

TORONTO

Water



Water Conservation and Incentives - Eco-Business Breakfast for Partners in Project Green

March 24, 2011

City of Toronto's Water Efficiency Program



Toronto Water

Mission Statement:

To provide quality water services through supplying drinking water and treatment of wastewater and stormwater to residents, businesses and visitors in order to protect public health, safety and property in an environmentally and a fiscally responsible manner.

Guiding Principles:

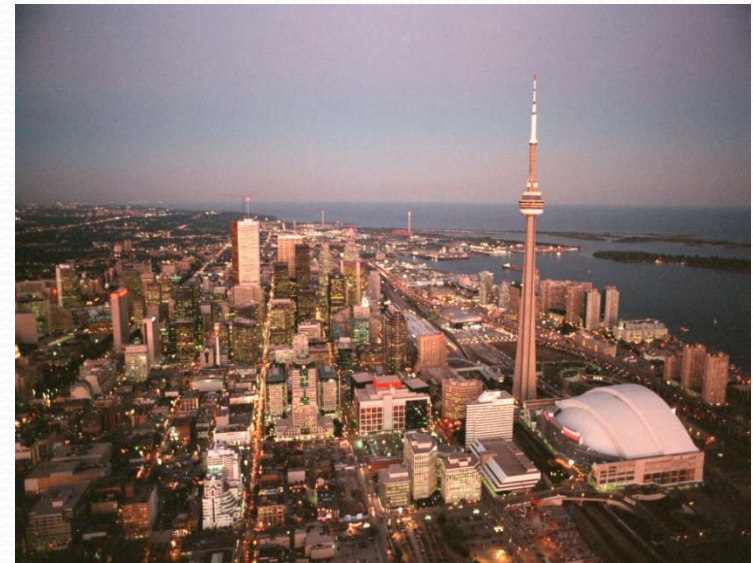
- Sustainability- Adhere to sound fiscal policies and meet financial commitments;
- Excellence-Strive to be the best in a cost-effective and environmentally responsible manner;
- Infrastructure- Provide the desired level of system reliability to achieve our customers' expectations;
- Service –Continuously improve our levels of customer service to enhance our customers experience.



Services for Toronto Residents and Businesses in 2010

Annual Water & Wastewater Services for 2.6 million residents and businesses in Toronto:

- Treat & supply 493 billion litres of water
- Collect & treat 438 billion litres of wastewater
- Replace 7,000 lead services
- Repair 10,000 blocked drains
- Clean over 122,500 catch basins
- Repair approximately 1,500 broken watermains
- Delivered by 1,500 full-time employees





CI Capacity Buyback Program – Program Overview

- Promote water efficiency in Commercial and Institutional Sector (CI)
- Financial incentives for existing CI customers to permanently reduce their water use by changing their equipment or processes.
- Incentive is set at \$0.30 per litre per day for reductions affecting both the water and sewer system.



HELPING COMMERCIAL AND INSTITUTIONAL ORGANIZATIONS IN TORONTO SAVE WATER AND MONEY

The City of Toronto's Capacity Buy Back program encourages and rewards commercial and institutional organizations that reduce water use.

By implementing permanent process or equipment changes that save water, commercial and institutional organizations could be eligible for a cash rebate.

This program allows the City to buy back water capacity that has been freed up by participants who have reduced water use in their operations.

THE PROGRAM:

- Helps your organization identify ways to reduce water use.
- Offers a one-time cash rebate of up to 30 cents per litre of water saved per average day.
- Helps participants save money over the long term with reduced water bills.

HOW IT WORKS:

Step 1: Let us know you are interested
Contact the City by email at waterrebates@toronto.ca (or call 416-392-7000) to express your interest in learning more about or participating in the Capacity Buy Back program.

Step 2: Eligibility and options
You will be contacted to discuss your eligibility and options. If you meet the criteria, we'll arrange for a water audit at your organization by a professional engineer.

Step 3: The audit and report
We will work with you to complete a thorough walkthrough and review of your organization. Based on this visit, an engineer will develop a detailed water audit report that will include a list of eligible process or equipment changes your organization can make and estimate the savings you can expect.

Step 4: Implementation
Review the report and execute some or all of the water saving recommendations.

If you need support reviewing the report or discussing the recommendations with others in your organization, we're happy to help. We can come in for small meetings or to present to larger groups.

Step 5: Verification
Once you have implemented some or all of your water efficiency measures, call us and we'll come in to verify your savings. If you don't implement all of your recommendations at once, give us a call after each implementation.

Step 6: The rebate
After each verification we'll present your organization with a cheque for up to 30 cents per litre of water saved per average day.



CI Capacity Buyback Program – Program Overview

Step 1: Comprehensive Indoor Water Audit

- *Detailed engineering analysis to calculate water savings opportunities and payback periods*

Step 2: Implementation

- *Customer implements water projects*

Step 3: Savings Verification

- *Actual water savings verified after installation of equipment and associated process change completed*

Step 4: Incentive Payment

- *Incentive of \$0.30/L of Verified water savings from equipment or process changes.*



CI WaterSaver Program - Results

To Date:

- 94 applicants
- Participants saved \$7.82 million
- Water Savings 10.44 ML/d
- Paid out \$2.8 million in incentives





CI Capacity Buyback Program – Lesson Learned

- Implementation of projects takes approximately 2 years
- Utilize a variety of marketing tools, including championing successes
- Benefits to Toronto Water:
 - **Water and Energy savings (1.15 kWh/m³ water saved)**
- Benefits to Customers:
 - **decreased maintenance costs, increased worker satisfaction**



Industrial Water Rate Initiative – What is it?

Effective March 1, 2011, Toronto City Council approved a 10.8% general water rate increase for all water consumers

- **General Water Rate:** Applied to all water consumption, including the first 6,000 m³ of industrial consumption
 - \$2.2842/m³
- **Industrial Water Rate:** Applied to water consumption over 6,000 m³ for those businesses classified under the Industrial Tax Class
 - \$1.5989/m³

The Industrial Water Rate supports the growth of existing businesses using water for processing purposes, and encourages water conservation amongst the City's industrial water users.



Industrial Water Rate Initiative

Why is the industrial water rate beneficial to Toronto industries?

- Helps protect against increasing water rates
- Helps fund efficiency improvements
- May help decrease energy costs (often saving water means saving hot water)
- Encourages efficiency projects that generate local revenue



Industrial Water Rate Initiative – Eligibility

Conditions of eligibility:

- Consume more than 6,000 m³ of water annually
- Be classed as an “industrial” tax classification
- Be in compliance with Sewers By-law
- Submit a water conservation plan
- Submit an annual progress report by July 1st each year



Questions ?

Kimberly Wright-Caraballo
Water Consultant, Service
Programs

Toronto Water
City of Toronto

416-338-5476

kwright@toronto.ca

City of Toronto

Sewer Surcharge Rebate Program

Speaker: Cora Matthews
Engineer, Environmental Monitoring & Protection
416-392-2383
www.toronto.ca/water
Toronto Water
March 24, 2011

Sewer Surcharge Rebate Program

Program Details:

- Industrial Water Customers can apply for rebate on the sewer surcharge
- The rebate only applies to the portion of the water not discharged to the sanitary sewer

NOTE: Commercial Customers can apply with Service Programs Unit

Sewer Surcharge Rebate Program

Application Procedure

STEP 1:

- Industrial customers/property owners must send a letter to Toronto Water stating they wish to apply for Sewer Surcharge Rebate (include: water account number and client number)

Sewer Surcharge Rebate Program

Application Procedure

STEP 2:

- City will send the applicant a package that will:
 - 1) Acknowledge receipt of application letter
 - 2) Provide copy of bylaw (Toronto Municipal Code Chapter 849 Water and Sewage Services and Utility Bill)

Sewer Surcharge Rebate Program

Application Procedure

STEP 2 CONTINUED:

- City will send the applicant a package that will:
 - 3) Provide a copy of Sanitary Sewer Flow Differential Guidelines and Definitions
 - 4) Provide a copy of Sanitary Sewer Flow Differential Summary applicant will be required to submit
 - 5) Provide a copy of Cooling Tower Evaporation Meter Log Sheet

Sanitary Sewer Flow Differential Summary

		Sanitary Sewer Flow Differential Summary	
Building Owner: _____ Building Address: _____ Mailing Address: _____ Contact Name & Title: _____ Telephone Number: _____ e-mail Address: _____ Annual Sanitary Study Period: _____		Fax Number: _____ From: _____ To: _____ Client No: _____ Meter Serial No: _____	
1. Total Annual Water Sources		Annual Volume (m³)	
Municipal System (Purchased Water) _____ Private Wells/Reservoirs _____ Rain/Storm Water _____ Lakes/Streams _____ Foundation Drainage _____ Other (Specify) _____		_____ _____ _____ _____ _____ Total Inflow = _____	
2. Distribution (To Non-Sanitary System Components)		Annual Volume (m³)	
Products _____ Process _____ Recreational _____ Transportation _____ On-Site Treatment _____ Other (Specify) _____		_____ _____ _____ _____ _____ Total Non-Sanitary Outflow = _____	
3. Sanitary Contribution		Annual Volume (m³)	
Contribution = Total Inflow (Box 1) - Total Non-Sanitary Outflow (Box 2) =		_____	
4. Percentage Sanitary Contribution of Purchased Water		Annual Volume (m³)	
PER CENT = $\frac{\text{Sanitary Contribution (Box 3)}}{\text{Purchased Water (Box 1)}} \times 100 =$		_____	
5. Note To qualify for a rebate, applicants must meet the following criteria: - for consumers with total annual water consumption (Box 1) <= 1500 m ³ Sanitary Contribution (Box 4) must be <= 80% - for consumers with total annual water consumption (Box 1) > 1500 m ³ and <= 15,000 m ³ Sanitary Contribution (Box 4) must be <= 65% - for consumers with total annual water consumption (Box 1) > 15,000 m ³ and <= 1,500,000 m ³ Sanitary Contribution (Box 4) must be <= 60% - for consumers with total annual water consumption (Box 1) > 1,500,000 m ³ Sanitary Contribution (Box 4) must be <= 95%			
6. Percentage of Water that is Not Discharged to Sanitary Sewer System PER CENT = $\frac{\text{Total Non-Sanitary Outflow (Box 2)}}{\text{Total Inflow (Box 1)}} \times 100 =$			
7. Professional Engineer Certification STUDY UNDERTAKEN BY (Print Engineer's Name & Phone No.): _____ Name of Company: _____ Engineer's Address: _____ THE ABOVE IS CERTIFIED AS BEING TRUE ANALYSIS OF THE WATER BALANCE OF THE ABOVE COMPANY			
Signature _____		Date _____	Professional Engineer (Stamp) _____

The personal information on this form is collected under the authority of the City of Toronto Act, 1997, Municipal Act, 2001, and Chapter 549 of the Municipal Code. The information is used for the application by consumers for this sewer surcharge rebate. Questions about this collection can be directed to Core Matthews, Engineer, Environmental Monitoring & Protection - Operational Support, Toronto Water, 300 Deane Avenue, Toronto M9N 1S5 or at phone number (416) 392-2385.

http://www.toronto.ca/water/protecting_quality/pollution_prevention/rebate.htm

Sewer Surcharge Rebate Program Application Procedure

STEP 3:

- Applicant has 9 months from receipt of original letter of application to submit the following:
 - 1) A detailed engineering report that can be prepared in any format but provides the following details:
 - Describes water consuming processes and provides a water balance for most recent 12 month period
 - Identifies total amount of water purchased from City as determined from City water billing meter

Sewer Surcharge Rebate Program Application Procedure

STEP 3 CONTINUED:

- Applicant has 9 months from receipt of original letter of application to submit the following:
 - 2) A Sanitary Sewer Flow Differential Summary
 - 3) Cooling Tower Evaporation Meter Log Sheet if required

NOTE: A Professional Engineer recognized by Professional Engineers of Ontario must certify the report as correct and complete

Sewer Surcharge Rebate Program

Application Procedure

STEP 4:

- If application is approved City will notify applicant in writing that the application is approved
- The rebate will be applied retroactive to the date the original application letter is received by the City

Sewer Surcharge Rebate Program

Application Procedure

STEP 4 CONTINUED:

- In order to continue to receive the rebate each year an updated engineering report showing an annual verification of facility's water consumption and sewer discharge certified by a Professional Engineer must be submitted by **February 1st of every calendar year**

Sewer Surcharge Rebate Program

About the Rebate

- The detailed analysis submitted by the applicant will determine the percentage of water that is not returned to the City's sanitary sewer system
- The rebate amount will be equal to the calculated percentage multiplied by the water consumption (m³) on each water bill, multiplied by the rebate rate as determined by City Council from time to time
- The rebate amount is paid in the form of credit on the applicant's regular water bill

Sewer Surcharge Rebate Program

About the Rebate

No Rebate is allowed for:

- Cooling water discharged to the storm sewer**
- Water used or consumed outdoors or off site of the consumer's premises**
- Any consumer who is in arrears with regard to payments for water rates or sewer surcharges is not entitled to the rebate**

Sewer Surcharge Rebate Program

For Additional Information:

Please refer to Toronto Municipal Code
Chapter 849 Article 1-Rebates

http://www.toronto.ca/water/protecting_quality/pollution_prevention/pdf/bylaw_1184_849.pdf

Sewer Surcharge Rebate Program

For industrial applications contact:

Cora Matthews

Environmental Monitoring & Protection

30 Dee Ave.

Toronto, ON

M9N 1S9

(416-392-2383)

For commercial applications contact:

Service Programs Unit

(416) 392-7000

Peel's ICI Water Programs

Prepared for:

Partners In Project Green Water Conservation
Breakfast Session

March 24th, 2011

Bryan Nichol
Program Support Analyst
Operations Support

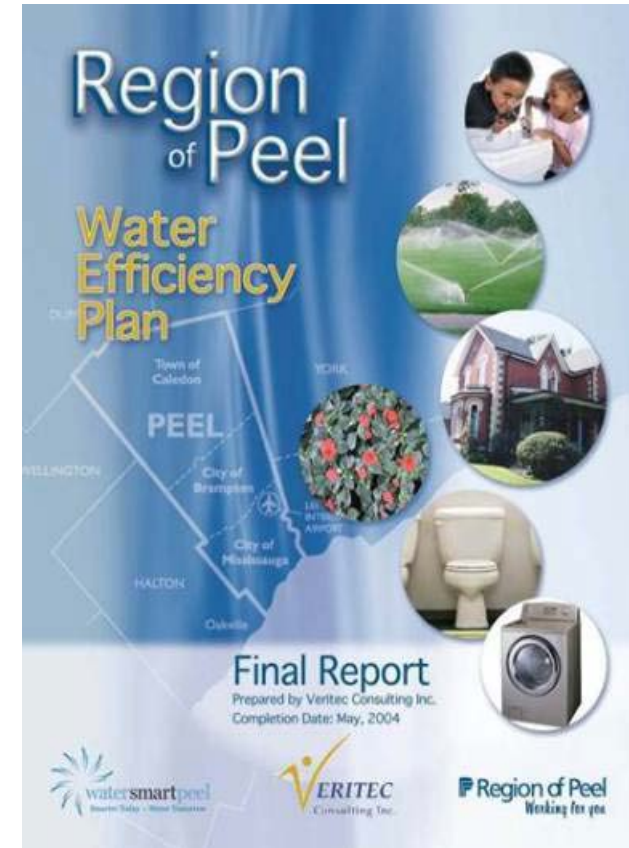
- Background
- Water Efficiency Plan
- ICI Sector in Peel
- ICI Audit Programs
- Successes
- Challenges



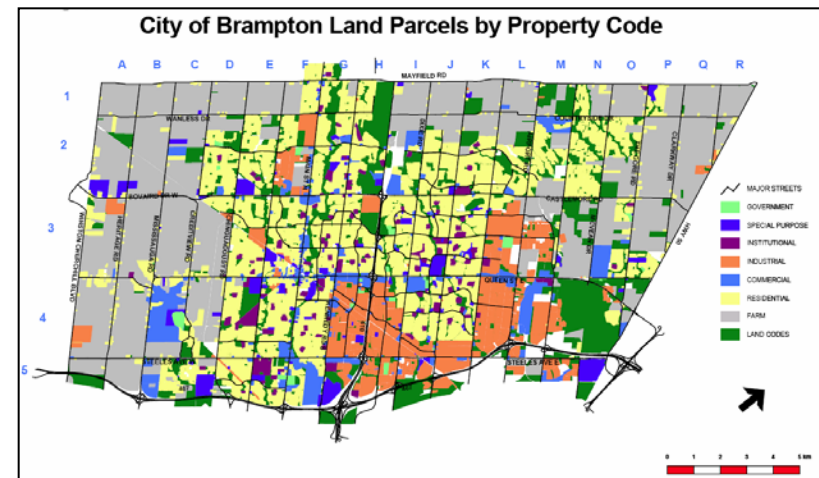
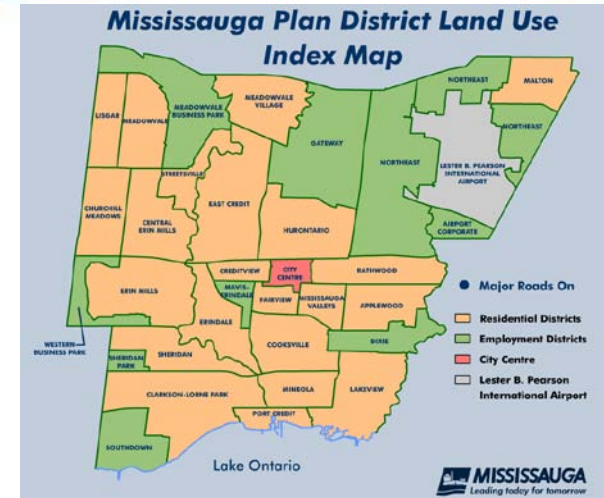
- Peel services the 2nd largest population in Ontario
- Population projected to increase by 23% by 2015 (230,000)
- AADD and Peak Day demand are projected to increase by 18-20% by 2015

Water Efficiency Plan

- September 2006, Regional Council approved the Region of Peel's Water Efficiency Plan (WEP)
- Objective: reduce the average annual day demands and peak day water demand by up to 10 % by 2015
- The WEP outlines initiatives specific to the ICI sector. They include;
 - Indoor Water Audits
 - Outdoor Water AuditsAnd also
 - Toilet Replacement
 - Pre-Rinse Spray Valve Replacement



- ICI sector consumption: 38,322 ML (31%)
- Number of ICI accounts: 13,744 (5%)
- Major Industries:
 - Advanced Manufacturing
 - Transportation & Warehousing
 - Food & Beverage
 - Retail & Wholesale Trade



Objectives

- Reduce Peel's PDD and AADD by 8.4 ML/day by 2015
- Encourage environmental stewardship by partnering with businesses who embrace water efficiency and source protection
- Demonstrate Peel's leadership in municipal conservation efforts

Benefits to Businesses

- Receive no cost audit & report
- Receive incentive/rebate to help with capital expense
- Reduce water consumption and lower monthly water bill
- Reduce gas consumption and lower monthly gas bill (if reducing heated water)
- Promote environmental focus to customers

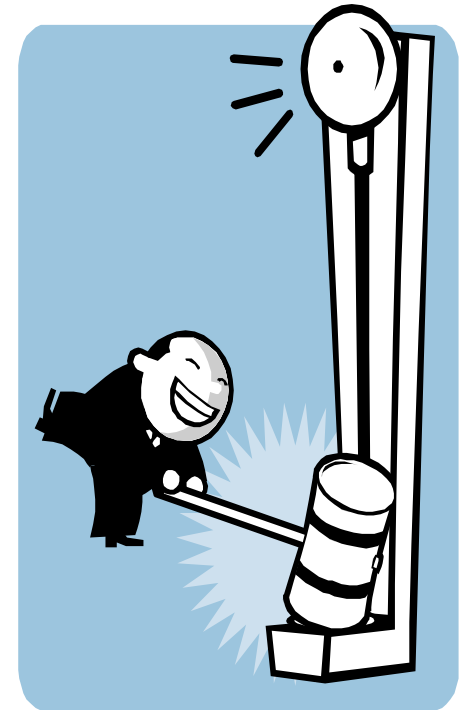
- Pursuing high water users based on industry/sector, hotels/motels, restaurants and institutions
- Goal: water savings of 3.1 ML/d
- Incentive based on the lesser of \$0.20-\$0.25/L/d avg water saved or 50% of the cost of process change to a max of \$250,000
- Consultant hired for site visits, audits, flow monitoring, report writing, research, etc



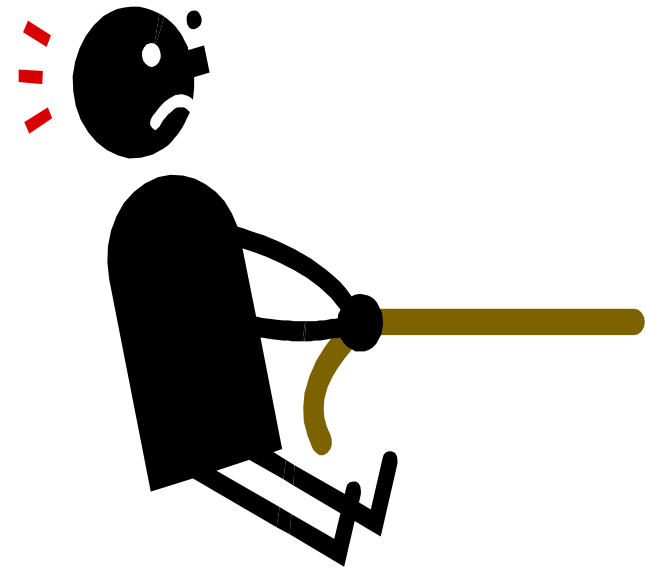
- Pursuing high summer water users with timer-based irrigation systems
- Goal: water savings of 2.5 ML/d
- Incentive based on completion of field improvements & installation of a smart/central controller
- Two consultants hired (one for audits, report writing; the other for flow monitoring, data analysis)



- 20 indoor water audits for a water savings of 2,400,000 L/day (after 4 years)
- 6 outdoor water audits for a water savings of 181,000 L/summer day (after 1 year)
- 1122 valves replaced for a water savings of 337,000 L/day (after 5 years)
- 1303 toilets replaced for a water savings of 291,000 L/day (after 5 years)
- \$496,000 saved in W&WW costs for pumping, distribution, and treatment



- Advertising to ICI sector
- Indoor Water Audits
 - Reach businesses before efficiencies are made
 - Length of process for one consultant
 - High water users usually most efficient
- Outdoor Water Audits
 - Process overlaps 2 summers
 - Differentiating b/w summer water uses
 - Obtaining accurate water savings (due to weather)



Thank you

Bryan Nichol
Program Support Analyst, Operations Support
Public Works
905-791-7800, x 3347
Bryan.Nichol@peelregion.ca

Water Use Management

PPG Eco-Business
Breakfast Session
March 24 2011



Status Quo – Myths of Helplessness

◆ Water is Cheap

- Rates increasing 7-10% per year
- Over strength costs “overlooked”
- Mentality of avoiding municipal contact

◆ Usage Impact to Plant is Minimal

- Water is a “free conveyor”
- Water is free cooling
- Water leaks don’t add up

◆ Little Can be Done

- Business practices don’t consider costs
- Water conservation is “down the list”

Water is Cheap

◆ Raw Water Supply

- Prices vary \$0.44 NF to \$1.28 SK / m³
- Average across company @ \$1.25/M³
- TO \$1.33/m³ – Peel \$0.74/m³
- No bills for PQ

◆ Raw Sewer Discharge – typically not metered

- Prices vary \$0.38 NS to \$1.95 MB / m³
- Average across company @ \$1.15/m³
- TO \$1.30/m³ – Peel \$0.66/m³
- Sewer discharge assumed to be 100% of incoming
- Sewer discharge subject to bylaws & penalties
- Diversion savings not always pursued

Usage Impact Minimal

- ◆ Water is Low Cost Conveyor
 - Avoids labor at expense of water use and sewer over strength discharge
 - Buries the cost of water, in “practices”
- ◆ Once Through Cooling is “cheaper”
 - Avoids capital of cooling equipment
 - Artificially increases usage rates
- ◆ Blow down, tower level controls etc
 - Expense of proper water management controls not seen as cost effective
- ◆ All above contribute to excessive use and cost

Little Can Be Done – Myths Revealed

◆ Financial Incentives Exist

- ◆ TO Industrial Water rate
- ◆ Sewer Use Differential
- ◆ Over Strength Agreements

◆ Leverage to Succeed

- Cost savings to promote
 - ◆ Engineering standards changes
 - ◆ Operation practices changes
 - ◆ Heighten supplier awareness for chemical selections

Ready Bake Mississauga Over Strength Effluent – Water Conveyor

◆ Actions

- Compile water bills and understand usage pattern
- Compare to in plant usage
- Model the water balance – what goes where and why
 - ◆ Reduce BOD/TSS down the sewer through the water conveyor
 - ◆ Dry scraping over wet washing
 - ◆ Proper dust collection pans
- Review practices for sustainability
- Rinse and Repeat – never ending cycle of improvements

◆ Result to Plant

- Reduced surcharges – reduced contamination
- Reduced water use – reduced volume
- Ability to identify anomalies
- Surcharges cut 40%
- Volume cut 24%
- \$25,000 saved annually
- FORCE FOR CHANGE

Ready Bake Mississauga Differential Report – Where Did It Go

◆ Actions

- Compile water bills and understand usage pattern
- Compare to in plant usage
- Model the water balance – what goes where and why
 - ◆ Use in product
 - ◆ Cooling tower evaporation
 - ◆ Off site disposals through food waste recyclers
- Submit to region for appeal

◆ Result to Plant

- Reduced surcharges – reduced level of volume
- Better understanding of operations and anomalies
- Reduced amount of money levied on sewer use
- 62% of sewer flow accounted as non-returned
- FORCE FOR CHANGE

Eastern Avenue & North York Plants Industrial Water Use – Stay in Control

◆ Actions

- Comply with Bylaw and Surcharge Agreements
- Water Audit plant to identify opportunities
- Implement Water Use Policy and Practices
- Model the water balance – what goes where and why
- Supply Plan to City for implementation of audit opportunities

◆ Result to Plant

- Purchase savings on water use over 6000m³
 - ◆ Reap cost savings for better pay back
 - Boiler blow down controls
 - Cooling tower tank level controls
 - Low volume wash nozzles
 - Process water tank controls
- 50% reduction in water usage over 2006 base year
- \$34,000 saved annually
- FORCE FOR CHANGE

Maplehurst – Engineering Practice Volume Reduction - Through Cooling

◆ Cooling Pie Filling Kettles

- Identify volume used for cooling
- Compile true cost of water
 - ◆ Supply, sewer and surcharge impact
- Cost refrigerated recirculation loop
 - ◆ Pumps, coolant, chiller etc
- Compare ROI ongoing
 - ◆ ROI is NOT only capital !

◆ Result to Plant

- 38% reduction in water usage over 2006 base year
- \$28,000 saved annually
- FORCE FOR CHANGE Engineering Practice Changes
 - ◆ Forces engineering to look at more facets to design solutions
 - ◆ Other examples, cooling towers, CIP wash systems, Boiler control systems

Results - CSR

◆ Corporate

- Best spending practices
- Rethinking standards
- Planning easier

◆ Social

- In compliance
- In control

◆ Responsibility

- Data -> Information -> Decisions
- Actions become well informed