



## Town of Okotoks

### Water Management Plan



### **(Water Conservation, Efficiency and Productivity Plan)**

Updated April, 2008

Updates:  
May, 2004  
May, 2006  
April, 2008

## TABLE OF CONTENTS

---

<b>About the Plan</b>	<b>2</b>
<b>Objectives</b>	<b>2</b>
<b>CURRENT CHALLENGES</b>	<b>3</b>
Environmental conditions	
Instream Objectives	
Water Act Legislation	
<b>Water Management Plan Goals:</b>	
<b>GOAL 1:</b> Ensuring the delivery of a reliable water supply using existing infrastructure and scheduled future expansion.	<b>4</b>
<b>GOAL 2:</b> Operations of an effective and efficient waterworks utility.	<b>5</b>
<b>GOAL 3:</b> Life Cycle Maintenance and Recapitalization.	<b>6</b>
<b>GOAL 4:</b> Utility Rate Restructuring.	<b>7</b>
<b>GOAL 5:</b> Municipal Bylaws and the Wise Use of Water Resources.	<b>8</b>
<b>GOAL 6:</b> Provincial Legislation and Municipal Water Use.	<b>9</b>
<b>GOAL 7:</b> Public Information and Education.	<b>10</b>
<b>GOAL 8:</b> Evaluation of goals and activities within the Town's Water Management Plan.	<b>11</b>
<b>Appendices</b>	
<b>Appendix A: Water Supply (2002)</b>	<b>12</b>
• Location of Well Supply	
• Water Act Legislation	
<b>Appendix B: Instream Objectives</b>	
• Licenced Pump Rates	
• Affect of Instream Objectives on Pumping Capacity	<b>15</b>
<b>Appendix C: Licence Transfer Agreement</b>	<b>17</b>

## ***ABOUT THE PLAN***

---

The overall goal of the Town of Okotoks Water Management Plan is to ensure provision of quality potable water to residents, institutions and businesses within a community of 30,000 people. Wise and responsible municipal water management is necessary for the effective and efficient development, operations and delivery of potable water.

Municipal water sources, including those of the Town of Okotoks, are governed or significantly influenced by federal and provincial legislation, environmental impacts such as droughts, floods, pollution control, responsible management of aquatic ecosystems, protection of groundwater supplies, quality of sewage treatment, regional growth and development. The increasing awareness of citizens about the importance of water resources has focused much attention on municipal leaders to ensure that appropriate plans and actions are developed and implemented to ensure short-term and long-term water resource needs are met while balancing the social, economic and environmental demands of the community.

The Town of Okotoks has been recognized locally, regionally and nationally as municipal leaders in wise and responsible water management. Our commitment to being a sustainable community, progressive municipal and intermunicipal development plans; aggressive use of new technology in automated monitoring, infrastructure design and management; innovative technologies in waste and potable water treatment; financial assessments and carefully planned actions to engage residents in community public information and education initiatives have enabled Okotoks to move successfully towards managing its water resources effectively and efficiently while complying with provincial water management legislation.

Continuing our effort towards innovative and sustainable water use planning, the Water Management Task Team has developed a Water Management Plan to ensure that Okotoks can meet the needs of residential, commercial and institutional water users now and in the future.

### **OBJECTIVE**

The Town of Okotoks water utility is charged with providing a safe and reliable water supply to the residents, institutions and businesses of the community. The Town's treated water supplies from present day to build out (30,000 population) need to be managed to ensure adequate water volumes are available to meet the needs of residential, commercial and institutional customers when they are needed. The Town will promote water conservation and the wise use of water while recognizing the limits of the watershed to provide a dependable water supply and accept quality return flows.

### **CURRENT CHALLENGES**

1. **Environmental conditions:** Drought conditions and reduced instream flows in the Sheep River.
2. **Instream Objectives:** Licensed withdrawals approved after (1995) or “Junior Water Licenses” must meet the withdrawal conditions during periods of low flows in the Sheep River.
3. **Water Act Legislation:** Various regulations under the Water Act affect:
  - *how and when a municipality can withdraw water*
  - *how water is managed among users in the Sheep River basin*
  - *how water licenses are acquired by various users to increase licensed water use (e.g., the sale and transfer of all or a portion of an existing water license)*
  - *the process Alberta Environment uses to establish a Water Management Plan for the Sheep River which would base decisions on scientific information.*
  - *determination of low flow conditions of the Sheep River which activate legislation to place restrictions on all water users regardless of water rights*
  - *how the return flows to the Sheep River are recognized as “value added credits” to maintaining the aquatic health of the Sheep River.*

**GOAL 1: Ensuring the delivery of a reliable water supply using existing infrastructure and scheduled future expansion.**

- *Well-planned and managed waterworks infrastructure is an integral part of ensuring the delivery and distribution of potable water now and in the future.*

**Target Issues**

- ✓ *Additional wellfield development*
- ✓ *Existing well rehabilitation*
- ✓ *Securing rights to additional developed wells*
- ✓ *Exploration of future water supply alternatives*
- ✓ *Non potable raw water sources for irrigation*

Effective and efficient use of existing waterworks infrastructure, rehabilitation, upgrades, capital projects, and exploration of alternative water supplies are important activities to ensure the delivery of a reliable potable water supply, managing peak flow demands and ensuring sufficient fire flows now and in the future.

**Some Specific Strategies and Actions...**

**STATUS**

<ul style="list-style-type: none"> <li>• 2002 West Wellfield Hydrogeological Investigation.</li> </ul>	<i>Complete</i>
<ul style="list-style-type: none"> <li>• Well # 9 installed and project completed in 2004</li> </ul>	<i>Complete</i>
<ul style="list-style-type: none"> <li>• Well # 10 approved to be installed in 2008. Application submitted to Alberta Environment.</li> </ul>	<i>In Progress</i>
<ul style="list-style-type: none"> <li>• East well-field well rehabilitation project – annual capital project for 2008 to increase well yields to diversion rate potentials.</li> </ul>	<i>Annual Program 2008</i>
<ul style="list-style-type: none"> <li>• Okotoks made provision with the annexation of the Nexen (formerly Wascanna) Business Park lands (Gas Plant Site) to obtain operating rights and ownership of the two production wells located on the lower terrace. Statutory plan approvals are in place through the East Okotoks Area Structure Plan. Land transfer negotiations are underway. These two wells planned are to be used for irrigation of the Seaman Stadium and Riverside Park to reduce irrigation demand on potable water system.</li> </ul>	<i>In-progress Land title transfer complete- Wells transfer 2008</i>
<ul style="list-style-type: none"> <li>• Okotoks is also exploring a number of opportunities for water supply into the future. These include a review of historical licenses in the area that may be underutilized and/or surplus to the needs of license holders and available for transfer to the Town. Opportunities to explore regional water supply options including matters of allocation, licensing, legislative parameters, watershed planning, regional pipelines and in-stream storage options, and the concept of “return flow compensation” are at various stages of investigation.</li> </ul>	<i>In-progress consultant hired in 2008 to assist with license transfers</i>

**GOAL 2: Operations of an effective and efficient waterworks utility.**

➤ To supply and deliver daily potable water needs for residential commercial, institutional and industrial use, manage peak flow demands and ensure sufficient fire flows.

**Target Issues**

- ✓ Managing daily and peak flow demands
- ✓ Automated water consumption monitoring
- ✓ Collection of baseline data to support decision-making
- ✓ Scheduling of water use and users
- ✓ Leak detection
- ✓ Design, Build and Operations Contract for Utilities. (20 year)

The Provincial Water Act governs how the Town may use its water supply from a series of shallow wells located within the Sheep River valley.

Drought conditions (2000, 2001 and 2002) as well as compliance of water licence requirements created a number of challenges in providing water during peak demand times (e.g., an 80% increase in water use during hot, dry weather as a result of outdoor watering).

Careful scheduling of large water users, odd/even residential watering days, along with automated monitoring, aggressive leak detection, dial up meter reading, new reservoir development and education programs enable the Town to manage daily and peak water demand periods effectively and efficiently.

**Some Specific Strategies and Actions...**

**STATUS**

<ul style="list-style-type: none"> <li>• Continue to provide monitoring and scheduling data for Open Space management of large irrigation users.</li> </ul>	<i>Ongoing</i>
<ul style="list-style-type: none"> <li>• Adapt Open Spaces Park irrigation systems to the remote weather based irrigation system based at D'Arcy Ranch. Started park irrigation conversions in 2007 and continuing in 2008.</li> </ul>	<i>In-progress</i>
<ul style="list-style-type: none"> <li>• Collect base-line data from dial up meters to determine average water use patterns to determine future allocations and operating schedules.</li> </ul>	<i>Ongoing</i>
<ul style="list-style-type: none"> <li>• Continue to monitor and upgrade waterworks distribution system to enhance automated leak detection program.</li> </ul>	<i>Ongoing</i>
<ul style="list-style-type: none"> <li>• Actively pursue (with Alberta Environment) alternatives within the existing legislative framework to secure maximum licensed pumping capacity. (License amalgamations, new wells without in-stream objectives, return flow considerations etc).</li> </ul>	<i>In-progress</i>
<ul style="list-style-type: none"> <li>• Design Build for the Wastewater Treatment Plant Expansion and a 20 year operating contract for the Town's Utility Systems completed &amp; awarded to Epcor June 1, 2005.</li> </ul>	<i>Complete</i>
<ul style="list-style-type: none"> <li>• Continue to monitor water consumption for "For Future's Sake" target and provide feedback on benchmark results.</li> </ul>	<i>Ongoing</i>
<ul style="list-style-type: none"> <li>• Change out older inaccurate meters &amp; conversion of meters to radio read system. \$100K annually</li> </ul>	<i>Ongoing</i>
<ul style="list-style-type: none"> <li>• Bulk Water Dispenser Upgraded to card lock only system</li> </ul>	<i>Completed 2007</i>
<ul style="list-style-type: none"> <li>• Priority water main replacement capital projects to reduce line loss. Downtown Revitalization Phase 3 – Utilities replaced in 2007.</li> </ul>	<i>Completed in 2007</i>

**GOAL 3: Life Cycle Maintenance and Recapitalization**

- To develop a Life Cycle Maintenance and Recapitalization strategy for the long range planning of waterworks infrastructure maintenance, replacement, expansion and upgrades.

**Target Issues**

- ✓ Long range planning for infrastructure replacement, upgrades and expansion
- ✓ Capital projects
- ✓ Policy framework for maintenance and operations
- ✓ Financial management strategies
- ✓ **Develop 2030 Financial Plan for Utility Systems**

Ongoing review and analysis of the integrity and performance of the waterworks distribution system remains a very high priority.

Okotoks has been proactive and progressive in managing the expansion and upgrades to the municipal water supply, treatment and distribution system, particularly as it relates to accommodating population growth demands.

Increasing effort in recent years to obtain data on flow characteristics, consumption patterns, leak detection analysis, etc. have enabled more informed prioritization of water main replacements and distribution system upgrades.

Street Infrastructure Program funds at \$60.00 per capita will result in approximately \$1 million in capital projects **annually** directed primarily towards water main replacement and street construction. The Town's multi-year Capital Budget identifies the prioritized plans for replacement.

Some Specific Strategies and Actions...	STATUS
<ul style="list-style-type: none"> <li>• A comprehensive asset management plan for the full life cycle of the waterworks utility.</li> </ul>	<p><i>In-progress &amp; in 2030 Plan</i></p>
<ul style="list-style-type: none"> <li>• Comprehensive long-term planning for the replacement of aging and leaking water distribution mains. (2030 Financial Sustainability Plan developed and presented to Council in 2007)</li> </ul>	<p><i>On-going</i></p>
<ul style="list-style-type: none"> <li>• Development of a policy framework to support maintenance and operation of the utility. (Operating Contract completed with Epcor June 1<sup>st</sup>, 2005.) Administer and monitor contract obligations.</li> </ul>	<p><i>On-going</i></p>
<ul style="list-style-type: none"> <li>• Development of financial management strategies to ensure timely expansion and system upgrades, as well as treatment and distribution systems life cycle maintenance.</li> <li>• <b>Develop long term 2030 Financial Sustainability Plan and strategy for Utilities Operations and replacement.</b></li> </ul>	<p><i>On-going</i></p> <p><b>Completed in 2007 Update annually</b></p>

**GOAL 4: Utility Rate Restructuring**

➤ To develop a Utility Rate Restructuring Strategy for consumption driven utility rate model to ensure and maintain revenue stabilization over the long-term operation of the waterworks utility while encouraging wise water use.

**Target Issues**

- ✓ Reducing water consumption through utility rate restructuring
- ✓ Long-term stabilization of utility revenues
- ✓ Pricing based on primarily water consumption
- ✓ Combined water and sewer rates
- ✓ Rates the same for residential and commercial customers
- ✓ Residential exemption from sewer charges for summer irrigation water use

Sustainable Okotoks has set a specific responsible water use target of 315 litres/person/day (70 gallons).

Rate restructuring will review models that move the Town’s water utility rate from a combined consumption/basic (flat rate) service towards primarily consumption-based rates for both potable water use and sanitary sewer collection. 2002 rate structure of 50% of the water utility revenues from a flat rate and 50% of the revenues are from a consumption rate, to evolve over a period of time to increase emphasis on consumption and less to flat rates.

Rate restructuring has been successful in some jurisdictions, but a well-articulated public education program must accompany rate restructuring with a consumer water conservation strategy.

**Some Specific Strategies and Actions...**

**STATUS**

<ul style="list-style-type: none"> <li>• That the utility rate structure be primarily demand based (eliminating block structure, rates based on service/meter size, and residential vs. non-residential disparity)</li> </ul>	<i>Completed</i>
<ul style="list-style-type: none"> <li>• That the long term goal remain a rate structure based on 10% flat rate and 90% consumption rate. Progress towards this goal is as follows:                             <ul style="list-style-type: none"> <li>• 2005 rate structure based on 60% consumption / 40% flat; 2006-2008 rate structure based on 70% consumption and 30% flat.</li> <li>• An exemption for summer residential irrigation water use from the sewer rate was introduced in 2007 (based on the average consumption of the winter months for the consumer. Water use above the winter average is exempt from sewer charges during the summer months)</li> </ul> </li> </ul>	<i>In-progress</i>
<ul style="list-style-type: none"> <li>• That future rate structure changes be reviewed and endorsed by Council normally at time of future year Operating Budget development</li> </ul>	<i>Completed</i>
<ul style="list-style-type: none"> <li>• That sewer rates for all accounts be directly linked to water consumption</li> </ul>	<i>Completed</i>
<ul style="list-style-type: none"> <li>• That Council approved rates be applied universally.</li> </ul>	<i>Completed</i>
<ul style="list-style-type: none"> <li>• That a bulk water rate be 10% higher than local market (Aldersyde) to provide service while discouraging too frequent use.</li> </ul>	<i>Completed Jan 2008</i>
<ul style="list-style-type: none"> <li>• Research the introduction of an increasing block rate structure for outdoor watering for 2009.</li> </ul>	<i>In progress</i>

**GOAL 5: Municipal Bylaws and the Wise Use of Water Resources**

➤ *To ensure the effective and efficient use of the Town’s water supply by residents, institutional and commercial users through a regulatory water conservation framework.*

**Target Issues**

- ✓ *Effective and efficient use of water by all users.*
- ✓ *Balancing social, economic and environmental demands.*
- ✓ *Water conservation based on scientific and social research.*
- ✓ *Revision of bylaws to reflect water conservation objectives*
- ✓ *Reduce unnecessary waste and subsequent draw on limited resources*

Indoor and outdoor water conservation is important in the effective and efficient use of municipal water resources.

Federal and provincial legislation govern municipal access to water sources, environmental impacts such as droughts, floods, pollution control, responsible management of aquatic ecosystems, protection of groundwater supplies, sewage treatment, increasing growth and development affect water supply.

Increasing awareness of citizens about the importance of water resources have focused much attention on strategies that ensure the short-term and long-term water needs are met while balancing the social, economic and environmental needs and demands of communities. The Town is continuing with a series of activities to enhance existing efforts as well as the introduction of new innovative water conservation initiatives based on scientific and social research.

Empowered by its commitment to responsible water use, the Town has been able to move successfully towards managing its water resources effectively and efficiently while complying with provincial water management legislation. Municipal level “tools”, specifically in the area of bylaws, are required to further enhance existing water conservation strategies among users.

Some Specific Strategies and Actions...	STATUS
<ul style="list-style-type: none"> <li>• Revise Outdoor Watering Regulations to reflect a series of seasonal watering regulation levels based on watering schedules with regular &amp; recurring dates, days &amp; times for residential, commercial &amp; institutional water users.</li> </ul>	<i>Completed</i>
<ul style="list-style-type: none"> <li>• Research and implement bylaws for mandatory low-flow devices for new residential, commercial and institutional construction; and Outdoor Landscape Design Standards.</li> </ul>	<i>Complete</i>
<ul style="list-style-type: none"> <li>• Research and implement retrofitting existing residential, commercial &amp; institutions with low-flow devices using an incentive program to encourage &amp; enhance participation.</li> </ul>	<i>In-progress</i>
<ul style="list-style-type: none"> <li>• Continue to provide research and demonstration opportunities in Town facilities of low-flow devices</li> </ul>	<i>On-going</i>
<ul style="list-style-type: none"> <li>• Council recommendations to change provincial plumbing code to mandate low-flow water fixtures as part of AUMA resolutions.</li> </ul>	<i>In-progress</i>
<ul style="list-style-type: none"> <li>• <b>Revise current Water Bylaw 22-90 to incorporate existing changes, policies and guidelines (e.g. low flow fixtures, landscape design, outdoor watering regulations, etc.) into one document.</b></li> </ul>	<b><i>In-progress. For 2008 completion</i></b>

**GOAL 6: Provincial Legislation and Municipal Water Use**

➤ To ensure proactive input and response to Provincial Water Act issues that affect the municipal use of water.

**Target Issues**

- ✓ Compliance under Alberta Water Act
- ✓ Cooperation with other water users
- ✓ Licencing and decision-making based on scientific data
- ✓ Support for an approved Water Management Plan
- ✓ Fair and equitable use of the water resources among users
- ✓ Sheep River Watershed stewardship role

Urban municipalities are significantly affected by licencing conditions of the Alberta Water Act.

The fair and equitable use of water in the Sheep River watershed is an important issue particularly when licencing conditions are not based on scientific analysis.

Partnership and cooperation with other area municipalities (Turner Valley, Black Diamond and the MD of Foothills) is important towards present and future success of water management strategies.

**Some Specific Strategies and Actions...**

**STATUS**

<ul style="list-style-type: none"> <li>• Continued participation in regional cooperation with Turner Valley, Black Diamond and MD of Foothills to develop regional solutions to water management and supply.</li> </ul>	<i>Ongoing</i>
<ul style="list-style-type: none"> <li>• Continue efforts with Alberta Environment to:                             <ul style="list-style-type: none"> <li>• have IO's based on scientific analysis of the Sheep River</li> <li>• have return flows recognized as "compensation" towards aquatic health and reduction/removal of IO's on junior licences</li> </ul> </li> <li>• Continue to update and enforce the Town's water management plan</li> <li>• Continue to work towards equitable treatment of all water users during periods of low flow.</li> <li>• Provide support for public information and education initiatives.</li> </ul>	<i>Ongoing</i>  <i>Ongoing</i>  <i>Ongoing</i>
<ul style="list-style-type: none"> <li>• Respond to Alberta's "Water For Life Strategy" with a letter specifically outlining the concerns of Okotoks.</li> </ul>	<i>May 2002</i>
<ul style="list-style-type: none"> <li>• Continue participating in the Calgary Regional partnership and Bow River Basin Council, including WIMMS and watershed management. Active participation on the Alberta Water Council advocating on behalf of smaller urban municipalities</li> </ul>	<i>Ongoing</i>
<ul style="list-style-type: none"> <li>• Actively monitor and respond to future development in close proximity to Okotoks to minimize potential impacts on the Town's water supplies and Sheep River water quality from high density developments close to Town boundaries.</li> </ul>	<i>On-going 2008</i>
<ul style="list-style-type: none"> <li>• Support and promote the formation of a Sheep River Watershed Stewardship Group.</li> </ul>	<i>In progress</i>

**GOAL 7: Public Information and Education**

- *To continue to provide public information and education programs that provide Okotoks water users with the best possible water conservation strategies based on environmental, social and scientific research.*

**Target Issues**

- ✓ *Ongoing public information and education programs*
- ✓ *Partnerships & Funding*
- ✓ *Engaging residents in decision-making*
- ✓ *Promote Sheep River Watershed education to local residents and other users in the basin*

An effective water conservation strategy is enhanced through participation of residents in actions and activities that reduce indoor and outdoor water use.

Engaging residents through community-based social marketing initiatives encourages feedback on the effectiveness of programs and encourages residents to engage in personal decision-making towards short-term and long-term water conservation strategies.

Partnerships among stakeholders and other municipal water users are also important towards the replication and multiplier effect of responsible water use within the Sheep River watershed.

**Some Specific Strategies and Actions...**

**STATUS**

<ul style="list-style-type: none"> <li>• Continue with multi-year For Future's Sake community-based social marketing water conservation initiatives. Grant project funding is complete 2006. Funding continues through Utilities annual budget transfer to Communications to enable education work to continue (e.g. annual door-to-door conservation education program, etc.).</li> </ul>	<i>Ongoing</i>
<ul style="list-style-type: none"> <li>• Develop an outdoor water conservation irrigation regime that raises awareness, knowledge and actions towards lawn and plant care that is compatible with the prairie ecosystem (e.g. frequent advertising, Horticulture Hotline, website materials, new Landscape Inspector position in 2007, etc.).</li> </ul>	<i>On-going</i>
<ul style="list-style-type: none"> <li>• Further develop indoor water conservation education materials (e.g. website expansion &amp; updates, water conservation brochure in 2006; Green Guide in 2007; utility bill inserts; portable signs; ads in Western Wheel, annual Community Reports, 3x/yr Community Guide; indoor &amp; outdoor water conservation kits, rainbarrels, frisbee's, post-it notes, etc.).</li> </ul>	<i>On-going</i>
<ul style="list-style-type: none"> <li>• Provide direction and support for the Community Ecological Monitoring program on water conservation. Support collaborative partnerships between Turner Valley, Black Diamond and the MD of Foothills.</li> </ul>	<i>On-going</i>
<ul style="list-style-type: none"> <li>• Continue to seek partnerships and funding opportunities to collaborate on water conservation initiatives (e.g. Epcor).</li> </ul>	<i>On-going</i>
<ul style="list-style-type: none"> <li>• Present and share lessons learned and information about water conservation with other municipalities and interest groups.</li> </ul>	<i>On-going</i>

<ul style="list-style-type: none"> <li>• Continue to refine and expand the Sheep River Watershed Information Management System through the Calgary Regional Partnership (CRP – Watershed Information Management System)</li> </ul>	<i>In-progress</i>
<ul style="list-style-type: none"> <li>• Sheep River watershed education program to residents and other communities in the basin (e.g. interpretive signage at WWTP depicting watershed education material to be installed early spring 2008).</li> </ul>	<i>Start in 2008</i>

**GOAL 8: Evaluation of goals and activities within the Town's Water Management Plan.**

- Continued improvement of strategies, activities, programs and services will be enhanced through evaluation.

**Target Issues**

- ✓ Benchmark historical use
- ✓ Community reports highlight successes and challenges
- ✓ Celebration of success
- ✓ **Develop Rewards / Incentive Programs for low water users.**

Regular review and revision of benchmarks to measure success.

Reporting to internal and external stakeholders water conservation initiatives

<b>Some Specific Strategies and Actions...</b>	<b>STATUS</b>
<ul style="list-style-type: none"> <li>• Research and establish baseline consumption rates through data analysis and automated monitoring</li> </ul>	<i>Complete</i>
<ul style="list-style-type: none"> <li>• Annually review Utility Rate with budget</li> </ul>	<i>On going</i>
<ul style="list-style-type: none"> <li>• Monitor residential and non-residential use (e.g. 2007 summer residential visitation program targeted highest users, etc.).</li> </ul>	<i>Ongoing</i>
<ul style="list-style-type: none"> <li>• Annual reports to Council and the community.</li> </ul>	<i>Ongoing</i>
<ul style="list-style-type: none"> <li>• <b>Research reward &amp; incentive programs for low water use and conservation efforts (e.g. washer/dryers; toilet &amp; other rebates).</b></li> </ul>	<b>2008 review &amp; introduce</b>

## **Appendix A: Water Supply**

- **Location of Well Supply**
- **Water Act Legislation**

## **WATER SUPPLY**

### **Location of Well Supply**

- The Town of Okotoks' water supply is withdrawn from 9 licensed shallow wells. These wells are drilled into a shallow aquifer (30 feet deep) in the river gravels adjacent to the Sheep River.
- The total licensed withdrawal is 608.3 million imperial gallons per year.
- Wells 1 to 6 are in the "East Wellfield" located in the centre of town in Sheep River Park.
- Wells 7, 8, and 9 are in the newly developed (1996) "West Wellfield" located at the northwest end of the Sheep River Subdivision by "Pacer Park".

### **Water Act Legislation**

- Since January of 1999, the Alberta Water Act protects the rights of water users through a licensing priority system – "*First in Time First in Right*". Older or "senior licenses holders" have the right to use their allocated water first over newer or "junior licenses holder". This "First in Time, First in Right" philosophy is essentially based on practices originally established in 1894 when the European population of the territory (future province of Alberta) was approximately 14,000 people.
- The Alberta Water Act Legislation requires that any shallow wells with licenses issued after 1995 must have conditions applied for the withdrawal of water. These conditions are called instream objectives and are arguably based on the aquatic needs of the Sheep River and the needs of other licensed users.
- A license issued after 1995 is considered a "junior license" and under the priority system can be order by Alberta Environment to not withdraw water during periods of low flows.
- A well can have licensed withdrawals that are exempted from IO's and withdrawals with IO's applied. This occurs when a well was licensed prior to 1995, and approved for a specified amount of water to be withdrawn and then an application was made after 1995 to increase the amount of water that is withdrawn from the same well.
- The Town has 2 wells (Wells 7 & 8) with this dual *exempt* and *IO conditions status*.
- During conditions of low flows in the Sheep River, Wells 7 & 8 must comply with the IO's that affect the allocated portion of the licensed water withdrawal.

Well	Year Licensed	Licensed Annual Withdrawals (MIG)	Instream Objectives
1 to 6	prior to 1995	374.5	<i>exempt</i>
7	1992	13.8	<i>exempt</i>
	1997	20	IO's*
8	1992	2.4	<i>exempt</i>
	1999	97.6	IO's*
9	2002	100	IO's*

**\*Amount of licensed withdrawal that cannot be pumped during periods of low flow in the Sheep River**

***Total Of Town Water Supply Exempt from IO's 390.7 million gallons***

***Total of Town Water Supply under IO's 217.6 million gallons***

***Grand Total of Town Water Supply with IO's 608.3 million gallons***

## **Appendix B: Instream Objectives**

- **Licensed Pump Rates**
- **Effect of Instream Objectives on Pumping Capacity**

### **In-stream Objectives:**

The in-stream objectives attached to the Town of Okotoks wells are minimum extrapolated flow levels determined by Alberta Environment from approximately 100 years of historical flows recorded at Black Diamond and two monitoring stations on the Highwood River above and below the confluence of the Sheep River. The in-stream objectives are simply based on historical flows and the current instream objectives applied to the Highwood River. These values have no scientifically established relationship to requirements for a healthy aquatic environment for the Sheep River.

### **Licensed Pump Rates:**

The total licensed pumping rate of all the wells ***under normal conditions is 2,413 imperial gallons per minute*** this produces ***3,474,720 imperial gallons per day*** (if the wells were able to run at capacity for 24 hours).

### **Effect of Instream Objectives on Pumping Capacity:**

- When instream objectives are imposed there is an effect on the pumping capacity rate and amount of water available to the town.
- Wells 7 & 8 are affected when IO's are imposed because they have a dual *exempt and IO conditions status*.
- Well # 9 (installed in 2002) has a total pumping capacity of 251 igpm that is under IO restrictions.
- When in-stream objectives are imposed, the pumping rates may remain the same on Wells 7 & 8 until the exempt portions of licensed water allocation of 13.8 and 2.4 million gallon are used (the portion of the licensed water not affected by instream objectives).
- Once the *exempt portion* of these licenses are used, the maximum pumping rate is reduced from 2,413 imperial gallons per minute to 1,522 gallons per minute.
- This calculation is based on the total licensed pumping rate of 2,413 igpm of the town minus the pumping rates of Wells 7 & 8 (640 igpm) and well 9 (251 igpm).
- At a reduced rate of 1,522 gallons per minute, the maximum amount of water that can be pumped per day is 2,191,680 million gallons.
- This is a reduction of almost 1.3 million gallons or 1/3 of the total pumping capacity of the town's water supply.

## **Appendix C: Licence Transfer Agreement**

### **Licence Transfer Agreement:**

Wells 7, 8, and 9 are the town's highest producing wells. Which means large volumes of water can be pumped at higher rates than the other 6 wells. When instream objectives are imposed, Wells 7 & 8 & 9 are not taken out of production once the exempt portions of the water licenses are used. Under the provisions of the Water Act, owners of wells (the town) can transfer licensed water allocations from one well to another using a written agreement authorized by Alberta Environment – Water Resources Branch. This is what the Town did during the summer of 2001 and will do in the future when and if IO's are in effect. However, the town only has the amount of water available per day that is exempt from IO's (2,191,680 million gallons). To comply with only withdrawing this volume of water the total pumping rates of all wells are reduced to 1,522 gallons per minute.

## **Appendix D: 2008 Water Conservation Communications Plan**

**October 2007 – March 2008** - Communicate the need for a bulk water sales cost increase and installation of a new card system for January 2008. A review of the Outdoor Watering Regulations has been completed with Administration recommending that amendments to the Water Bylaw incorporate the specific outdoor watering regulations. The Outdoor Watering Regulations be revised to indicate only 2 watering days per week from the former 3 days per week. This move coincides with expert advise that lawns need only 1” of water per week and watering is only required once per week to maintain good health. The additional day has been provided to provide options to accommodate resident’s schedules. Additionally, the references to ‘kiddie pools’ and ‘washing of vehicles on driveways’ be removed as these are infrequent uses often require the same water as a bathtubs. Additionally, all communications focus on this standard outdoor water regulation and only focus on increased levels should a need arise.

#### ***April 22, 2008 - Earth Day***

- Customer appreciation day at Recycling Depot (refreshments, snacks & displays)
- Public education on watering of trees and healthy lawns
- Reiteration of watering regulations that come into effect May – main message ‘once per week is all you need’ and educating residents that the plant growth cycle is highest in May-June.
- Build a display depicting the entire water process to the end user.
- Rain barrel, indoor and outdoor water conservation kit promotion and sales

#### **April – September 2008 - Water meter replacement program**

Work with EPCOR to advertise the water meter replacement program and provide an education package to households regarding the value of accurate water meters and ways to conserve water when their water meter is replaced. Approximately 200 household water meters are typically replaced annually from April - September.

#### **April – August 2008 – Rain barrel and water conservation kit promotion**

Prepare an effective advertising campaign to promote rain barrel and water conservation (indoor and outdoor) kit sales. Explore funding to introduce local water conservation rebate programs for expenditures for both outdoor and indoor water conservation plumbing fixtures. Helping people find easy and affordable ways to capture and conserve water naturally will help them feel they are doing their part, with low cost and effort. The cost is generally lower for both the Town and customers than many retail outlets for similar products. Advertising the affordability and the benefits of rain barrels will encourage residents to make conservational choices throughout the dry months.

#### **May – December 2008 – Sustainability Package creation and distribution**

Create a new sustainability package for new home owners and local business. Work with Finance so that when a new utility or business license account is created, we use that opportunity to educate with an information kit pertaining to Okotoks’ sustainability initiatives in the area of conservation bylaws and practices. Feedback from the 2007

household visitations is that many new home owners were often aware that there are water or waste regulations but did not have enough detail to fully understand how their household could contribute. Businesses also have opportunities to conserve water and publications, presentations to local Chamber of Commerce and visitations will be included in the plan.

### **May - September 2008 – Water Conservation Reward Program**

Research and establish a short term reward program for residents who purchase water conservation plumbing fixtures, tools and equipment. Promote limited time rebates for both outdoor and indoor water conservation purchases (e.g. rebate program - \$50 for installation low flow toilet, front load washer, drought tolerant landscaping materials, etc). The program would likely be receipt based and offered for a limited period due to budget constraints. Also promote the indoor and outdoor water conservation kits and rain barrel sales which are provided to residents at cost.

### ***May 5, 2008 – start of watering regulation:***

- In 2007, the water conservation message changed focus to a simple key message that “1 inch of water per week is all you need to maintain a healthy lawn” (i.e. no watering necessary if it rains and no need to water on all 3 allowable days/week). The communication message is consistent with Calgary and Edmonton campaigns. By July/August the communications team found increased understanding and success when changing the message to state the non-watering days and feedback indicated that residents found this message easier to remember). The two portable signs is a key strategy that residents recognize and this communications strategy will continue in 2008. It is hoped that permanent LED Town signs along Northridge/ Southridge Drive will eventually be erected in 2009, saving much staff time to manually change the messaging throughout the year.
- The “water 1 inch a week” message will be used in all communication initiatives and should become standard knowledge and practice within our community within 2 years. Any extra moisture which comes with precipitation in the months of May and June is a bonus for the lawn.
- Educate on plant growing cycles; drought-tolerant plants; frequency and amount of water required for new and mature vegetation; capturing precipitation for re-use and general outdoor water conservation practices is another strategy. Using the website for more detailed communication messages will continue to be used so that simple messages are broadly used and those that want to know more have a place to access more information at their leisure.

### ***May – August 2008 - Conservation Educator (summer students)***

- The household and business visitation program will focus on higher than average water users as well as target the general public, mainly in June through August.
- Advise local irrigation and landscaping companies of the need for establishing irrigation timers that comply with the Town’s outdoor watering regulations and that watering permits are required throughout the months of July and August when the typical growing season (May-June) has slowed down.

- Work with Municipal Enforcement to enforce water regulations. Feedback from residents is that the regulations should be enforced if sustained change is to occur. The Water Restrictions have been in place since 2002, with numerous advertisements and residents visited indicated that they were indeed aware of the regulations (understanding the specifics was another matter) and many residents felt that that neighborhood compliance would be higher if the regulations were enforced, particularly in the case of frequent offenders. Fines range from \$100 - \$2500 and the plan to introduce formal warnings and fines be utilized as a regular practice, particularly in July and August when drought conditions are most prevalent and the growing season has slowed.
- Communicate to local businesses regarding the need for effective outdoor watering practices (e.g. irrigation schedules, etc.)
- In the months of May and June, visit classrooms at the elementary level to educate them on the benefits of conserving water, recycling and composting. Younger generations are likely to communicate information to their parents; thus, broadening the commitment to sustainability.
- Work with Community Programs to establish a conservation education program for Day Camps.
- Attend a broad range of special community events to promote water conservation (e.g. Parade/Youth festival, Canada Day, etc.) Distribute Frisbees with the slogan "Fill me up once a week... and your watering is complete" at special events and other promotional material.
- An additional promotional item will be purchased to produce the odd/even watering schedule on a watering product and send to each household (e.g. a hose attachment that has the odd/even watering day schedule so they do not forget their watering days).

### **May 24, 2008 - River Valley Cleanup**

A display booth providing information regarding water conservation for the upcoming season will be set up in Sheep River Park.

### **May – August - Irrigation practices & Town's conservation efforts**

- Educate the public on the Town's water conservation practices and that there is a need to treat "priority" playing fields different than the household watering schedule.
- Also explain the weather based irrigation systems to show people what technology can accomplish, where it is used already and its benefits. Weather based irrigation systems are unique in that they control irrigation based on moisture content in the soil and precipitation (it waters only when moisture is required).
- Urban forest management – educate residents on the need to water boulevard trees and watering young trees in order for them to survive. Residents frequently question why the Town waters boulevard trees when there is a 'water restriction'. Trees are a valuable asset to the community and replacing them could be costly.
- Work with Open Spaces to educate residents that have properties that are adjacent to boulevard trees and/or natural areas to raise awareness of appropriate practices at various stages in their life cycle and gain cooperation for assistance in their care.

- Work with landscaping businesses to ensure they are aware of water regulations, encourage them to use grasses that are best suited for this area and require less water, set irrigation timers appropriate to the watering regulations. Also develop an information kit to be mailed to all new homeowners (use new utility bill account information) regarding outdoor water conservation techniques and tools, new sod and plant care, ecoscaping, etc. Promote ecoscaped sites that are functional and beautiful so encourage others to follow suit.

### **June 9 – 13, 2008 - Environment Week**

- “Guide to Greener Living” publication will be expanded and distributed to all households to provide education and tips to conserve water, waste and energy. At least two activities will be coordinated with various business centres to promote water conservation (e.g. display booths at Recycling Depot and Recreation Centre, school visits, etc.). Education will include both local conservation efforts as well understanding of regional and global water issues (e.g. scientific reasons for depleting fresh water worldwide, etc.).
- Unveil the new interpretive signs along Sheep River pathway adjacent to the Wastewater Treatment Plant that depict the Sheep River watershed and environmental stewardship.

### **June 21, 2008 – Sports Day Parade & Youth Festival**

Hand out Frisbees and other tokens to encourage water conservation. Last year the Conservation Educator handed out the Frisbees along the parade route with Big Rocky as well as at the Youth Festival. This initiative had very positive response and we have enough stock for 2008.

### ***June – September, 2008 – construction of Water Spray Park***

Communications will work with media and public to educate residents regarding the status of the construction project in general, and in particular that the water spray park uses recycled water.

### ***July 2008 – create 2009 Environment Calendar (distribute December 2008)***

- An entire calendar will be prepared that will focus on environmental conservation tips and initiatives within Okotoks. To obtain the best price, calendars must be prepared and sent to printing company by mid July for December 2008 distribution.
- Monthly pictures will be of local scenery, amenities, xeriscaping, etc.
- The calendar will include tips each month which reflect environmental concerns within that specific season (e.g. indoor & outdoor water conservation tips) and list large special events
- The calendar will include water “regulations” and “levels” in a clear format to depict the outdoor water use schedule during May through October
- EPCOR has agreed to co-sponsor the calendar.

### ***August – September, 2008***

Communication's focus changes to educating public on the natural plant cycle, specifically that the color of grass will naturally brown/yellow and less water is required during this period, and also regarding preparing outdoor plants and gardens for fall.

### **October 2008 – March 2009 - Indoor water conservation campaign**

Advertising in various media, including the newspaper, utility bill inserts, radio and dedicated webpage to indoor water conservation will ensure accessibility to citizens and interested parties. Work with Finance to monitor utility bills to monitor residential and business benchmarks and identify high users and/or significant changes and communicate directly with those customers.

### **December 2008 – Community Report & other publications**

Gather all data and dedicate a single page to highlight efforts that the Town has undertaken itself to conserve water as well as historical data on per capita water conservation. This will help to realize our goal of demonstrating to residents the efforts that the Corporation contributes to water conservation (e.g. recycled water from Aquatics Centre used for irrigation) as well as to help residents gauge their progress over the years. This data and messages are also used in several advertisements and publications throughout the year, particularly during the May-August season.