

For Information

DATE: May 9, 2011

REPORT TITLE: **WATER EFFICIENCY PLAN: ANNUAL UPDATE ON 2010 IMPLEMENTED WATER EFFICIENCY MEASURES**

FROM: Dan Labrecque, Commissioner of Public Works

OBJECTIVE

The objective of this report is to update Regional Council on the progress of the Water Efficiency Plan, quantify savings experienced as a result of implemented water efficiency measures, and outline upcoming water conservation initiatives within Peel.

REPORT HIGHLIGHTS

- The Water Efficiency Plan was implemented in 2005.
- To date, water efficiency measures have contributed to an average annual day demand (AADD) savings of 15.7 million litres per day.
- 2010 water efficiency programs included the Residential Toilet Replacement, Humidifier Rebate, Fusion Landscape Consultations, Industrial Commercial and Institutional Toilet Rebate, ICI Indoor Water Audit, and the Outdoor Irrigation Audit. These programs contributed to an average annual day savings of 4.6 ML/day and a peak day savings of 4.8 ML/day for 2010.
- New water efficient technologies, best practices, and standards are continually being developed. To incorporate these changes and keep the Water Efficiency Plan current, the Plan will be updated in 2011.

DISCUSSION

1. Background

The Water Efficiency Plan (WEP) was implemented in 2005 in response to increasing demands on the Region of Peel's water and wastewater treatment systems. Implementing the Water Efficiency Plan reduces excessive water use, adds capacity to the current water and wastewater infrastructure and aligns with regional environmental objectives through conserving energy and reducing greenhouse gas emissions. To further promote environmental sustainability and make the most effective use of resources, Water Smart Peel frequently collaborates with conservation authorities and community groups to cross-promote programs and participate in joint environmental initiatives.

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The WEP is a living document that can grow to meet the changing needs of the community and recognizes the evolving nature of technology. To detail the progress of the Plan and implemented water efficiency measures, an annual report is submitted to Regional Council.

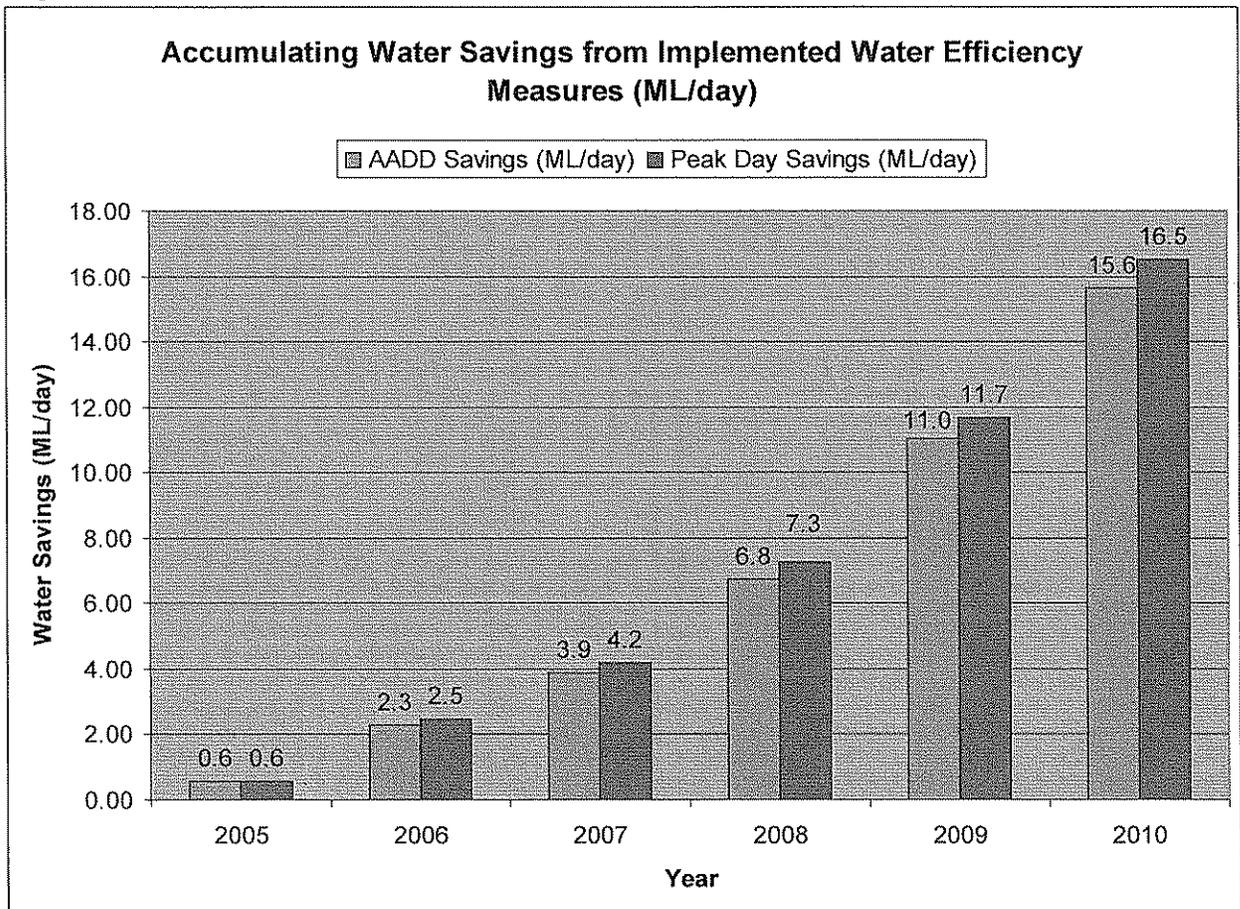
This report highlights the achievements of the WEP to date and summarizes water savings realized in 2010.

2. Accomplishments to Date

Since the WEP was approved, several water efficiency measures have been implemented for both the residential and industrial, commercial, and institutional (ICI) sectors. By the end of 2010, these initiatives contributed to a 15.7 ML/day reduction in the average annual day demand (AADD).

Figure 1 illustrates accumulating water savings from implemented water efficiency measures in ML/day since 2005.

Figure 1



The difference between the AADD and Peak Day Demand savings shown in Figure 1 is due to programs such as the Fusion Landscape Consultation Program and the ICI Outdoor Water Audit Program that specifically target outdoor summer water use.

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In 2010, seven water efficiency measures including the Residential Toilet Replacement Program, Humidifier Rebate Program, Fusion Landscape Consultations, ICI Toilet Replacement Program, Spray Valve Replacement Program, ICI Indoor Water Audits, and ICI Outdoor Irrigation Audits contributed to an average annual day savings of 4.6 ML/day, and a peak day savings of 4.8 ML/day. These measures, including the Clarkson Neighbourhood Study and the Residential Irrigation Pilot Project are expected to continue throughout 2011 and into 2012.

Water savings by program for 2010 are shown in Table 1.

Table 1

Water Efficiency Measure	AADD Savings (L/day)	Peak Day Savings (L/day)
Residential Toilet Replacement	3,848,728	3,848,728
Humidifier Rebate	1,821	n/a
Fusion Landscape Consultation	14,344	137,700
Toilet Replacement for Businesses	83,840	83,840
ICI Indoor Water Audit	510,200	510,200
ICI Outdoor Irrigation Audit	69,425	181,000
Spray Valve Replacement	66,499	66,499
TOTAL	4,594,857	4,827,967

Implementing the WEP adds capacity to the current water and wastewater infrastructure and reduces the amount of energy consumed and consequently the quantity of Greenhouse Gases emitted by the treatment processes. The total average daily water savings of 15.7 ML/day is equivalent to reducing Greenhouse Gas emissions by 4.0 tonnes per day, or removing 375 medium sized vehicles from the road.

3. Current and Upcoming Water Efficiency Measures - Residential**a) Residential Toilet Replacement Program**

In April, 2010, the Residential Toilet Replacement Program adopted the WaterSense qualification system for its *Peel Approved* toilet list. WaterSense, a widely popular certification system, requires toilets to clear a minimum of 350g of test material, contain chemical resistant trim components, and have an effective average flush volume no greater than 4.8 litres. The switch to WaterSense was made to ensure that the most water efficient technology available is encouraged and that water savings are sustained for the life of the fixture. To coincide with the switch to WaterSense and the removal of six litres per flush toilets from the *Peel-Approved* toilet list, the rebate value for approved high-efficiency toilet models was reduced from \$100 to \$60.

The transition to WaterSense specifications for the *Peel Approved* list of toilets has been well received. No additional changes to the certification standards for the Peel Approved list are expected in 2011 as WaterSense standards remain the industry best practice for toilet flush performance and water savings.

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b) Humidifier Rebate Program

Many homeowners install furnace-mounted humidifiers to maintain indoor comfort during dry winter months. Due to health concerns about standing water in traditional furnace humidifier models, flow-through humidifiers, which use a continuous flow of water, are becoming increasingly popular. Unfortunately, these flow-through models can waste up to 200 litres of water per day.

To encourage the development of more water efficient products and to incent residents to consider water efficiency when replacing or installing furnace-mounted humidification systems, the Humidifier Rebate Program was implemented on March 1, 2010.

The number of humidifier rebates received to in 2011 has increased compared to 2010. This increase may be attributed to a number of factors including increasing local and manufacturer knowledge of the program.

c) Fusion Landscape Consultations

To increase awareness about efficient outdoor water use and to reduce peak day demand, the Region offers free Fusion Landscape Consultations to residents. These consultations are delivered cost effectively using trained summer students to conduct the visits. Consultations focus on promoting eco-friendly gardening techniques and integrating residents' unique visions of their landscapes with water efficient landscape design. Over 623 residents are on the waiting list for consultations this summer and it is expected that over 1200 consultations will be completed this year.

To complement the Fusion Landscape Consultations, the Region of Peel, in partnership with Sheridan and Humber Nurseries, will offer a series of six workshops at Sheridan and Humber garden centres in 2011. The intent of the garden centre partnership is to offer Fusion Workshops taught by trusted local experts and to introduce residents to Fusion Landscaping in an inspiring environment.

d) Clarkson Sustainable Neighbourhood Study

To monitor the effects of Fusion Landscaping on sustainable residential landscape design and outdoor water use, a long term study in the Clarkson neighbourhood of Mississauga began in 2009. As part of the study, five Fusion Landscapes were designed and installed on residential properties within the study area in 2010. Fusion Landscape Consultations were also extensively marketed within the study area. Over the next four years the effects of the fusion landscapes and enhanced marketing campaign on the community will be examined by comparing neighbourhood water data to 2009 baseline data.

Monitoring for the Clarkson Sustainable Neighbourhood Study will continue throughout the summer 2011 and into the future. Water consumption data will be collected from homes within the study, control and sub control areas to observe changes in water demand. A visual record of the neighbourhood will also be taken and compared to previous records to identify neighbourhood landscape changes. To further monitor the effects of the Fusion Landscape Consultation program, follow-up consultations will be conducted in the study area during the fall of 2011

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4. Current and Upcoming Water Efficiency Measures – Industrial, Commercial and Institutional (ICI)

a) ICI Landscape Irrigation Audit

In the spring of 2009, a pilot project was initiated to examine how ICI summer water demands could be reduced through optimizing current timer based irrigation systems, upgrading to smart controllers, or combining smart controllers with optimized systems. This pilot was highly successful and resulted in a total savings of 181,000 L per summer day based on participation from six sites. Due to the success of the pilot and the demonstrated ability for water savings, participation in the ICI Landscape Irrigation Audit program was opened to the entire ICI sector in 2010. To date, 17 additional facilities have expressed interest in undergoing landscape irrigation audits in 2011.

b) ICI Indoor Water Audit

ICI water demands account for over 30 per cent of the total water demand within the Region. The ICI Indoor Water Audit program aims to identify areas of potential water savings within ICI facilities that can be achieved through permanent process change. Five facilities have entered the final stages of the ICI Indoor Water Audit Program and are expected to experience water savings in 2011. Additional facilities audited in 2011 may complete the audit process in 2011 or throughout 2012.

c) Toilet Replacement Program for Businesses

The Toilet Replacement Program for Businesses offers rebates of \$60 or \$140 rebates to ICI property owners who replace non-efficient toilets with efficient *Peel Approved* models. The higher \$140 rebate is provided for the replacement of flush valve toilets, and was selected to help offset the higher cost of replacement and account for their high usage in commercial applications.

Effective April 1, 2010, the Toilet Replacement Program for Businesses adopted WaterSense as its qualification system for gravity flush and pressure assisted *Peel Approved* toilets. The Uniform North American Requirements continues to be the qualification system for flush valve toilets.

d) Spray Valve Replacement Program

Many food service facilities use a pre-rinse spray valve to rinse dishes before loading them into automated dishwashers. Installing a low flow pre-rinse spray valve can reduce a facility's water and energy consumption, and lower operating costs.

By early 2010, visits to all food service facilities within Peel were completed. The Spray Valve Replacement Program will continue to operate in maintenance mode for 2011. This means visits and installation of all spray valves installed will be the result of requests received directly from food service providers.

5. Trends in Water Efficiency

a) Community Trends

Since the WEP was first implemented, several strides have been made in encouraging water efficiency to end users. Consumers are becoming increasingly aware of environmental issues and are more frequently considering the impact of their purchasing decisions on the environment. This has resulted in manufacturers creating new products with greater consideration for the environment.

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b) Legislation Changes

Governments have also implemented legislation improving environmental standards for consumer products and increasing local municipal and regional environmental stewardship responsibilities.

Recently four major government initiatives impacted water efficiency including:

- Approval of the Ministry of the Environment's Ontario *Water Opportunities Act*;
- Requirement for reporting on water efficiency programs in the Ministry of the Environment's Permit to Take Water;
- Interim Changes to the Ontario Building Code that call for the installation of toilets with flush volumes not exceeding 6 litres per flush in all construction; and,
- Addition of a Green Plumbing and Mechanical Code Supplement to the International Association of Plumbing and Mechanical Officials' Uniform Plumbing and Mechanical Codes.

6. Water Efficiency Plan (WEP) Update

The Water Efficiency Plan will be updated in 2011 as recommended by Term of Council Priority 3, reduce per capita water consumption, for 2011 to 2014. Updating the WEP will ensure that the goals and measures identified by the Plan continue to meet and address emerging legislation and observed trends in water efficiency. Measures identified in the updated Plan will also contribute to desired outcomes of Term of Council Priorities 1 and 5 by reducing greenhouse gas emissions (TOCP1) and helping ensure water and waste water capacity meets anticipated community needs (TOCP5). The WEP update will reposition the Plan through revision of program goals and will include:

- Evaluate water efficiency measures and identify industry best practices to ensure applicability, feasibility, and cost benefit;
- Collaboration with water and wastewater divisions to align master plan targets;
- Satisfy requirements of the Ministry of the Environment's *Water Opportunity's Act*, and,
- Alignment with short term (5 year) and long term (10 year) capital budget planning.

A draft Plan will be brought forward to Council for consideration early in 2012. At that time, Regional staff will also report on the full evaluation and financial implications of the updated Plan. The finished product will be an updated Plan that is relevant to the Region of Peel today, recommends water efficiency measures, and showcases the Region as an environmentally responsible corporate steward.

CONCLUSION

The Region's WEP was developed and implemented in an effort to provide sufficient capacity to accommodate further growth projects to the year 2015. To date, measures implemented under the Water Efficiency Plan have contributed to significant water savings. These savings are expected to grow as the WEP is updated and additional measures are implemented. The updated WEP will also help position the Region to successfully meet upcoming requirements under the Ontario *Water Opportunities Act*.

PW-A1-7-

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