisory Committee.