

Priorities Committee Agenda

to be held on
Wednesday, February 12th, 2003
at
7:00 p.m.

**Deputy Mayor
Dave Courtemanche
Chair**



**Community
Viability
Committee**

**Councillor
Gerry McIntaggart
Vice-Chair**



**Public &
Intergovernmental
Affairs Committee**



**Finance & Program
Accountability
Committee**

Priorities Committee AGENDA

ELEVENTH MEETING OF THE PRIORITIES COMMITTEE
TO BE HELD ON WEDNESDAY, 2003-02-12
AT 7:00 P.M. IN THE COUNCIL CHAMBER,
TOM DAVIES SQUARE, 200 BRADY STREET, SUDBURY

(PLEASE ENSURE CELL PHONES AND PAGERS ARE TURNED OFF)

The Council Chamber of Tom Davies Square is Wheel Chair accessible. Please speak to the City Clerk prior to the meeting if you require a hearing amplification device. Persons requiring assistance are requested to contact the City Clerk's Office at least 24 hours in advance of the meeting if special arrangements are required. Please call (705) 671-2489, extension 2475. Telecommunications Device for the Deaf (TTY) (705) 688-3919. Copies of Agendas can be viewed on the City's web site at www.city.greatersudbury.on.ca.

DEPUTY MAYOR DAVE COURTEMANCHE, IN THE CHAIR

- i. Declarations of Pecuniary Interest

ANY ITEMS NOT DEALT WITH BY THE ADJOURNMENT HOUR OF 10:00 P.M. WILL BE CARRIED OVER TO THE WEDNESDAY, FEBRUARY 19TH, 2003 MEETING OF THE PRIORITIES COMMITTEE.

PRESENTATIONS/DELEGATIONS

1. Pavement Management System:

- Mr. Robert R. Piane, P.Eng., Vice President, Deighton Associates Limited
{OVERHEAD PRESENTATION}

1-11

RECOMMENDATION:

THAT the City of Greater Sudbury adopt the Deighton Pavement Management System as the primary criteria for the development of annual capital roads programs;

AND THAT the City of Greater Sudbury's entire road network be divided into three classifications, arterial, collector and local, for purposes of establishing priorities within respective classifications.

The Report and background material was previously provided to each Member of the Committee on a compact disc. A copy of the overhead presentation is attached to the agenda.

PRESENTATIONS/DELEGATIONS (Continued)

2. Report dated 2003-02-04 from the General Manager of Health & Social Services regarding Seniors Campus Steering Committee.

(FOR INFORMATION) {OVERHEAD PRESENTATION}

12-16

- Councillor Ted Callaghan, Chair

In 1998, a Memory Assessment Working Group, a sub-committee of the Seniors Campus Steering Committee, was formed to research the development of a Memory Assessment Network as part of the continuum of care for dementia in Northeastern Ontario. A Business Case was developed in 2002 for a Memory Assessment Network, designed to respond to an identified need in Northeastern Ontario. Through the implementation of the Business Case in Spring 2003, support for individuals with dementia/Alzheimer disease will be provided through an efficient and comprehensive model of service using telemedicine services.

RECOMMENDATION:

WHEREAS there are no geriatricians residing in Northeastern Ontario;

AND WHEREAS a 41% increase in the prevalence of dementia cases in Northeastern Ontario is forecasted for 2011;

AND WHEREAS representatives from all the territorial districts in the Northeast, including Algoma, Cochrane, Manitoulin, Muskoka, Nipissing, Parry Sound, Sudbury and Timiskaming, have voiced their support for specialized geriatric services and a memory assessment service for Northeastern Ontario;

AND WHEREAS a one-year pilot implementation project for a Northeastern Ontario Dementia Assessment and Consultation Network is being undertaken by the Seniors Campus to demonstrate to funding bodies the need for this unique telemedicine service that will fill an identified gap and relieve pressures currently being experienced by service providers in the Northeast;

THEREFORE, LET IT BE RESOLVED THAT the Priorities Committee of the City of Greater Sudbury endorse the implementation of a Northeastern Ontario Dementia Assessment and Consultation Network focused on early identification, assessment and treatment planning to support individuals with dementia through the use of telemedicine.

3. Report dated 2003-02-06 from the General Manager of Public Works regarding Full Cost Recovery: Solid Waste Management.

(FOR INFORMATION) {OVERHEAD PRESENTATION}

17-162

- C. Mathieu, Manager of Waste Management

MANAGERS' REPORTS

4. Report dated 2003-01-31 from the General Manager of Corporate Services regarding Bill 210 - Electricity Pricing, Conservation and Supply. **163-212**

Requires passing of a Resolution as per Section 159.1 of the Act requiring a declaration as to the status of the Utility as "for profit" or "not for profit".

RECOMMENDATION:

WHEREAS Section 142(1) of the Electricity Act, 1998 required municipalities to convert their existing electricity businesses into corporations incorporated under the Business Corporations Act within two (2) years of its entitlement;

AND WHEREAS on December 9th, 2002, Bill 210 - The Electricity Pricing, Conservation and supply Act, 2002 received Third Reading and royal Assent;

AND WHEREAS Bill 210 amends the Electricity Act, 1998 by adding Section 159.1 to require a municipality that beneficially owns voting securities in a corporation incorporated under Section 142 of the Electricity Act, 1998, to pass a resolution affirming that the Corporation should continue to be incorporated under the Business Corporations Act within ninety (90) days of Bill 210 receiving Royal Assent;

AND WHEREAS Bill 210 also provides several consequences for failure to pass the required resolution and submit the necessary Certificate certifying the passing of the resolution, it is hereby recommended that the Corporation of Greater Sudbury Hydro Inc./Hydro Du Grand Sudbury Inc. (GSHI) should continue to be incorporated as a Business Corporations Act company as provided in Sub-section 142(1) of the Electricity Act, 1998;

AND THAT the City clerk be requested to prepare and file with the Minister of Energy the necessary certificate required under Section 159.1 of the Act;

AND THAT the Mayor and City Clerk be authorized to execute same.

CORRESPONDENCE - INFORMATION ONLY

{NONE}

ADJOURNMENT (10:00 P.M.) (RESOLUTION PREPARED)

2003-02-07

DEPUTY MAYOR DAVE COURTEMANCHE,
CHAIR

GLORIA WARD
COUNCIL SECRETARY

Presentations and Delegations

OVERHEAD PRESENTATION

“PAVEMENT MANAGEMENT SYSTEM”

Presented By: MR. ROBERT PIANE, P.ENG.,
VICE PRESIDENT,
DEIGHTON ASSOCIATED LIMITED



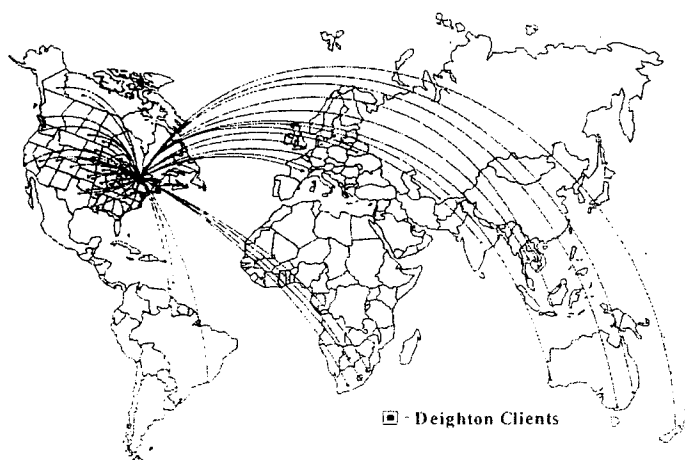
City of Greater Sudbury Pavement Management System

October 23, 2002

deighton

Information tools for managing resources

Deighton Clients



deighton

Information tools for managing resources

Greater Grand Sudbury

Local Deighton Clients



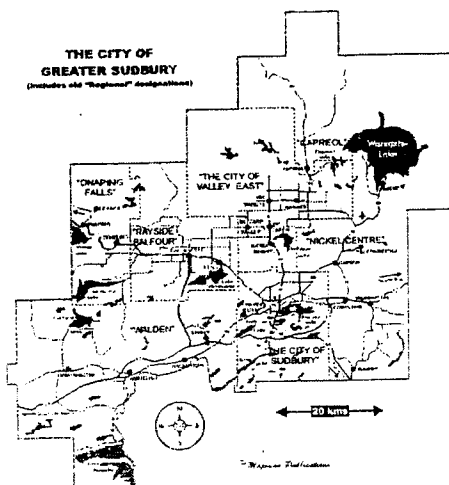
- City of Greater Sudbury
- City of Brampton
- City of St. Catharines
- Region of Peel
- City of Oshawa
- Region of York
- Region of Durham
- Municipality of Clarington
- City of Cornwall
- Region of Niagara
- Town of Whitby

deighton

Information tools for managing resources

Sudbury Greater Local

Project Scope



Former Agency Name	Planning Classification (Centreline-km)				Total
	Local	Collector	Arterial	Other	
Kapreel	18.75	0.12	-	13.90	32.76
City of Sudbury	260.98	68.04	1.19	38.20	368.41
Nickel Centre	95.43	16.26	-	17.85	129.54
Chapung Falls	42.82	10.87	-	1.60	55.29
Pasadena Suburban	165.30	21.36	-	23.44	310.10
Region of Sudbury	5.53	92.98	242.21	1.75	342.47
Unincorporated	6.50	-	-	86.59	93.09
Valley East	1.54	36.83	-	31.50	169.87
Wablen	124.14	19.34	-	111.77	255.25
Total	797.11	359.53	263.40	327.19	1657.23

deighton

Information tools for managing resources

Sudbury Greater Local

PMS Input Data

Inventory	Condition
Road Name	Longitudinal Wheelpath
From Description	Fatigue Cracking
To Description	Longitudinal Cracking
Length	Transverse Cracking
Width	Block Cracking
Pavement Type	Roughness
Planning Class	Rut Depth
Traffic	
Jurisdiction	

deighton

Information tools for transportation resources

 **Sudbury**

Analysis Consideration

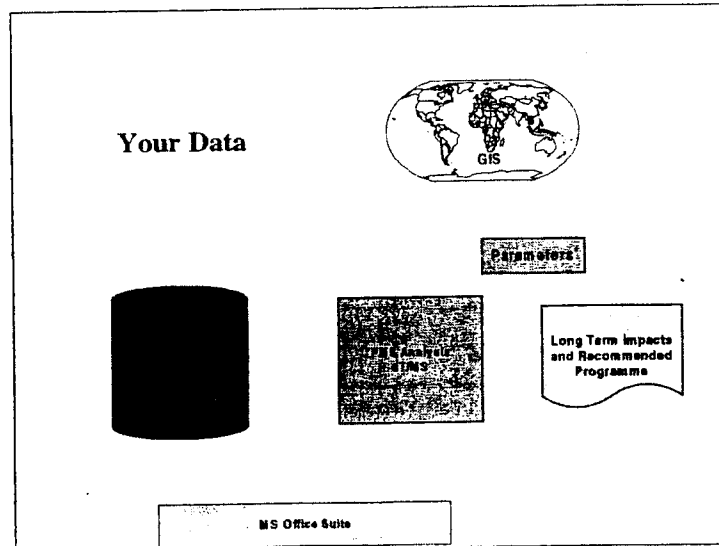
- 40% of Infrastructure Improvement Budget allocated to PMS analysis
- Not considered in the analysis
 - 5th lane additions
 - Structure work
 - Storm/Sanitary improvements
 - Capacity widening
 - New links

deighton

Information tools for transportation resources

 **Sudbury**

dROAD / dTIMS Relationship



deighton

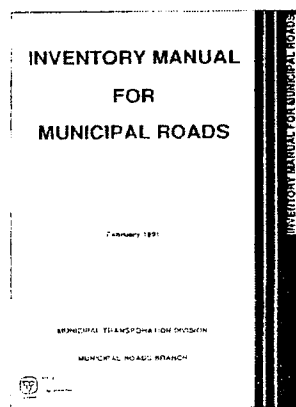
information technology management resources

Sudbury

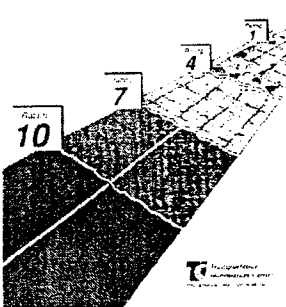
Greater Sudbury

Parameters

1. Inventory database fields



Asphalt-PASER Manual



deighton

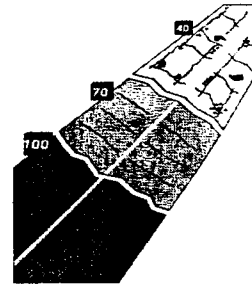
information technology management resources

Sudbury

Greater Sudbury

Parameters

1. Inventory database fields
2. Performance Indexes



Pavement Distress		dTIMS Index	Code	Measurement Units
Longitudinal Wheelpath Cracking	↘	Structural Cracking	STCK	Metres
Fatigue Cracking				Square metres
Longitudinal Cracking		Non-Structural Cracking	NSTC	Metres
Transverse Cracking	↘			Metres
Block Cracking				Square metres
IRI		Roughness	RUFF	mm/m
Rut Depth		Rutting	RUT	Millimetres
		Pavement Condition Index	PCI	

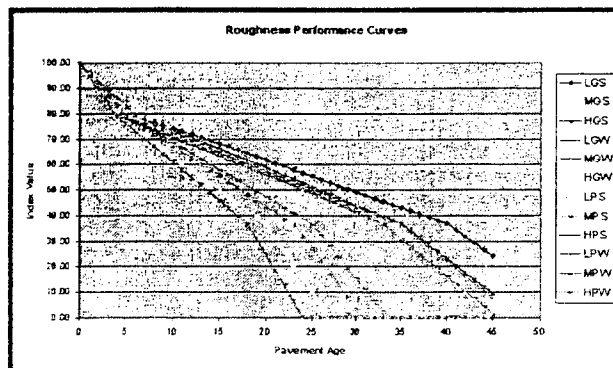
deighton

Information tools for managing resources

Sudbury Greater Sudbury

Parameters

1. Inventory database fields
2. Performance Indexes
3. Performance Curves



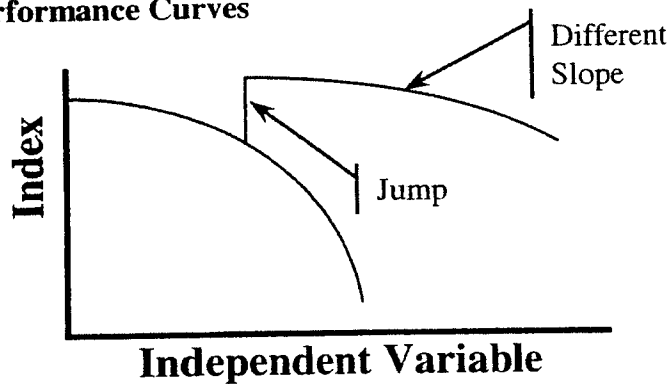
deighton

Information tools for managing resources

Sudbury Greater Sudbury

Parameters

1. Inventory database fields
2. Performance Indexes
3. Performance Curves
4. Treatments (costs, impacts, triggers)

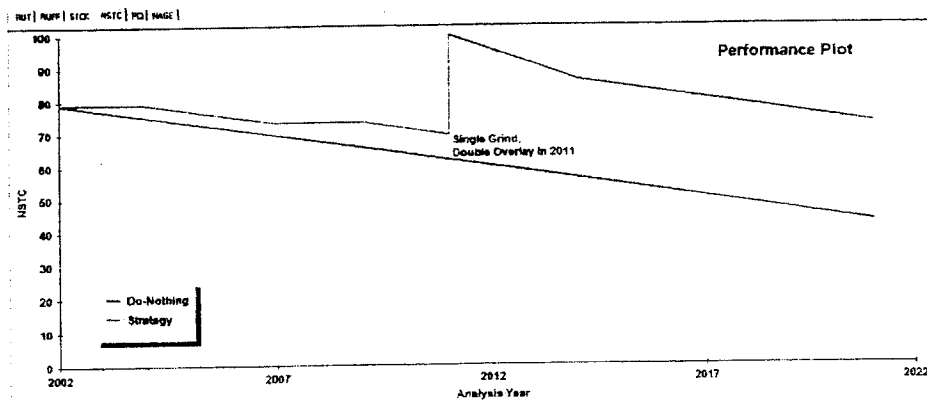


deighton

information tools for managing resources

Sudbury County Council

Performance Plot



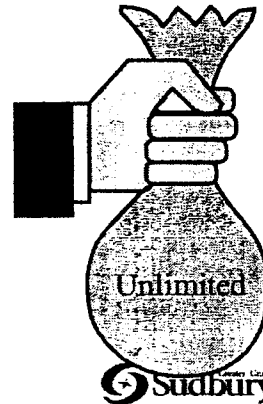
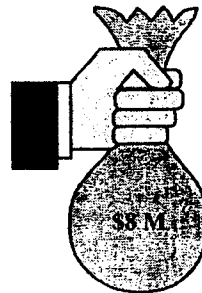
Section: 00180-000000
Road: A630 St (NC)
From: 0.18 km East of Caruso St
To: Edward Ave

deighton

information tools for managing resources

Sudbury County Council

1. Inventory database fields	4. Treatments (costs, impacts, triggers)
2. Performance Indexes	5. Budget Scenarios
3. Performance Curves	

**deighton**

Sudbury

Analysis Set: ASET_ART Programme Report by Year (Filtered) Budget Scenario: 0-Mileage

[illegible]

deighton



Sudbury Creative Council

For Example

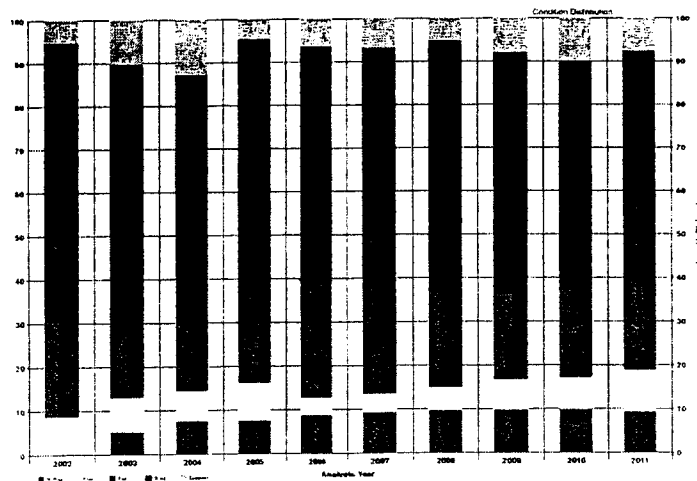
- If \$10 M was allocated to the roads budget in the PMS
- \$10 M could be applied to the entire network (L,C&A)
- Or the budget could be subdivided between Planning Classifications
 - \$7 M Arterial
 - \$2 M Collector
 - \$1 M Local
- Optimized programmes can be generated for each case

deighton

Information tools for managing resources

Sudbury Greater Council

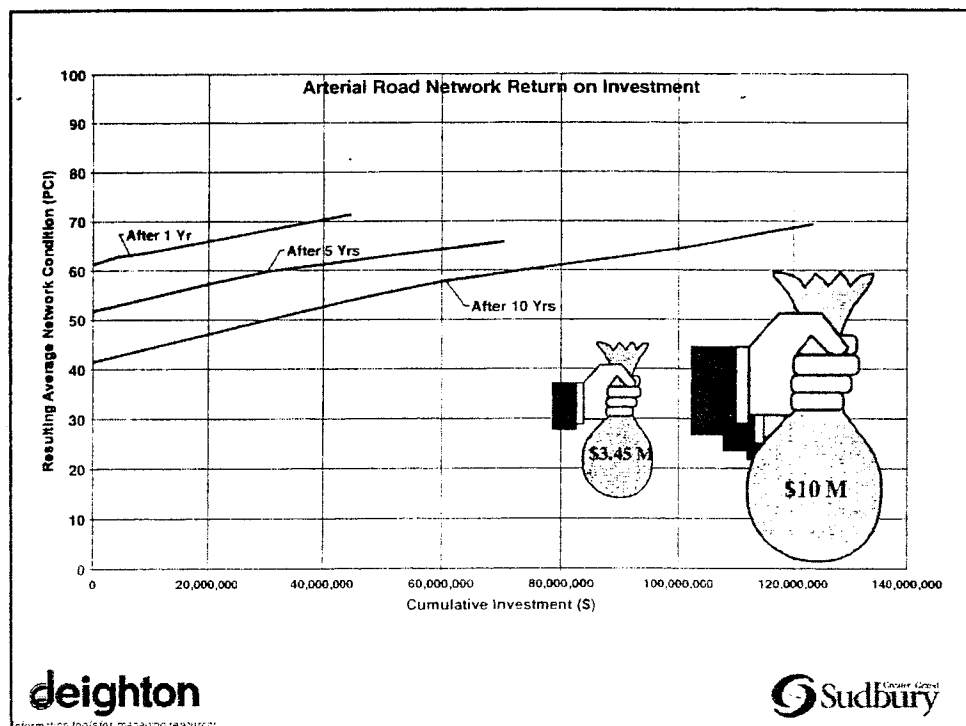
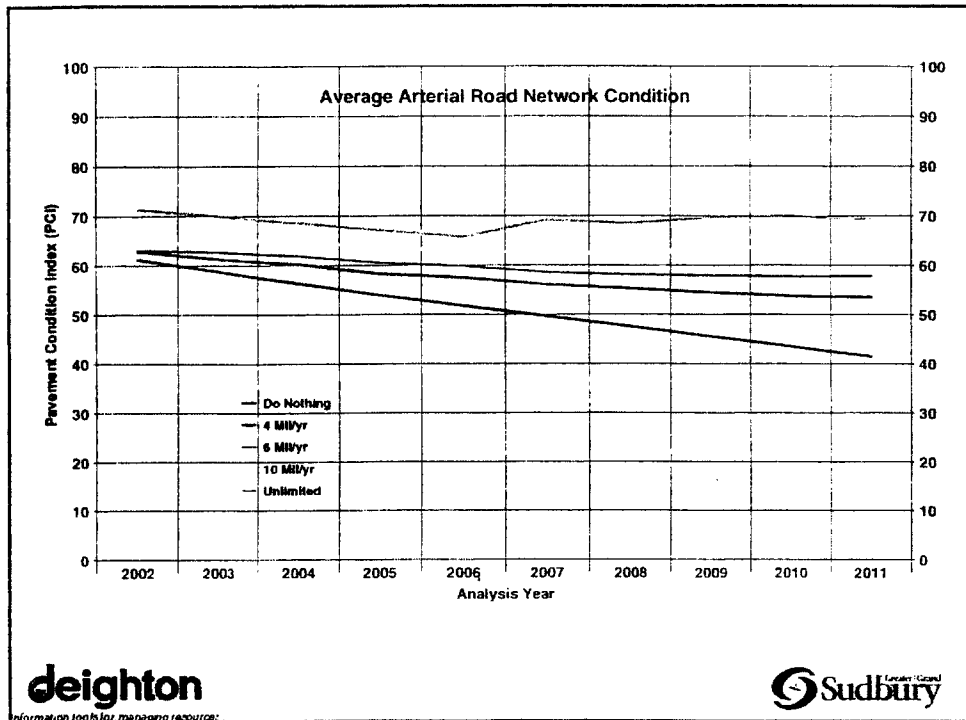
Condition Distribution



deighton

Information tools for managing resources

Sudbury Greater Council



Conclusions and Recommendations

- PMS maintenance required now that Sudbury has taken possession of the software
 - Condition data update
 - Review analysis models
 - Consider including other assets
- Upgrade to dTIMS CT

Request for Recommendation Priorities Committee



Type of Decision									
Meeting Date	February 12, 2003				Report Date	February 4, 2003			
Recommendation	☒	Yes	☐	No	Priority	☒	High	☐	Low
	Direction Only				Type of Meeting	☒	Open	☐	Closed

Report Title
Northeastern Ontario Dementia Assessment and Consultation Network

Policy Implications + Budget Impact	
☐	This report and recommendation(s) have been reviewed by the Finance Division and the funding source has been identified
Policy Implications: The Northeastern Ontario Dementia Assessment and Consultation Network pilot project will support individuals with dementia by providing an efficient and comprehensive model of service focussed on early diagnosis and treatment. Budget Impact: There is no budget impact with the approval of the noted recommendation, however, as a point of interest, approximately \$48,000 will be available for the implementation of the project. These funds were made available through the generosity of the Northeast Mental Health Centre, the Northern Ontario Heritage Fund Corporation, Pfizer and Janssen Pharmaceuticals.	
☒	Background attached

Recommendation	
Whereas there are no geriatricians residing in Northeastern Ontario; and Whereas a 41% increase in the prevalence of dementia cases in Northeastern Ontario is forecasted for 2011; and Whereas representatives from all the territorial districts in the Northeast, including Algoma, Cochrane, Manitoulin, Muskoka, Nipissing, Parry Sound, Sudbury and Timiskaming, have voiced their support for specialized geriatric services and a memory	
☒	Recommendation attached

Recommended by the General Manager
 Catherine Sandblom Acting General Manager Health and Social Services

Recommended by the C.A.O.
 Mark Mieto Chief Administrative Officer

12

Date: February 4, 2003

Report Authored By



Bernadette Walicki
Program Co-ordinator - Community Initiatives

Division Review

assessment service for Northeastern Ontario; and

Whereas a one year pilot implementation project for a Northeastern Ontario Dementia Assessment and Consultation Network is being undertaken by the Seniors Campus to demonstrate to funding bodies the need for this unique telemedicine service that will fill an identified gap and relieve pressures currently being experienced by service providers in the Northeast.

Therefore, let it be resolved that the Priorities Committee of the City of Greater Sudbury endorse the implementation of a Northeastern Ontario Dementia Assessment and Consultation Network focussed on early identification, assessment and treatment planning to support individuals with dementia through the use of telemedicine.

Background

Project History

A Seniors Campus Steering Committee, comprised of government and community partners, was created to oversee and coordinate the development a Seniors Campus for all of Northern Ontario to be located on the grounds of Pioneer Manor. The Seniors Campus will combine the expertise, resources and management of health care and education professionals to offer long-term care, supportive housing, an Alzheimer day centre, applied research and a memory assessment centre among other projects.

In order to realize the vision of a Seniors Campus, the Steering Committee formed sub-committees to focus on the development of the five services to be offered. One such sub-committee was the Memory Assessment Working Group. The Memory Assessment Working Group was formed to research the development of a memory assessment service as part of the continuum of care for dementia in Northeastern Ontario. It was their aim to ensure that memory assessment services link existing resources, augment current programs and improve access to appropriate services in a timely manner through an innovative telehealth model. The experts and professionals who constitute the Working Group include representatives from:

- Algoma, Cochrane, Manitoulin and Sudbury District Health Council
- Cambrian College
- City of Greater Sudbury
- Huntington University
- Ministry of Health and Long-term Care
- North Bay Psychiatric Hospital
- Northeast Mental Health Centre
- Northern Shores District Health Council
- Pioneer Manor

Date: February 4, 2003

- Sault Ste. Marie Group Health Centre
- St. Joseph's Health Centre
- Sudbury-Manitoulin Alzheimer Society
- Sudbury Psychogeriatric Outreach Clinic
- Timiskaming Community Care Access Centre
- Timmins and District Hospital

To synthesize the vast amounts of mental health literature related to dementia and identify best practices and emerging trends of memory assessment services, a consultant was contracted in June 2001 by the Memory Assessment Working Group to conduct a needs assessment and develop a business case. The resulting document, *Specialized Geriatric Services and the Memory Assessment Network in Northeastern Ontario*, was made possible through grants from the Ministry of Health and Long-Term Care, the Northern Ontario Heritage Fund Corporation, Pfizer and Janssen Pharmaceuticals.

In support for the development of a memory assessment service, the business case revealed that in 2001 only 16% of an estimated 6000 persons residing in the Northeast region suffering from dementia were served. Even more telling, the forecast for the number of dementia cases looks as follows:

District	Population +65 2000	Population +65 2011	Dementia Cases 2000	Dementia Cases 2011
Northeastern Ontario	90,600	108,430 (20% increase)	5,926	8,339 (41% increase)

Implementation

A twelve month pilot project to launch a memory assessment service, to be known as the Northeastern Ontario Dementia Assessment and Consultation Network, is being undertaken by the City of Greater Sudbury, in cooperation with community partners, on behalf of the Memory Assessment Working Group while permanent funding is being pursued. The purpose of the pilot project is to:

- show the commitment of our partners to develop a memory assessment service;
- immediately relieve the demand for specialized dementia services by making them available to partners across the Northeast; and
- directly identify the needed services through implementation rather than waiting for funding to determine the right mix of services.

As part of this implementation process, members of the Memory Assessment Working Group travelled to communities throughout the Northeast during the months of September and October 2002 to share the results of the business case, present plans for the interim pilot project and request letters of support for the initiative. The support from Northeastern Ontario partners has been overwhelming. The following quotes are from letters of support received by the Working Group:

"The issue is of enormous importance, especially in light of the aging of our population, and we congratulate you on your initiative." Lillian Morgenthau, Founder and President of Canada's Association for the Fifty-Plus

Date: February 4, 2003

"By using existing resources and new technologies, clients from the Cochrane District would be able to access specialized geriatric services not presently available." Joy Galloway, Executive Director Cochrane District Community Care Access Centre

"The utilization of the technology of the North Network is a logical recommendation to achieve an effective solution to the challenges in service delivery. The blending of existing local services with specialties in tertiary centres is sound practice." Esko Vainio, Chief Executive Officer Timmins and District Hospital

Since the community visits, the Memory Assessment Working Group has, with the assistance of partners:

- acquired the services of an Occupational Therapist from Pioneer Manor to function as the Clinical Manager for the implementation of the pilot project;
- secured the expertise of a Gerontology Professor from Huntington University, through a contract with Pioneer Manor, to develop an evaluation tool for the Network and research funding opportunities, including the availability of rural health research opportunities;
- received the professional assistance of a researcher contracted by the Sudbury Regional Hospital St. Joseph's site;
- posted a position for a FedNor Youth Intern Information Technology Support Technician;
- acquired the services of Dr. Trevor Bon, a geriatrician from St. Joseph's Care Group in Thunder Bay;
- received support for the initiative from the Northern Ontario Medical School Implementation Management Committee; and
- applied for funding from the Ministry of Health and Long-Term Care, in cooperation with the Northeast Mental Health Centre, for five Primary Care Nurse Practitioners to serve throughout the Northeast to work with Alzheimer Society Chapters and host facilities/ organizations in an outreach capacity to assist in the diagnosis, treatment and follow-up of persons with dementia and other geriatric issues.

With excitement, the Northeastern Ontario Dementia Assessment and Consultation Network will begin to offer services to Greater Sudbury and Manitoulin residents by the end of February, with staged implementation throughout the Northeast to include:

- Cochrane
- Muskoka/ Parry Sound
- Timiskaming
- Algoma
- North Bay/ Nipissing.

The Network will function by using telemedicine services provided by the Northern Ontario Remote Telecommunication Health Network (North Network), specializing in medical consultations and education. Standardized screening and assessment tools, referral and follow-up processes, service protocols and consultation will be provided through the Northeastern Ontario Dementia Assessment and Consultation Network, while dementia treatment, in-home support, day programming, residential alternatives, and education to community providers and caregivers will remain locally governed and operated with existing services.

Date: February 4, 2003

The Northeastern Ontario Dementia Assessment and Consultation Network will respond to an identified need in Northeastern Ontario. Through the implementation of the interim pilot project, support for individuals with dementia disease will be provided through an efficient and comprehensive model of service. Upon securing permanent funding, the Northeastern Ontario Dementia Assessment and Consultation Network will physically be located within the 20,000 square feet at Pioneer Manor dedicated to the Seniors Campus, as was the intent from the outset of the project. With limited numbers of geriatric health professionals in the Northeast, a telemedicine network will address the needs of patients, health professional, families and caregivers.

Request for Recommendation Priorities Committee



Type of Decision

Meeting Date	February 12, 2003				Report Date	February 6, 2003			
Recommendation		Yes	☒	No	Priority	☒	High		Low
	Direction Only				Type of Meeting	☒	Open		Closed

Report Title

Full Cost Recovery: Solid Waste Management

Policy Implications + Budget Impact

This report and recommendation(s) have been reviewed by the Finance Division and the funding source has been identified

Background attached

Recommendation

For information only.

Recommendation attached

Recommended by the General Manager

Don Bélisle
General Manager of Public Works

Recommended by the C.A.O.

Mark Nieto
Chief Administrative Officer

Date: February 6, 2003

Report Authored By



**Chantal Mathieu
Manager of Waste Management**

Division Review

At the Finance Committee meeting of February 5, 2003, additional information was promised to Council with regards to the Solid Waste User Fee budget option (page 60 of Reduction Options). Enclosed is a recent report commissioned by the City of Toronto and funded by the Waste Diversion Organization. The study examines the impacts of container limits and user pay in some detail.

During the Budget meeting of February 5, 2003, we mentioned that there may be an opportunity to lower this year's tax levy as a result of implementing a user pay program, even though the program would only be launched in 2004. Essentially, an amount could be taken from Reserves and applied to the levy this year, with the commitment that the 'loan' would be repaid in 2004 from the new user pay revenue stream.

At the Policy & Priorities Committee meeting of February 12, 2003, we will be making a presentation that outlines the key issues associated with a Solid Waste User Pay program.

The Waste Diversion Impacts of Bag Limits and PAYT (Pay-As-You-Throw) Systems in North America

April 2001

Submitted to:

City of Toronto
Policy & Planning, Works & Emergency Services Dept.

Funding provided by:

The Ontario Waste Diversion Organization

Submitted by:

ENVIROSRIS

161 Eglinton Avenue East, Suite 200
Toronto, Ontario M4P 1J5
Tel (416) 480-2420 Fax (416) 480-2419
www.ris.ltd.com

The Waste Diversion Impacts of Bag Limits and PAYT (Pay As You Throw) in Selected Systems in North America

Executive Summary

User pay, also referred to as Pay-As-You-Throw (PAYT), unit-based pricing, variable rate and user fee, is becoming an accepted method for financing residential waste management services and making householders more directly responsible for their waste generation and disposal habits. Bag limit programs appear less universal in their application than user pay programs.

Throughout Canada and the United States, all user pay/PAYT programs are “volume based” systems. Most user pay/PAYT communities used one of two systems, a tag system or variable standardized container system. In general, most Canadian user pay programs use the tag system, whereby residents are required to purchase tags, which they attach to some, or all of the bags/cans of garbage set out for collection. In the case of the variable standardized container system, commonly used by US cities, householders are offered different sizes of containers and pay a monthly or bi-annual fee according to the size of the container.

This study examines the impacts of bag limit program and user pay/PAYT programs on residential waste disposed and diverted over time. The communities profiled in this report represent a selection of different bag limit and user pay/PAYT programs across North America. A long list of potential case studies was developed based on characteristics of the communities that were similar to the City of Toronto (i.e. large, urban populations) or communities which could provide potentially relevant information and insights for Toronto (i.e. located in the GTA). After an initial screening process, a list of over 15 communities were surveyed. Information and data was compiled on the program evolution and the long-term impacts of the programs on curbside diversion of recyclables, leaf and yard waste, backyard composting and bulky goods (where applicable).

Bag Limit Results: Communities that establish a bag limit program at four or more bags rarely experience a noticeable reduction in waste sent to landfill or an increase in materials diverted through recycling or composting programs. Since many communities experience set out rates between 2 to 3 bags of garbage per household per week, a bag limit greater than 3 will not encourage residents to re-think their waste generation and disposal habits or to participate to a greater extent in waste diversion activities. Nor is there any reason for the resident to engage in source reduction activities.

While only a handful of communities have established bag limit programs of three bags or less, they did result in a reduction in waste sent to landfill and increased waste diversion. For some communities, the bag limit helps to make the transition to a user pay program easier for residents. With a gradual lowering of the bag limits over several years, residents can make moderate adjustments to their waste generation and disposal activities without feeling burdened.

User Pay/PAYT results: The introduction of user pay/PAYT programs does have a positive impact on residential waste generation and diversion behaviours, especially immediately following their implementation. Residents respond to the direct financial cost associated with waste generation although in the case of the Ontario user pay case studies, the behaviour change is not necessarily maintained at the original level over time.

Observations from the study are:

- User pay programs work more effectively than bag limit programs in diverting garbage from landfill and increasing recycling rates (unless the limit is set at two bags or less).
- Most Ontario based communities elect to implement a user pay program rather than adopting a low bag limit program (exceptions are Peterborough - 2 bag limit with no user pay and Northumberland County - 3 bag limit with full user pay).
- Over time, all profiled user pay/PAYT programs continued to achieve greater waste diversion from landfill and higher recycling rates than before. In some cases, however, the positive impacts plateau or taper off slightly.
- For the majority of profiled user pay/PAYT programs, the lower the number of "free" bags, the greater the increase in garbage diverted from landfill and recyclables recovered.
- All the profiled communities had in place, or introduced, comprehensive curbside recycling programs and leaf and yard waste programs at the time user pay/PAYT was implemented.
- Many of the profiled user pay/PAYT programs did not show consistent increases in the rates of diverted leaf and yard waste over time.

Findings and Implications for Toronto: The research conducted on bag limit and user pay/PAYT programs highlights several key findings is summarized below:

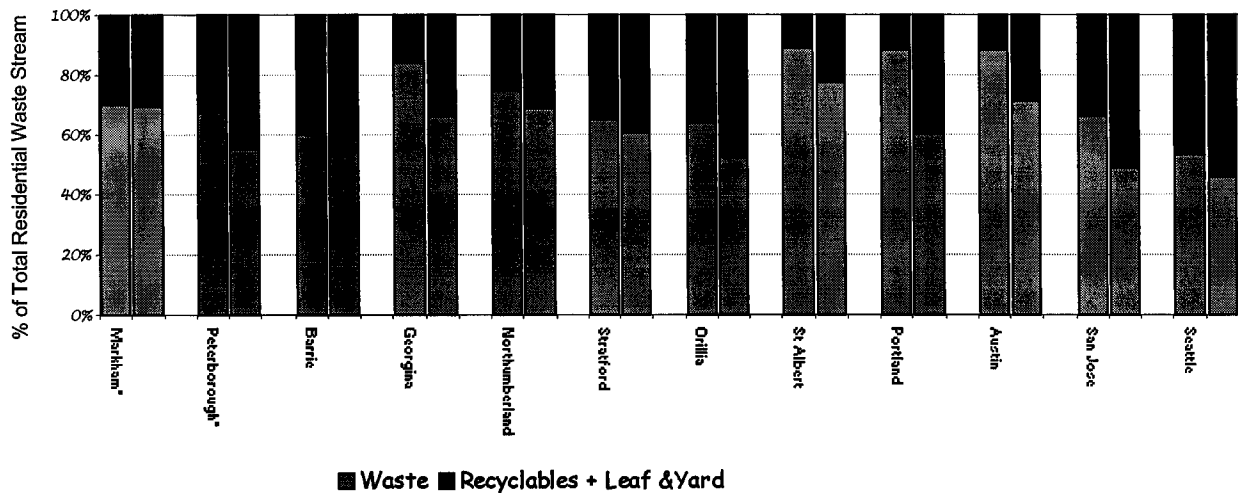
1. *Custom Design is Necessary:* There is no standardized approach to the design and implementation of a user pay program. The level of education and promotional needs, fee structure, and level of recycling and leaf and yard waste curbside collection services varied considerably among the communities studied.
2. *Comprehensive Waste Diversion Program Required:* Comprehensive waste diversion and recycling programs must be part of a user pay/PAYT program. All the communities highlighted in the case studies had adopted recycling programs, augmented with leaf and yard waste composting programs and backyard composting programs.
3. *Public Education is Critical:* Public education programs play a critical role during the early stages of bag limit or user pay/PAYT implementation. Each of the communities studied has implemented an extensive education and promotion campaign focusing on printed materials, advertisements, and hotlines.
4. *Separation of Waste Management System Financing a Viable Option in the United States:* The need to establish a separate "enterprise or utility" fund dedicated to waste management activities was common to the PAYT programs studied. The only large Canadian community identified that has established a separate utility fund was the City of Edmonton.
5. *Carts and Automated Equipment have Trade-offs:* Many large municipalities in the United States are moving towards user pay programs that offer a variety of container sizes that are collected using semi-automated collection equipment. There may be some concern in Toronto that access to the carts will be a problem in the winter; however, there are examples of communities located in northern climates (such as Minneapolis, Minnesota; St. Albert, Alberta; and Drummondville, Quebec) that have successfully used cart collection systems.
6. *Multi-Family Buildings Continue to Present Challenges:* There are no systems currently in place for dealing with individual tenants within multi-family buildings. Most communities have

decided not to get involved in servicing multi-family buildings or to charge directly for the individual waste generated by the tenants.

7. **Mixed Commercial and Residential Areas: Current Challenges:** Communities that have established separate waste collection programs for commercial and residential areas that receive municipal curbside waste collection have run into problems deciphering the different programs. This problem has been resolved by applying the same user pay/PAYT rules to the retail and commercial establishments that receive municipal curbside collection.

Impacts on Waste Diversion: Figure 1 illustrates that in all cases, waste diversion percentage increases when user pay systems are implemented.

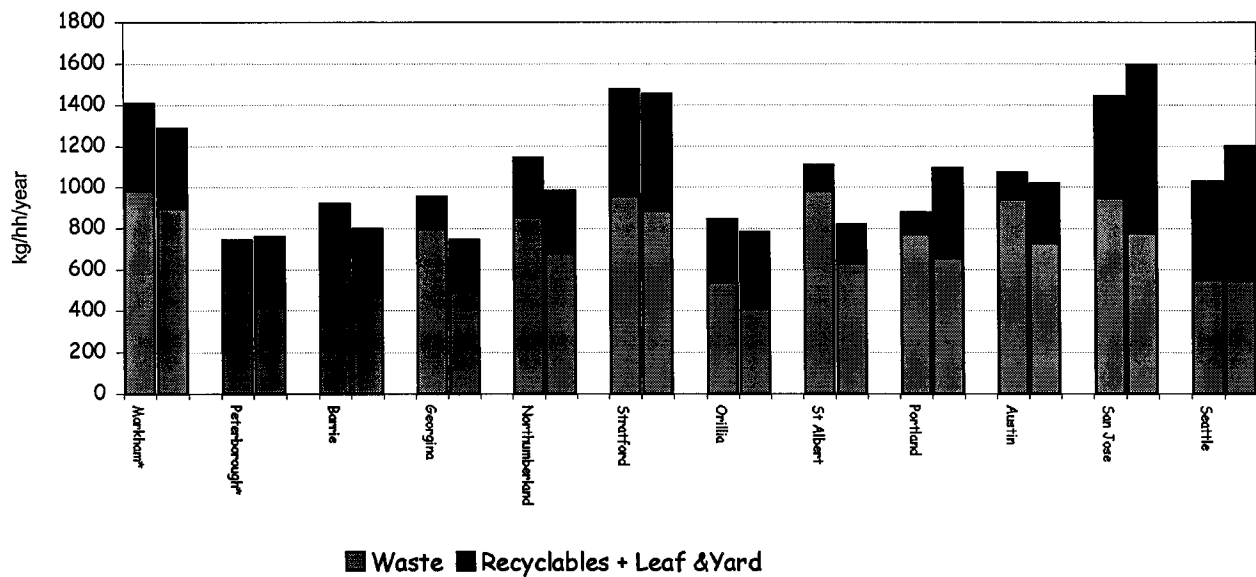
Figure 1
% Waste Disposed and Diverted Pre and Post Bag Limit or User Pay/PAYT



Note: "Post" is 1999 data
* bag limit program

Impacts on Waste Disposal: Figure 2 shows that in all the communities examined, the amount of garbage landfilled decreased. This is a significant finding for Toronto, particularly when it now has to pay full market prices for disposed waste. The specific reduction was different for each community, depending on the user pay system and diversion opportunities in place.

Figure 2
Diversion and Disposal Pre and Post Bag Limit or User Pay/PAYT
(kg/hh/year)



Note: "Post" is 1999 data
* bag limit program

TABLE OF CONTENTS

	Page
1.0 INTRODUCTION	1
1.1 Evolution of User Pay in Canada	1
1.2 Evolution of PAYT in the United States	2
2.0 METHODOLOGY	6
3.0 BAG LIMITS	11
3.1 Definition	11
3.2 Advantages	11
3.3 Residential Waste Diversion Impacts of Bag Limits	12
3.4 Public Participation and Behaviour Change	13
3.5 Supporting System Needs	14
4.0 USER PAY/PAY-AS-YOU-THROW (PAYT) PROGRAMS	15
4.1 Definition	15
4.2 Advantages of User Pay/PAYT	16
4.3 Partial and Full Bag/Tag Systems and Residential Waste Diversion Impacts	17
4.4 Container Subscription Systems and Residential Waste Diversion Impacts	19
4.5 Multi-Family Buildings	21
4.6 Mixed Commercial and Residential Areas	22
4.7 Public Participation and Behaviour Change	22
4.8 Supporting System Needs	23
5.0 A SUMMARY OF PROGRAM IMPACTS	26
6.0 FINDINGS AND IMPLICATIONS FOR TORONTO	30
References	

TABLE OF CONTENTS

Tables

Table 1.1 Largest Cities in the United States with PAYT Programs

Table 2.1 Long-list of Targeted Communities for Toronto PAYT Research

Table 2.2 Status of Data Availability for Various Communities Contacted

Figures

Figure 1.1 Container Preferences By State

Figure 5.1 % Waste Disposed and Diverted Before and After Bag Limit, User Pay/PAYT Programs

Figure 5.2 Waste Disposed and Diverted Before and After Bag Limits and User Pay/PAYT on the Residential Waste Stream

Figure 5.3 Impacts of Bag Limits and User Pay/PAYT on the Residential Waste Stream

Appendices

Appendix A Survey

Appendix B Detailed Case Studies

1.0 INTRODUCTION

User pay, also referred to as Pay-As-You-Throw (PAYT), unit-based pricing, variable rate and user fee, is becoming an accepted method for financing residential waste management services and making householders more directly responsible for their waste generation and disposal habits. User pay has been adopted in North America as well as in other countries including Japan, China, Germany, Italy and Holland (Horton, 1999). Bag limit programs appear less universal in their application than user pay programs.

1.1 Evolution of User Pay in Canada

User pay and bag limit programs have become an increasingly adopted approach for promoting diversion of waste from landfill and increasing recycling rates throughout much of Canada, and in particular Ontario¹. Bag limit programs serve the function of getting residents to recognize that waste should not be considered limitless and that waste management services are costly to provide. Sometimes bag limits have been used as the first step towards implementing a user pay program. In this case, communities impose bag limits for garbage and gradually reduce the limit until they can make an easier transition to user pay programs.

User pay programs have gained momentum across most of Canada with most of the growth occurring in the mid to late 1990's. In the early 1990's, only a handful of Canadian communities had implemented user pay programs (9 in 1991; 35 in 1993; and 53 in 1994). There were about 120 user pay programs across the country in 1996, mostly in B.C. and Ontario. Today, there are more than 200 programs. Most of the growth has occurred in Ontario where there were 59 user pay programs in 1996 (all of which were implemented between 1991 and 1996 and the majority in communities smaller than 25,000) and almost 120 today. With one exception, all user pay programs adopted in Canada use marked bags or tags/stickers rather than variable standardized containers (see section 5.2 for definitions).

The recent implementation of user pay programs in Ontario has mostly occurred in communities with 25,000 or more residents. In the early years, user-pay programs were found only in smaller communities and there was some doubt that the approach could be implemented in larger centres. The trend changed when some larger municipalities such as Barrie, Stratford, Niagara Region, Northumberland and Georgina moved forward. Georgina was the first municipality in the Greater Toronto Area to implement a user-pay system. This was precipitated by a crisis when the local landfill closed and the costs of the waste management system increased substantially.

The evolution of bag limits and user pay in Canada has progressed more slowly than the evolution in the United States. Whereas Canadian communities have relatively recently embraced the concept of bag limits and user pay, communities in the United States have been adopting PAYT programs over the past two decades (since the mid 1980's).

¹ The adoption of user pay programs in Ontario and Canada appear to be less for financial reasons than elsewhere, especially in the United States.

1.2 Evolution of PAYT in the United States

Since the 1970's, a trend in the United States is to have communities establish separate waste management enterprise (utility) funds dedicated to financing the operations of residential waste management and diversion programs. Enterprise Funds are defined as "financial mechanisms used by local governments to finance and operate a given activity like a private business. Agencies that use the enterprise funds usually must collect sufficient revenues to cover the full cost of agency operations and services provided" (EPA, December 1998). This approach to financing waste management programs has encouraged the implementation of Pay-As-You-Throw (PAYT) programs, which integrates easily in to the utility funding approach, "growing number of communities are turning to PAYT and thereby shifting toward managing MSW services as they would any other utility" (EPA, January 1999).

The introduction of PAYT programs in the United States is as much an economic approach (i.e. method of financing waste management programs) as an environmental approach (i.e. a method for diverting waste from landfill and increasing recycling rates). PAYT systems force communities to take a good look at the direct and indirect costs to provide their municipal solid waste programs and services (EPA, January 1999).

Currently, over 10 US states have legislation that mandates or promotes the implementation of PAYT programs within their jurisdictions (i.e. Minnesota, Iowa, Wisconsin and Washington mandate PAYT and Massachusetts, Indiana, and Rhode Island provide direct financial incentives and grants to communities using or implementing PAYT). Whereas US communities have embraced PAYT programs, there has been not as much interest in establishing bag limit programs, "Most U.S. waste agencies have traditionally provided unlimited refuse removal to all citizens, funding that service either from general funds or through flat-rate, 'all-you-care-to-dump' billing" (Skumatz, June 1993). Communities in the United States have skipped the bag limit stage and moved directly to PAYT programs. Currently, there are over 4,000 communities in the United States with PAYT programs, serving over 27 million U.S. residents (Burgiel et al., 1998). Table 1.1 provides a list of the largest communities with PAYT programs (Miranda, 1999).

Table 1.1
Largest Cities in the United States with PAYT Programs

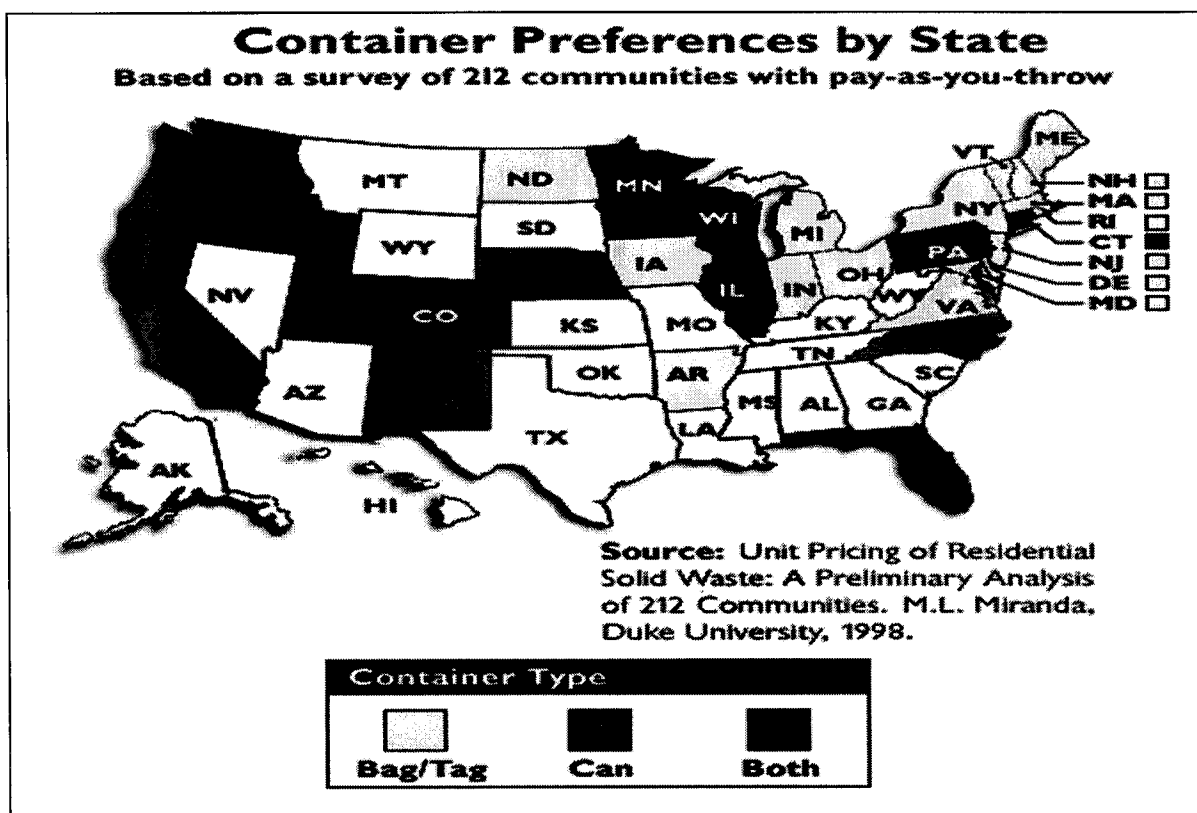
Community	Population	Year Implemented	System
1. <u>Los Angeles, CA</u>	3,485,398	1996	variable container
2. <u>San Jose, CA</u>	782,248	1993	variable container
3. <u>San Francisco, CA</u>	723,959	1980s	variable container
4. <u>Seattle, WA</u>	516,259	1981	variable container
5. <u>Austin, TX</u>	465,622	1997	variable container
6. <u>Oklahoma City, OK</u>	444,719	1997	variable container
7. <u>Portland, OR</u>	437,319	1992	variable container
8. <u>Albuquerque, NM</u>	384,736	1995	variable container
9. <u>Oakland, CA</u>	372,242	1985	variable container
10. <u>Sacramento, CA</u>	371,854	1999	variable container
11. <u>Sacramento, CA*</u>	369,365	n.a.	variable container
12. <u>Minneapolis, MN</u>	368,383	1995	variable container
13. <u>Snohomish, WA*</u>	308,317	1992	variable container
14. <u>Pima County, AZ</u>	304,926	n.a.	variable container

* Unincorporated Areas

Increasingly, large cities are adopting PAYT programs in the United States, with half of the cities listed in Table 1.1 adopting PAYT programs in the mid to late 1990s. Currently, 58 communities with populations greater than 100,000 (representing 15% of the population living in large communities nationwide) have PAYT programs (Burgiel et al., 1998). This trend is expected to continue.

These large U.S. communities have adopted variable standardized container PAYT programs (see section 5.2 for definitions), which contrasts significantly with the marked tag/sticker approaches characterized by the large Canadian communities with user pay programs. The variable container programs enable large communities, especially those located in the more temperate climates, to use semi-automated collection vehicles, thus reducing worker injuries, and establish an automated billing system. Fewer large communities use the variable container system in the northern regions² (City of Toronto, 1993). However, there are examples of communities situated in northern climates that have successfully used cart systems (i.e. Minneapolis, Minnesota; St. Albert, Alberta; and Drummondville, Quebec). Figure 1.1 shows the preference of U.S. States for bag/tag programs or variable container programs.

Figure 1.1
Container Preferences By State



² City of Toronto staff informally surveyed over 40 cities in the United States examining the type of collection system in place and the reasons for choosing the system. Communities located further north tended to use bags rather than carts for the following reasons: snow impeded movement of the carts and collection by automated vehicles; and streets were narrower, housing was denser and street parking more characteristic thus making access to carts more difficult.

A Duke University study conducted by Miranda and LaPalme (1997) analyzed 212 communities in the United States with PAYT programs (bag/tag and containerized systems) to determine the effectiveness of the programs in reducing waste to landfill. The study excluded communities that had launched new recycling programs or had made significant modifications to existing recycling programs at the same time as launching PAYT programs. This eliminated the influence of these extraneous factors on the impact of PAYT programs. The study concluded that during the first year of PAYT, communities averaged 14 – 27% decrease in the amount of waste sent to landfills.

2.0 METHODOLOGY

Information for this study was obtained from various sources, including use of Enviro RIS internal databases and resources (in particular a study completed for the City of Calgary in 2000), the Internet, reports and interviews with the appropriate representative(s) from the selected communities. A survey was prepared to ensure the consistency of information collected. (Appendix A).

The two main areas of focus were:

1. Bag limits
2. User pay/PAYT

Information and data was compiled on the program evolution and the long-term impacts of the programs on curbside diversion of recyclables, leaf and yard waste, backyard composting and bulky goods (where applicable). All surveyed communities were asked to provide tonnage data for single-family households for the following curbside waste streams: waste, recycling and leaf and yard waste collection.

Where good, reliable data were available, the quantitative analysis involved setting the year prior to program implementation (i.e., introduction of bag limit or PAYT) as the base year. Resulting impacts on waste to landfill, recyclables collection and leaf and yard waste collection were calculated using this base year as a benchmark. In addition, trends in overall diversion through curbside recycling and leaf and yard waste collection were calculated over all years since the introduction of the program.

The communities profiled in this report represent a selection of different bag limit and user pay/PAYT programs across North America. A long list of potential case studies was developed based on characteristics of the communities that were similar to the City of Toronto (i.e. large, urban populations) or communities which could provide potentially relevant information and insights for Toronto (i.e. located in the GTA area). Table 2.1 provides a long list of communities screened for available and reliable long-term impact data. The long list consisted of the following potential case studies:

- Ontario – 12 screened candidates
- Western Canada – 5 screened candidates
- United States – 20 screened candidates (the largest known US PAYT communities were identified by using the US Environmental Protection Agency's Pay-As-You-Throw listing.³)

³ <http://www.epa.gov/epaoswer/non-hw/payt/comm-3.htm>

Table 2.1 Long-list of Targeted Communities for Toronto PAYT Research

Community	Population	Information Available (long case study)	Information Unavailable (no case study)	Data Provided Incomplete (short case study)
Canada				
Ontario				
Peel	933,000		✓	
Markham	191,527	✓		
St. Catherines	161,352	✓		
Barrie	100,000	✓		
Belleville	44,000		✓	
Newmarket	76,000			✓
Northumberland	74,000	✓		
Peterborough	68,748	✓		
Georgina	38,335	✓		
Stratford	30,000	✓		
Orillia	27,882	✓		
Orangeville	23,500		✓	
Western Canada				
Edmonton, Alberta	620,000	✓		
CRD – Capital Regional District	222,100			✓
Delta, B.C.	93,000			✓
Burnaby, B.C.	180,000			✓
St. Albert, Alberta	51,700	✓		
United States				
Los Angeles, California	3,485,400			✓
San Jose, California	840,000	✓		
San Francisco, California	752,000			✓
Seattle, Washington	516,000	✓		
Austin, Texas	466,000	✓		
Oklahoma City, Oklahoma	444,700		✓	
Portland Oregon	437,000	✓		
Albuquerque, New Mexico	384,700		✓	
Oakland, California	372,200		✓	
Sacramento, California	371,850		✓	
Minneapolis, Minnesota	368,400	✓		
Snohomish County, Washington	308,300		✓	
Pima County, Arizona	305,000		✓	
Norfolk, Virginia	261,000		✓	
Baton Rouge, Louisiana	224,000		✓	
Grand Rapids, Michigan	189,000			✓
Worcester, Massachusetts	170,000	✓		
Tompkins County, N.Y.	95,000		✓	
Berkeley, California	102,700			✓
Aurora, Illinois	100,000			✓

During the screening process a number of data limitations and challenges were encountered as follows:

- Some programs have not been in place long enough to have reliable, long-term impact data and demonstrable outcomes.
- Some communities do not keep historical records of waste or recycling data and/or were unable to provide it in a useful format.
- Some communities collect from residential and commercial establishments along the same route and were unable to provide data for the residential sector only.
- At the time of this report, some selected communities had not responded to the request for information, despite several repeated phone calls.

Consequently, a number of communities were eliminated from the detailed case studies (see Table 2.2 for explanations) resulting in the following short list of case studies (see Appendix B for detailed case studies):

Ontario

- Markham (bag limit program)
- Peterborough (bag limit program)
- Barrie (partial user pay program)
- Orillia (partial user pay program)
- St. Catharines (partial user pay program)
- Stratford (full user pay program)
- Georgina (full user pay program)
- Northumberland County (full user pay program)
- Newmarket (partial user pay program) – short case study

Western Canada

- Edmonton, Alberta (flat fee program) – short case study
- St. Albert, Alberta (full user pay program)
- CRD, British Columbia (partial user pay program) – short case study
- Burnaby, British Columbia (bag limit program) – short case study
- Delta, British Columbia (partial user pay program) – short case study

United States

- San Jose, California (variable container program)
- Seattle, Washington (variable container program)
- Austin, Texas (variable container program)
- Portland, Oregon (variable container program)
- Minneapolis, Minnesota (variable container program)
- Worcester, Massachusetts (full bag program)
- San Francisco, California (variable container program) – short case study
- Berkeley, California (variable container program) – short case study
- Grand Rapids, Michigan (PAYT program) – short case study
- Los Angeles, California (variable container program) – short case study
- Aurora, Illinois (full bag program) – short case study

Table 2.2
Status of Data Availability for Various Communities Contacted

Community	Population	Status of Data
Canada		
Ontario		
Region of Peel	933,000	A report will be introduced to Council in Spring 2001, recommending adoption of a three-bag limit.
Town of Newmarket	76,000	Baseline waste data for 1998 unavailable (introduced September 1999). Prepared short case study.
Town of Orangeville	23,492	The Town recently passed a motion in Council to implement a three-bag limit in June 2001.
Western Canada		
Capital Regional District	222,100	Unable to provide waste data for the Region since each municipality is responsible for waste collection. Contact with municipalities unsuccessful in obtaining data. Prepared short case study.
Delta	93,000	Unable to provide necessary data.
Burnaby	180,000	Only able to provide information for 1998 – 2000. Three bag limit introduced in January 1997. Prepared short case study.
United States		
Los Angeles	3,485,400	Unable to provide the necessary data. Prepared short case study.
San Francisco	752,000	Private haulers collect from commercial and residential customers along the same route. There is not breakout of residential tonnage available. Prepared short case study.
Oklahoma City, Oklahoma	444,700	Data not provided as PAYT system permits residents to place unlimited waste curbside.
Albuquerque, New Mexico	385,000	Data not available.
Oakland, California	372,000	Data not available.
Sacramento, California	371,850	Data not provided as no impacts on waste flows through system have been observed.
Snohomish County, Washington	308,000	Too busy to provide data.
Pima County, Arizona	305,000	County not responsible for waste and recycling collection, and therefore does not track data.
Grand Rapids, Michigan	189,000	Data provided incomplete. Short case study provided.
Baton Rouge, Louisiana	224,000	Data not readily available.
Berkley, California	103,000	Unable to provide the necessary data. Prepared short case study.
Norfolk, Virginia	241,000	Data not readily available.
Aurora, Illinois	100,000	The City does not keep waste records past 5 years. Prepared short case study.

A case study has been developed for each community profiling the characteristics of the bag limit or user pay/PAYT program and the long-term impacts on quantities of waste recycled, disposed and recovered in the leaf and yard waste program. The analysis of the case studies assesses the relevance to Toronto.

3.0 BAG LIMITS

3.1 Definition

Increasingly, communities throughout Ontario and across Canada have begun to impose bag limits on the amount of waste that can be sent for disposal by the householder. A bag limit program restricts the number of bags or containers of garbage that may be placed at the curb for weekly collection. If the homeowner exceeds the limit established by the municipality then the additional bags are not collected.

Municipalities tend to impose bag limits only on garbage and not on alternative waste diversion activities, such as recycling or leaf and yard waste collection.

Occasionally, the bag limit program is confused with a user pay/PAYT program, which may or may not impose a bag limit to restrict the number of bags (with or without tags) that may be sent for disposal.

3.2 Advantages

Bag limits achieve the following objectives:

- Bag limits make the householder more conscious of the amount and type of waste they generate on a weekly basis and encourage them to become more personally responsible for their generation of waste.
- Bag limits encourage participation in alternative waste diversion activities, such as curbside recycling, leaf and yard waste composting, backyard composting and source reduction (i.e. purchasing products with less packaging).
- Bag limits can help reduce the community's solid waste management costs by diverting waste from more expensive disposal options, such as landfill, to more cost effective options such as recycling and composting.
- Bag limits are introduced as a precursor to a user pay program, because they enable the residents to make a gradual transition from having no limits on waste generation to eventually paying for their waste.

Bag limit programs achieve higher success rates if coupled with a well-established and convenient waste diversion infrastructure including a curbside recycling program, regular leaf and yard waste curbside collection program, backyard composting, etc. The waste diversion program in Quinte West has been attributed to "the gradual introduction of waste diversion, followed by household composting and finally user-pay and bag limit regulations – has also helped to minimize resistance and maximize cooperation (of local residents)" (Baldwin, October 10, 2000).

3.3 Residential Waste Diversion Impacts of Bag Limits

Bag limit programs work under the right circumstances, when the bag limit is set at a low enough number it encourages waste diversion activities, especially when convenient and appropriate waste diversion programs are made available to the householder.

Communities that establish a bag limit program at four or more bags rarely experience a noticeable reduction in waste sent to landfill or an increase in materials diverted through recycling or composting programs.⁴ Since many communities experience set out rates between 2 to 3 bags of garbage per household per week, a bag limit greater than 3 will not encourage residents to re-think their waste generation and disposal habits or to participate to a greater extent in waste diversion activities. Nor is there any reason for the resident to engage in source reduction activities.

The introduction of a three-bag limit can alter waste disposal and diversion behaviour (AMRC, 1996). While most residents can easily achieve the three bag limit the majority of the time, the bag limit benefits the community by targeting the up to 8% of the population⁵ that exceeds three bags of garbage a week on a regular basis and does not fully participate in the waste diversion programs.

Impact data resulting from bag limit programs is limited since only a handful of large Ontario communities have introduced bag limits of three or less, to date. The Town of Markham (pop. 175,000) and the City of Peterborough (pop. 70,000) provided reliable impact data demonstrating a positive benefit of bag limits in diverting waste from landfill. The City of Peterborough has experienced a greater percentage change in waste diverted to landfill and increased recycling rate compared with Markham which is partly attributed to its 2 bag limit compared with Markham's 3 bag limit (also, it should be noted that Markham's 3 bag limit is considered very flexible in that residents are provided with numerous alternatives for disposing extra waste, see below for further explanation). These positive impacts have remained consistent over time.

Furthermore, in the case of the City of Peterborough, the community experienced a significant increase in the recycling rate and leaf and yard waste collection beginning the year after it introduced a two-bag limit (from a three bag limit). The Town of Markham has not experienced similar results; in fact, its recycling rate and leaf and yard collection rate has declined over time. Several explanations for these observations include:

- Markham is a fast growing commuter community, therefore new residents may not consistently participate in its recycling program and many newly constructed homes lack lawns and trees, therefore participation in the leaf and yard waste program does not occur;
- The three bag limit program is augmented by 12+ free tags a year and two amnesty days which may not encourage residents to focus their efforts on waste diversion activities in order to reduce the number of bags set at the curb;

⁴ During the screening process for identifying relevant case studies, communications with Peter Watson, Manager of Waste Management at the Region of Durham established that among the six of the eight municipalities within the Region which have imposed a four bag limit on residential garbage placed at the curb none have experienced any changes in waste diverted from landfill or increased recycling rates.

⁵ Based on recent set out data provided by the Town of Markham (2001)

- Variations in growing seasons have resulted in a fluctuation in the amount of leaf and yard waste material recovered in some years.

Other communities in Ontario are gearing towards the introduction of a three-bag limit. The Town of Orangeville (pop. 22,000) recently passed a motion in Council to implement a three-bag limit in June 2001 (the Town currently has a four bag limit in place) and the Region of Peel (pop. 933,000) will introduce a report to Council in Spring 2001 recommending that the Region adopt a three-bag limit (currently the Region has no bag limit policy).

At the same time the communities have imposed a three or less bag limit, they have ensured that adequate waste diversion programs and policies are in place. For example, the Town of Markham introduced a grass ban concurrent with the three-bag limit and has an expanded blue box collection program. The City of Peterborough introduced a ban on recyclables at landfill concurrent with the two-bag limit and has a mandatory leaf and yard waste composting by-law. In 1993, the City offered weekly curbside collection of leaf and yard waste and continues to expand its recycling program since the introduction of the two-bag limit.

Communication has played an important role in the implementation and acceptance of the bag limit programs. Education and promotional campaigns were introduced well in advance of the launch of the bag limit programs and were maintained throughout the early stages of the program. Traditional advertising sources were commonly employed including information brochures delivered to each resident, advertisements run in local newspapers, newsletters, etc. The Town of Markham also hired staff to operate a hotline for the first several months of bag limit policy.

3.4 Public Participation and Behaviour Change

The introduction of bag limits (three or less) makes residents take a look at their waste generation habits and establish moderate modifications in waste disposal and diversion activities. More importantly, these bag limits target those residents who habitually set out large quantities of garbage and participate in waste diversion programs on a sporadic or minimal basis. Bag limits send the message that extra generation and disposal of waste is no longer tolerated by the community, and that a reasonable level of garbage collection service will be provided to the resident.

Most communities with bag limits in place have established enforcement procedures and fines in their waste management by-laws but at the most will leave behind excessive bag of garbage at the curb. Communities rely on education and promotion to inform residents about the "zero-tolerance" towards illegal dumping and enforcement of the bag limit rather than enforcing the by-law penalty sections. This action has established good results in achieving the goals of the bag limit program.

With one or two exceptions, most communities will introduce a partial user pay system instead of a two or one bag limit system. The County of Northumberland is the only community identified that has a full user pay program coupled with a three-bag limit (see the case study).

The bag limit helps to make the transition to a user pay program easier for residents. With a gradual lowering of the bag limits over several years, residents can make moderate adjustments to their waste generation and disposal activities without feeling burdened. Many communities in Ontario are adopting this approach by introducing a fairly high bag limit program (i.e. four or

more bags) and each year reducing the number by one bag or two bags until they feel that the residents will accept the transition to a user pay program (i.e. Region of Durham, the City of Orangeville, Niagara Region).

3.5 Supporting System Needs

Bag limit programs need to have support systems in place to ensure success. These support systems should include:

- Enforcement procedures to ensure the system operates smoothly. Enforcement procedures and fines should be introduced into local waste management bylaws. Often, however, establishing a policy with the collection crew to not collect excessive garbage placed at the curb is enough of an enforcement procedure. Some communities will attach cards to the excessive garbage explaining the infraction.
- Education and promotional campaigns that begins prior to the implementation of the bag limit program and continues throughout. These education and promotion campaigns can address the economic and environmental benefits of the program and the successes achieved as a result of the program.
- Expanded waste diversion programs to ensure that residents have adequate diversion options for dealing with their waste. This should include establishing a common level of service for all residents residing in the jurisdiction.

4.0 USER PAY/PAY-AS-YOU-THROW (PAYT) PROGRAMS

4.1 Definition

In a User Pay System, waste generators pay for waste collection on the basis of the amount of waste generated. User pay may be introduced under one of two scenarios: a full user pay program or a partial user pay program. Under a full user pay program, all garbage that is placed at the curb for collection must be paid for in advance (i.e. by purchasing a tag and placing it on each bag of garbage). Under a partial user pay system, a designated number of bags/cans are permitted to be placed at the curb without requiring advance payment. If the householder exceeds the designated number of bags permitted at the curb then any additional bags/cans must be paid for in advance (i.e. by purchasing a tag and placing it on each additional bag of garbage).

Throughout Canada and the United States, all user pay/PAYT programs are “volume based” systems. The volume-based system charges customers based on the volume of waste generated, using designated bag sizes or container sizes. Under this system there are a number of types of user pay programs that can be employed including:

Marked bag – Standardized marked bags can be purchased at local retail outlets, or are distributed to the householder by the city.

Marked tags/stickers – Marked tags or stickers (that stick to bags or are tied to cans) are sold to the householder. The distribution networks for these tags are the same as for metered bags. Some form of volume restriction is generally used with metered stickers. This limits the size of container or bag to which the sticker can be attached (e.g. maximum 30 gallon volume). Some communities offer residences different levels of tags to enable them to put out smaller bags (20 gallon) or larger bags (30 gallons) of waste.

Variable standardized container rate – Generators are offered different sizes of containers and pay a monthly or bi-annual fee according to the size of the container. As the size of the container increases, so too does the subscription price. Many communities offer two or three sizes (30 gallon, 60 gallon, and 90 gallon). Some communities have had to respond to demands for even smaller containers and are offering “mini cans” (12 gallon). The hauler collects waste from only designated containers.

Weight-based systems – These systems tend to be more expensive to implement and operate and require special equipment, including truck-mounted scales for weighing waste and some type of system (for example, bar-coding on waste cans) for recording this information and entering it into a computer. Residents then need to be billed for this service, which may increase a municipality's staffing needs (EPA, 2001). Currently, there are very few communities in the United States that have fully implemented weight-based programs due to infrastructure and technology limitations.

4.2 Advantages of User Pay/PAYT

Experience in North America has demonstrated that there are benefits to be gained from adopting user pay/PAYT programs,

“The three major selling points of a PAYT program are known as the ‘three Es’: environment, economics, and equality. PAYT is billed as a program that can encourage residents to recycle and reduce waste, help communities pay for solid waste costs, and distribute costs more evenly among consumers” (Horton, December 1998, pg. 50)

These advantages are particularly apparent if some element of variable rate pricing is included in the funding structure. The Key advantages of user pay/PAYT programs are:

- **A better understanding of waste management costs** - In order to implement a utility, or any form of unit or variable rate pricing system, the costs of the current system need to be understood. This step alone can help communities to identify opportunities for increased efficiencies;
- **The costs of waste management can be removed from property tax bills** - This makes the costs of waste management visible to householders and directly links these charges to the actual costs incurred for providing this service;
- **There is a more equitable distribution of the costs of providing waste management services** - Households are charged directly for the services provided and in the case of variable rate charges, in proportion to the amount of waste they generate. Waste management charges can be removed from the tax bills of waste generators who may not receive these services from the municipality (i.e. industrial, commercial, institutional and multi-family buildings whose property tax bills often include the cost of waste management services they do not receive).
- **It can provide a long term funding solution for recycling and composting** - This can be done by incorporating the costs of waste diversion programs into the fees charged for waste collection and disposal, or by implementing user charges for these services as well.
- **It can result in increases in the diversion of wastes to recycling and composting programs** - Communities that have implemented variable rate pricing programs report increases in recycling and composting rates, to a lesser extent.
- **It can result in reductions in waste disposal** - Communities report reductions in the amount of waste disposed of between 15% and 45% immediately after a variable rate pricing structure for garbage collection is implemented.

The advantages of user pay/PAYT programs are supported by studies conducted on the impact on residential waste reduction and recycling rates. A study conducted by Hong and Adams (1993) performed an economic analysis of residential recycling, comparing the rate of recycling

by households under two types of pricing systems – a flat fee⁶ and unit pricing. Those households charged a flat fee recycled less than those households charged under a unit pricing system; in fact, the households charged under a flat fee did not change their recycling rates. This result is confirmed by Reschovsky and Stone (1996) and Skumatz (June 1993) who argue that flat fees provide no incentive to produce less waste.

In addition, a study conducted by Skumatz (August 2000) demonstrated that PAYT programs lead to 5 to 7% source reduction as expressed as a percentage of residential solid waste generation. Source reduction is attributed to changes in behaviour including buying items in bulk or with less packaging, reusing items, reducing junk mail and backyard composting.

4.3 Partial and Full Bag/Tag Systems and Residential Waste Diversion Impacts

A report published by the Association of Recycling Coordinators (AMRC, 1996), suggested the reduction in the amount of waste sent to landfill following the introduction of user pay programs is as follows:

- Partial, two “free” bags, user pay system will result in 15% to 20% reduction in residential waste sent to landfill;
- Partial, one “free” bag, user pay system will result in 25% to 35% reduction in residential waste sent to landfill;
- Full, no “free” bags, user pay system will result in 30% to 45% reduction in residential waste sent to landfill.

The AMCR notes that the reduction in waste sent to landfill depends on the level of diversion alternatives and participation achieved by the community.

All communities contacted during this study experienced significant reduction in waste to landfill in the first year after the introduction of user pay. In fact the amount of waste diverted from landfill in the first year of the program falls within the ranges reported by the AMRC (1996), as follows:

- The City of Barrie, (population 100,000 with a 2 bag partial user pay program) experienced 16% reduction in residential waste sent to landfill in its first full year of the program
- The City of Orillia, (population 28,000 with a 50 tag/1bag partial user pay program) experienced 25% reduction in waste sent to landfill in its first full year of the program
- The Town of Georgina (population 39,000 with a full user pay program) experienced 41% reduction in residential waste sent to landfill in its first full year of the program
- The City of Stratford (population 30,000 with a full user pay) experienced 25% reduction in residential waste sent to landfill in its first full year of the program

However, as discussed during the introduction of this report, many studies advocating user pay/PAYT programs report on the waste diversion benefits experienced immediately after the

⁶ The flat fee method of financing residential waste management programs is commonly employed throughout the United States through the establishment of separate waste management enterprise/utility funds. Few communities in Canada employ flat fee approaches, with the exception of Edmonton, Alberta (see case study). Edmonton has not experienced a change in waste diverted from landfill or increased recycling rates as a result of the establishment of its Waste Management Utility fund.

implementation of the program, but not over the long term. The purpose of this study is to evaluate the impacts over a long period of time. Consequently, the results from the case studies for the bag/tag programs (mostly Ontario based programs) indicate that while all communities experience significant positive impacts in waste diverted from landfill shortly after the implementation of a partial or full user pay program, over time the user pay programs do not necessarily continue to achieve the high reduction of waste to landfill observed in the early years. There may be several explanations for this observation.

Householders will adjust to the minimal waste reduction and diversion requirements imposed by a user pay program but will not go beyond those minimal requirements; therefore, once the initial modifications in behaviour are established to meet the mandates of a new user pay program, the householder makes no additional modifications and maintains status quo. This is supported by reviewing the changes in set out rates before and after the introduction of a partial user pay program. While the weekly set out rate for residential garbage declines after the introduction of the partial user pay program, the level dips just below or slightly above the established "free" bag limit. For example, the City of Barrie has a 2 bag partial user pay program and staff have observed the average set out rate is approximately 2 bags/hhld/wk.; the City of Orillia's set out rate averaged 1.4 bags/hhld/wk in 1999 for a one bag partial program⁷.

The \$1 tag fee is not high enough to maintain or promote further waste reduction efforts over time. Residents become complacent about the \$1 tag fee and over time the fee loses its drive as a financial incentive to encourage waste reduction. In situations where a community has imposed a high tag fee, it maintains high waste diversion rates; for example, the City of Trenton continues to experience significant diversion of residential waste to landfill and participation in its recycling program mainly because it charges \$2.50 per tag and requires all bags of garbage to have a tag attached (full user pay program).⁸ The \$1 tag fee is rarely based on any financial assessment or needs of the community, rather it is considered an acceptable fee to charge residents during the launch of a user pay program without causing significant backlash by residents – "It's a way to get in the game."⁹

Residents will find alternative means for legally disposing of their garbage if the means are made available. For example, the City of Stratford, which has a full user pay program, charges \$1.20 per bag at the curb but only \$0.50 per bag at the landfill. Consequently, it has experienced a 160% increase in residential self-haul waste going to landfill, with the average vehicle discarding 2.1 bags (compared with 1.0 bags per household placed at the curb). The City of Barrie is also experiencing a surge in residential waste sent to landfill as a result of a policy permitting householders to take unlimited amounts of waste to the landfill up to four times a year. In both cases, City staff feel that these policies do not encourage further waste reduction or diversion and want to see the "loopholes" closed.

In all the partial and full user pay case studies, the user pay programs had a positive impact on recycling rates, which for the most part has been maintained over time. The authors of one study argue that provision of a convenient curbside recycling program is more important than the introduction of a user pay program for encouraging participation in the recycling program, "unit pricing is less effective than curbside collection in fostering increased intensity of recycling"

⁷ The City of Orillia distributed 50 free tags to each household in 1999, which translated to one "free" bag of garbage per week.

⁸ The City of Trenton faced financial bankruptcy if it didn't impose full costing of its waste management system through the user pay program.

⁹ Communications with Peter Watson, Manager of Waste Management, Region of Durham.

(Jenkins et. Al., May 1999, pg. 15). However, a curbside recycling program coupled with a user pay program can promote higher recycling rates than either program operating on their own, as demonstrated by the case studies.

Many of the Ontario based communities consistently report a decline in the collection and diversion of leaf and yard waste material over time. Some explanations for this anomaly are as follows:

- Those communities characterized by high growth rates (i.e. Barrie) have new subdivisions with no lawn or trees and therefore no leaf and yard waste material, which skews the per SFH or per capita leaf and yard waste collection rates¹⁰.
- The quantity of leaf and yard waste collected from year to year is highly weather dependent. Early snow moves leaves from one year to the next. A wet fall results in heavy leaves and greater tonnages and conversely a dry fall results in lower tonnages. A wet spring and summer results in much more yard waste.¹¹
- Over the past decade, gardening has become a popular past time among homeowners, which may result in more households using backyard composters to generate compost for the gardens. Leaves can be used as a protective covering for flower beds in the winter and plowed under for added nutrients in the spring.

4.4 Container Subscription Systems and Residential Waste Diversion Impacts

Those US communities profiled in the case studies (City of Austin, Texas; City of Portland, Oregon; City of San Jose, California; and City of Seattle, Washington) have operated PAYT programs since the late 1980s or early 1990s and were able to provide good data over a long period of time. However, this was not the situation for many of the contacted US cities, which were unable to provide reliable data over the period of time required for this study. Those cities with data problems encountered provided the following explanations:

- Some communities did not keep records of waste collection activities over a long period of time;
- Some communities did not break down waste collected from residential and commercial units;
- Some communities did not keep records since the collection of residential waste is franchised to the private sector or for other reasons.

All the profiled US communities have implemented variable standardized container PAYT programs. The variable containerized approach enables communities to use automated or semi-automated collection vehicles, which has several benefits:

- One collection crew can be used to operate the collection vehicle;
- Worker injury is reduced and thus the cost of medical insurance (if applicable);
- Reduced salaries from reduction in collection crew (Knapp, February 1997).

¹⁰ Communications with City of Barrie staff – In the case of Barrie, the city is experiencing a growth of 2,000 to 5,000 new homes in new suburbs each year.

¹¹ Communications with Peter Dance, Director of Operations, City of Orillia

However, there are trade-offs. The City of Austin, Texas discovered that it was unable to cover the same number of residential stops in an 8-hour day due to the increased time required to use the semi-automated equipment. Consequently, the City of Austin had to hire four additional collection crew after automated collection vehicles were used.¹²

The profiled US cities have implemented variable containerized PAYT programs ranging in size from a micro can (12 gallons) offered by the City of Seattle, Washington to a large 90+ gallon cart offered by the Cities of Austin, Texas; San Jose, California; and Portland, Oregon. These cities offered containers ranging in size from 32 gallons to 60 gallons to 90 gallons. Two of the cities employ a default strategy whereby the resident is issued a specific sized container (60 gallons in Austin, Texas and 32 gallons in San Jose, California) and the onus is on the resident to request a different size. Needless to say, these highest container subscriptions correspond with the default settings (82% of residents subscribe to the 60 gallon container in Austin, Texas and 87% of residents subscribe to the 32 gallon container in San Jose, California). In those cities where the resident chooses the size of container, fewer residents subscribe to the large containers (61% of residents subscribe to a 32 gallon container in Portland, Oregon and 63% of residents subscribe to a 32 gallon container in Seattle, Washington).

The PAYT program has had a beneficial impact on residential waste diverted from landfill in all profiled US cities. In all cases, PAYT has achieved an average of 15 to 25% reduction in waste sent to landfill as a result of the PAYT program¹³ and the levels have been more or less maintained over the years. This observation is partly explained by the nature of the variable container program, in that residents are more likely to fill the subscribed garbage container because presumably if they did not continually fill the container then they would switch to a smaller and less expensive container. For this reason, bag tag programs may be more successful at diverting waste as reported by Kinnaman and Fullerton (April, 1997) who examined over 100 U.S. communities with PAYT programs and discovered that "bag and tag programs reduce garbage (and increases the amount of recycling) by much more than a subscription program" (pg. 24 and 26).

Some cities encourage the switch to smaller containers; for example the City of Portland offers its smallest 20 gallon container at a rate below the cost to provide the service and Austin, Texas charges \$15 to increase the size of the container but does not charge to decrease the size.

In three of the four variable container subscription studies case studies, a new or expanded recycling program was introduced concurrent with the implementation of PAYT. Consequently, it is not surprising to see recycling rate increases of over 100 to 200% since the beginning of the PAYT program. Furthermore, all profiled US cities continue to experience increased recycling rates each year since PAYT was introduced. Some of this is explained by the continued expansion of materials accepted in the recycling programs over the years. It can also be explained by more widespread adoption of recycling as a social norm.

The diversion of leaf and yard waste varies considerably among the profiled US cities with two cities (San Jose, California and Seattle, Washington) experiencing moderate increases in diversion of leaf and yard waste materials since the introduction of PAYT and the City of Austin, Texas experiencing major increases in diversion rates (leaf and yard waste curbside collection

¹² City staff did report significant decreases in employee injuries as a result of the switch to semi-automated collection vehicles.

¹³ It should be noted that in the cases of Seattle, Washington; Austin, Texas and Portland, Oregon a new or expanded recycling program was introduced at the same time as the PAYT program.

was introduced shortly after PAYT). The cities of Portland, Oregon and Seattle, Washington charge for some level of leaf and yard waste collection in order to provide a greater incentive for householders to engage in backyard composting and grass cycling and this approach has had an impact on the rate of diversion achieved.

An EPA document (June 1999) states that the most successful strategies employed by communities to achieve high participation and waste diversion rates include making waste diversion programs convenient, enacting mandates (i.e. mandated recycling by-laws/ordinances, grass bans, etc.) and implementing PAYT programs. In fact, eleven of eighteen communities profiled as community record-setters in achieving more than 50% diversion rate of the residential waste stream have PAYT programs in place. The case studies for the Cities of San Jose, California and Seattle, Washington show them achieving over 50% diversion rate for the residential waste stream.

4.5 Multi-Family Buildings

To date, no program has been established in any North American community that provides a direct charge for garbage disposed on the tenant of a large multi-family dwelling. While technology required for such a task has been proposed, no company has succeeded in developing a device that would measure (by weight or volume) waste sent for disposal (via a chute or direct to a dumpster) by each tenant and charge accordingly. Instead, where larger apartment units are served by private haulers, or contract for service with the municipality, the costs of waste management are charged back to the residents as part of their rent or property fees.

In the case where a building receives private collection services, the owner or manager of the building pays directly for the collection service according to the size of the bin and the frequency of collection provided. Passing these direct costs back to the tenant is too onerous for owners/managers of large buildings and, therefore, no direct economic incentive is provided to residents at the household level to reduce the quantity of waste they generate. Charging by the size of the bin and the frequency of collection, however, will act as an incentive to the property owner or manager to implement recycling programs in an effort to reduce the frequency of collection. The onus is on the property owner or manager to encourage renters to use the recycling bins and then to pass on the disposal savings. One building owner in San Jose, California was able to reduce his waste disposal costs by 50% through an aggressive recycling program implemented in his complex. The savings were used for a beautification program, whereby over 26 trees and 800 plants were planted around the property.

In the case of municipal collection, most municipalities provide collection services on a regular basis. Since payment of service is not directly related to frequency of collection and size of the bin, there is no incentive for property owners or managers to minimize the amount of waste being generated and to introduce recycling programs. For this reason, municipalities engaged in user pay have either opted to discontinue providing collection services to multi-family buildings or have introduced payment schedules based on size of bin and frequency of collection (i.e. San Jose, California; and Seattle, Washington)

In situations of low-rise buildings (5 stories or less) where residents must bag their garbage and deliver it to the curb for collection, it is possible to require residents to use metered bags/stickers/tags and to have them pay directly for their use. Some landlords will distribute the bags/stickers/tags to the tenants and charge accordingly or they may require the tenant to

purchase the bags/stickers/tags at designated outlets just as a resident living in a single-family household must do.

4.6 Mixed Commercial and Residential Areas

Some of the studied communities with user pay/PAYT programs have applied the user pay/PAYT program to retail and commercial establishments receiving municipal curbside collection. This approach reduces the administrative burden associated with developing a separate program for this sector and also reduces confusion for the collection crew in residential and commercial collection areas. For example, The City of Orillia, which has a partial user pay program in place, requires that all retail and commercial establishments receiving municipal curbside collection comply with the user pay program requirements. City Staff report that the retail and commercial establishments have not experienced difficulties making the adjustment since most of their waste is recyclable.

Those communities with separate programs for the residential sector and the retail/commercial sector, receiving municipal curbside collection, have experienced problems in administering the program. For example the City of Barrie has a partial 2 bag user pay program for its residential sector, yet permits its retail and commercial sector, which receives municipal curbside collection to place up to ten bags of waste at the curb every week. Consequently, the collection crew tend to collect all waste placed at the curb in the downtown core from mixed residential and commercial establishments and have ignored the user pay program requirements.

4.7 Public Participation and Behaviour Change

The introduction of user pay/PAYT programs does have a positive impact on residential waste generation and diversion behaviours, especially immediately following their implementation. Residents respond to the direct financial cost associated with waste generation although in the case of the Ontario user pay case studies, the behaviour change is not necessarily maintained at the original level over time. In the PAYT cases, the behaviour is maintained although this is somewhat explained by the nature of the variable container program (as explained in section 5.4).

Once introduced, user pay/PAYT programs are generally well received by the public. Surveys conducted after the introduction of PAYT programs have received favourable comments, for example:

- In 1996, a survey conducted by the City of Seattle revealed that 90% of residents were satisfied with the PAYT system;
- In 2000, a survey conducted by the City of San Jose revealed that 88% of the population were satisfied with the PAYT program (up from 80% in 1993);
- In 1998, a City Auditor's Report for Portland found that 76% of residents rated the garbage and recycling services as good or very good.

Despite initial concerns about illegal dumping, the majority of communities with user pay/PAYT programs did not experience serious illegal dumping problems. As in the case of the profiled communities with bag limit programs in place, most communities have established enforcement procedures and fines in their waste management by-laws/ordinances to deal with illegal dumping. Communities rely on education and promotion to inform residents about the "zero-tolerance" towards illegal dumping rather than enforcing the by-law/ordinance penalty sections.

4.8 Supporting System Needs

Successful implementation of a user pay system requires a number of elements. These include:

Education - It is critical to allow adequate time and resources for elected representatives, staff, media and citizens to fully understand the objectives and the merits of user pay programs for waste management. Key messages include:

- the increased incentive and reward for waste reduction and diversion
- success stories in other comparable communities
- the opportunity to reduce or at least hold the line on taxes
- the fairness in having people pay directly for excess garbage they produce

Community Involvement in the Design of the Program - Increasingly, program designers are recognizing the importance of interacting with the community by developing community task groups that provide direct feedback and input into the design process. This approach ensures that members of the community feel comfortable with the program and ensures buy-in at the onset of program implementation.

3Rs Opportunities – Residents must have alternatives, other than the garbage bin, to manage their waste. These include good recycling, composting, bulky drop-off/pick-up and other programs. A common level of service should be provided for all residents in the jurisdiction.

Convenience - The user pay/PAYT system must be convenient for the community to use. There must be a good distribution network set up for bags, tags or carts to ensure that they are readily accessible to the public. The equipment used must work effectively, for example bags must be durable and tags must stick. Most communities encourage householders to place the sticker around the neck of the bag with each end of the tag sticking together. This approach minimizes the chance of the sticker falling off the bag or being stolen or reused.

Tag Distribution System - Tag distribution is the responsibility of the municipal government, which will select retail stores and municipal buildings (i.e. libraries or city hall) as distribution locations. Retail stores often include grocery stores, corner convenience stores, and drug stores. Store owners are provided with advertisements (i.e. window ads and stickers) to promote the program and are listed in local newspapers and other educational material as a participating outlet. Most surveyed communities suggested that this level of promotion is enough for the retail owners, who also benefit from customers coming in to purchase the tags and other merchandise. Rarely are the retail owners financially compensated.

Infrastructure Modifications – Depending on the type of system introduced, there may be a need to alter the existing waste management infrastructure to accommodate the system. For example, a variable subscription system will require the establishment of an automated billing system and the possible retrofitting of collection vehicles for semi or fully automated collection.

Enforcement - Some form of enforcement is necessary to keep the system operating smoothly. Methods are needed for solving potential illegal dumping by the homeowner. Some communities will hire additional enforcement staff for the early stages of program implementation and will enact anti-dumping legislation with fines that act as a deterrent to illegal

dumping. Consequently, illegal dumping rarely becomes a long-term problem for communities. Keeping enforceable weight limits on bags and containers discourages over-compaction of the containers.

5.0 A SUMMARY OF PROGRAM IMPACTS

The implementation of a bag limit program (less than or equal to three bags) or a user pay/PAYT program has a positive impact on waste diverted from landfill and diversion programs (i.e. recycling and leaf and yard waste¹⁴). Figure 5.1 illustrates the percentage change in waste to landfill and diversion of the total residential waste stream for the profiled communities before program implementation and in the year 1999. In the majority of cases, the amount of waste disposed has decreased and the amount of diverted materials has increased after program implementation. In fact, for the majority of the profiled communities, the bag limit programs and user pay/PAYT programs have been in place for many years when comparing results in 1999.

Figure 5.1 suggests that the implementation of bag limit programs (less than or equal to three) or user pay/PAYT programs improves waste diversion over the long term by achieving continued reduction of waste to landfill and increased diversion of recyclables and, to a lesser extent, leaf and yard waste. The greatest improvement occurs with the full PAYT programs, although for many of the profiled communities, new or enhanced recycling and leaf and yard waste programs were introduced at the same time as PAYT. Furthermore, since the introduction of these programs, two of the profiled communities (Cities of San Jose and Seattle) have achieved more than 50% diversion of the single family residential waste stream.

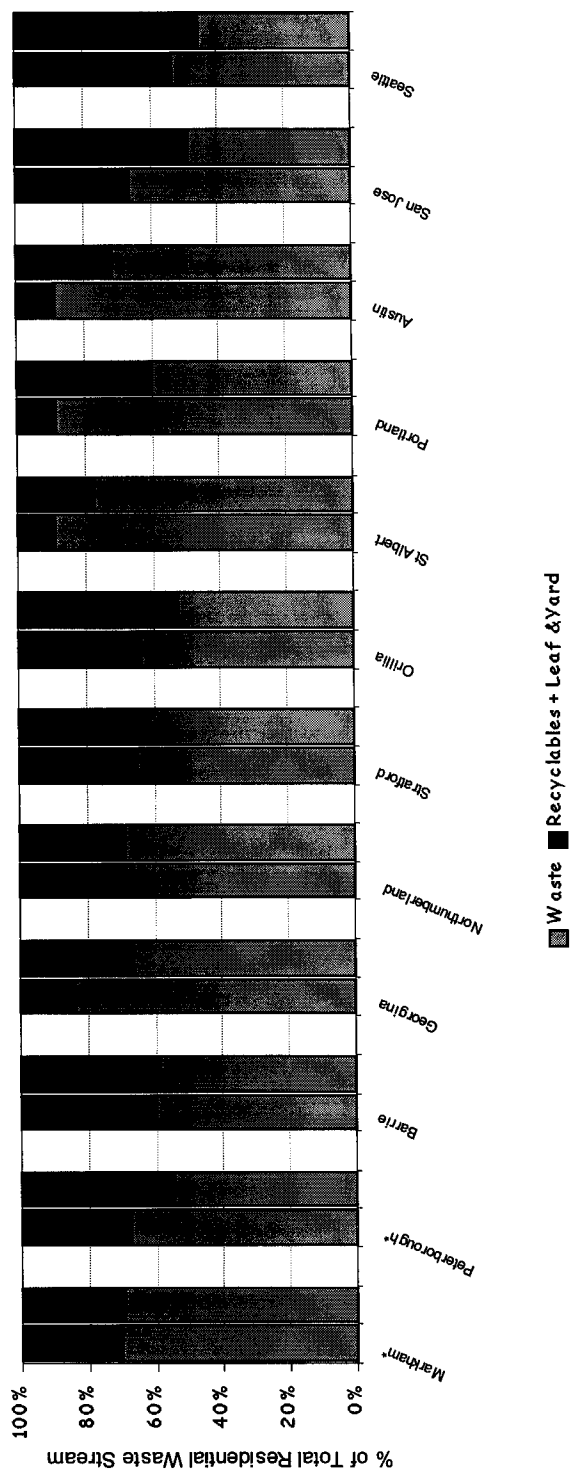
It should be stressed that the results are influenced by other variables such as the number of materials collected through the recycling program over time, the introduction of mandatory recycling by-laws/ordinances or grass clipping bans, and the level of leaf and yard waste curbside collection service provided to the resident. The study attempted to isolate the impacts of these variables as much as possible by addressing the major diversion activities separate from garbage collection.

Showing the percentage change in waste disposed and diversion does not illustrate the impacts on a kg/sfh/year basis. Figure 5.2 plots waste disposed and waste diverted by kilograms per household per year before the introduction of bag limits or user pay/PAYT and in the year 1999. Many of the Ontario based communities demonstrate that some source reduction has taken place following the introduction of bag limits/PAYT. The combined waste and diversion numbers for 1999 are lower than for the pre bag limit/user pay year. The difference can be attributed to source reduction initiatives such as backyard composting, grass cycling, xeroscaping, reuse activities, and purchasing less packaging. The PAYT communities do not experience a reduction in combined waste disposed and waste diversion rates (with the exception of Austin, Texas); in fact, the rate of overall waste generation has increased over time in these PAYT communities.

Review of the residential waste disposal and recovery rates measure as kilograms per single-family household per year provides some interesting results. Figure 5.3 shows changes in residential waste disposal and recovery rates for different periods of time. The point of interest is the impact of the programs on waste disposal after the introduction of user pay/PAYT. Prior to the introduction of these programs, six of the ten profiled communities produced over 800 kg/sfh/year, after diversion of recyclables and leaf and yard wastes was taken into account. After user pay/PAYT, all profiled communities experienced a drop in waste disposed immediately following program launch and only one community (Stratford) continued to dispose more than 800 kg/sfh/year (after diversion of recyclables and leaf and yard waste was taken into

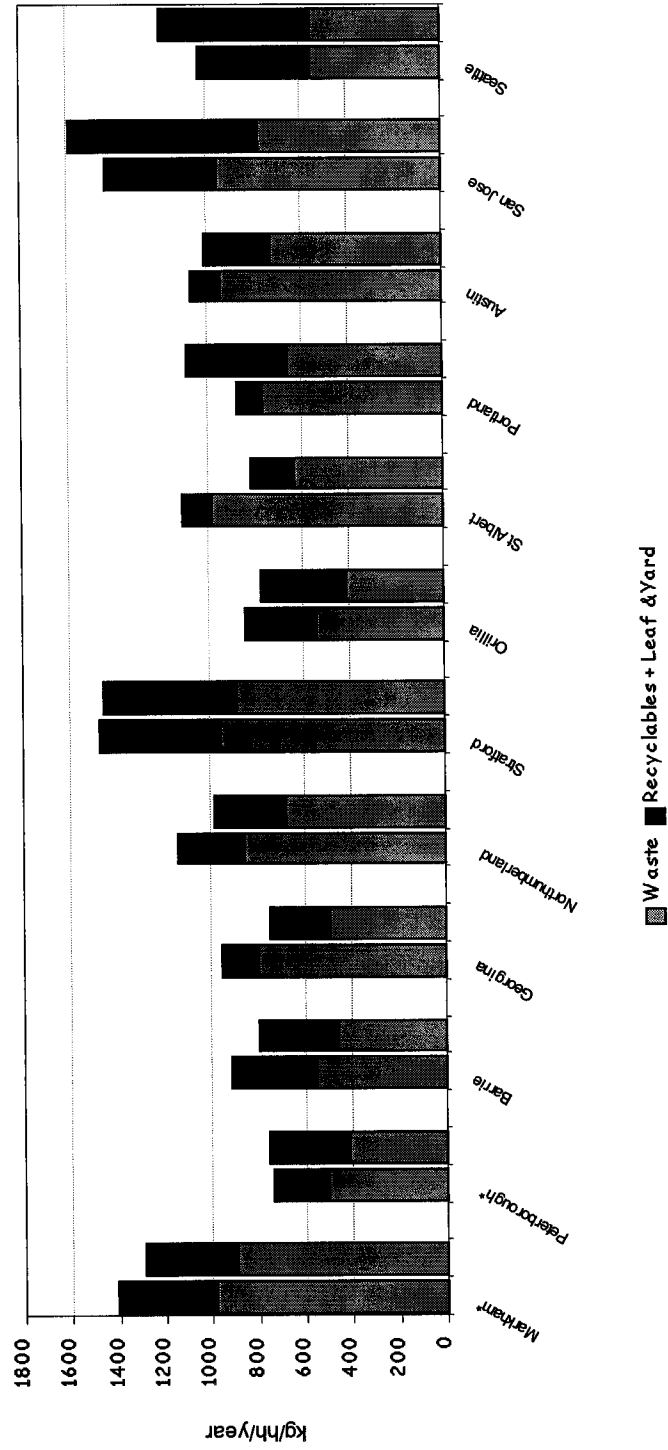
¹⁴ Leaf and yard waste has experienced greater fluctuation in some communities but when combined with recyclables the overall diversion is greater after program implementation than before program implementation.

Table 5.1
% Waste Disposed and Diverted Pre and Post Bag Limit or User Pay/PAYT**



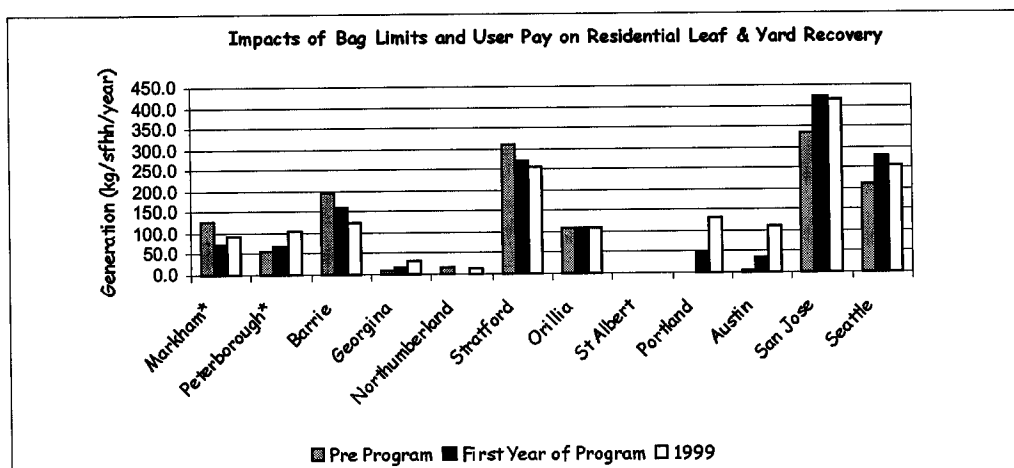
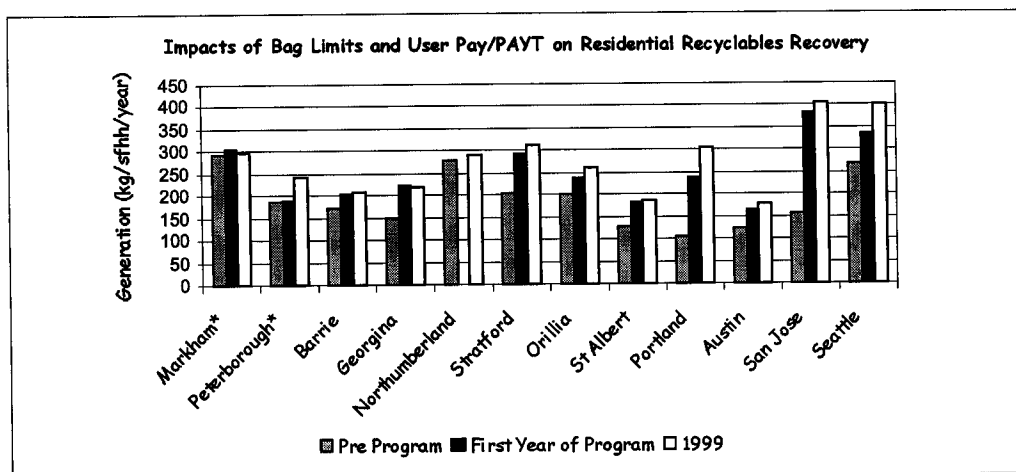
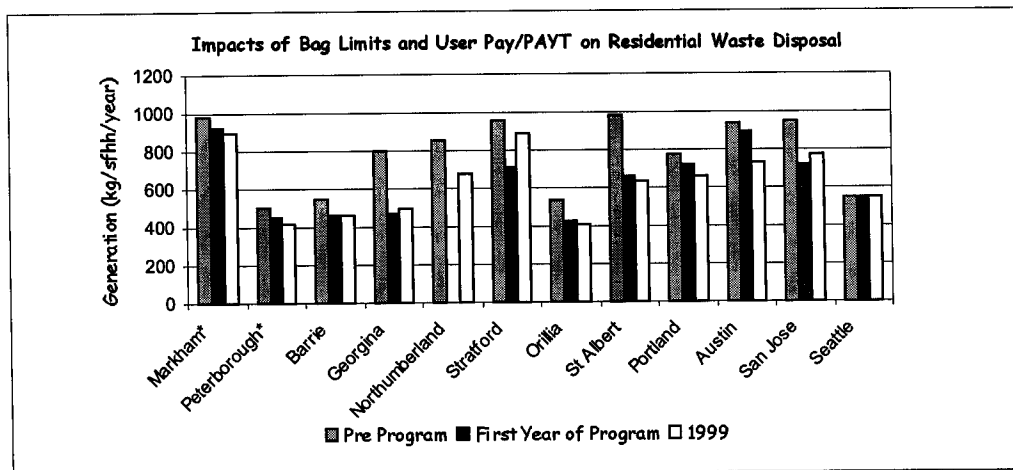
* Bag limit program ** "post" data is 1999

Table 5.2
Diversion and Disposal Pre and Post Bag Limit or User Pay/PAYT**
(kg/hh/year)



* Bag limit program ** "post" data is 1999

Table 5.3
Impacts of Bag Limit and User Pay/PAYT on the Residential Waste Stream



* Bag limit programs

account) several years after. This finding is particularly important for City of Toronto, which will shortly be paying full market rate for waste disposal. Therefore, waste reduction will result in significant annual budget savings.

Recycling rates have all increased on a kg/sfh/year basis after the introduction of bag limit and user pay/PAYT programs, as shown in Figure 5.3. In fact, for all the profiled communities (with the exception of Georgina and Markham) the recycling rate continues to increase over the years. The changes in the amount of leaf and yard waste diverted on a kg/sfh/year basis varies considerably from community to community with only the US subscription PAYT case studies showing an increase in diversion over the years.

6.0 FINDINGS AND IMPLICATIONS FOR TORONTO

The research conducted on bag limit and user pay/PAYT programs highlights several key findings is summarized below:

1. **Custom Design is Necessary:**

There is no standardized approach to the design and implementation of a user pay program. The level of education and promotional needs, fee structure, and level of recycling and leaf and yard waste curbside collection services varied considerably among the communities studied. Many program operators recommended reviewing other programs before implementation. Studying other programs can help identify potential issues and obstacles that may be avoided during the design and implementation stages. The majority of the communities studied took the additional time during the design stage to investigate the operations of other user pay systems adopted in communities of similar sizes or with similar programs. In response to this need, the US Environmental Protection Agency (EPA) has developed a series of reports and programs to aid communities in developing a customized program that meets the needs of their community.

Implications for Toronto: *The City of Toronto will need to further examine those communities with bag limits or user pay/PAYT programs, which best meet its residential and infrastructure characteristics and needs. Staff from the City of Austin, Texas recommended implementing the user pay program as a series of pilots over a period of several years, which will enable better feedback and program modification before it is fully operational.*

2. **Comprehensive Waste Diversion Program Required:**

Comprehensive waste diversion and recycling programs must be part of a user pay/PAYT program. All the communities highlighted in the case studies had adopted recycling programs, augmented with leaf and yard waste composting programs and backyard composting programs. Optional programs included household hazardous waste depots, bulky waste collection programs and drop-off centres. In many of the cases, the waste diversion programs were robust and continued to evolve and expand over time to meet the changing needs and demands of the residents.

Implications for Toronto: *The City of Toronto currently provides a comprehensive curbside recycling and leaf and yard waste program (comparable to those programs offered by communities with user pay/PAYT programs already in place), which will meet the needs of a bag limit or user pay/PAYT program. Ensuring the continued evolution of these programs should be an important part of any program design and development.*

3. **Public Education is Critical:**

Public education programs play a critical role during the early stages of bag limit or user pay/PAYT implementation. Each of the communities studied has implemented an extensive education and promotion campaign focusing on printed materials, advertisements, and

hotlines. Those cities with PAYT programs, took into consideration the various ethnic groups when designing the communication literature. Some communities tried to incorporate the opinions of the community into the design of the program, although this was more an anomaly than a common strategy. The focus of the education and promotion campaigns was to disseminate information about the program and answer questions from the public. Many of the communications emphasized the environmental and fairness aspects of the program.

Implications for Toronto: *The City of Toronto will need to launch an education and promotion campaign well in advance of any program implementation and will need to maintain the communications after the program launch. Furthermore, the City will need to address the various ethnic groups in the city. The City may benefit from involving its citizens in the design of the program through surveys and the establishment of a community advisory group. The adoption of a six-bag limit is the first step in this direction, with bag limited lowered in subsequent years to a three bag limit where the effects are more noticeable.*

4. Separation of Waste Management System Financing a Viable Option in the United States:

The need to establish a separate “enterprise or utility” fund dedicated to waste management activities was common to the PAYT programs studied. One of the first initiatives identified by those communities featured in the case studies was the development of a waste management fund, separate from the general revenue fund. Many communities were unable to evaluate the true fixed and variable costs and revenues associated with their integrated waste management and diversion programs until a separate waste management fund was truncated from the general fund. The only large Canadian community identified that has established a separate utility fund was the City of Edmonton (see the case study), although it did not experience any changes in waste diverted from landfill as a direct result, because it is simply administered as a flat fee per household with no incentive to reduce.

Implications for Toronto: *Establishment of a separate funding source for waste management may be an option for Toronto to consider as a way of slowly moving to a user pay system. The establishment of a utility fund could be coupled with a bag limit program with the gradual transition to user pay. The utility fund may work best if the City of Toronto decides to introduce a variable container program. At some point in the future, waste management costs should also be removed from the tax bill.*

5. Carts and Automated Equipment have Trade-offs:

Many large municipalities in the United States are moving towards user pay programs that offer a variety of container sizes that are collected using semi-automated collection equipment. Austin, Texas found that the semi-automated system reduced employee injuries and reduced the number of collection crew from a 3-person crew per vehicle to a 2-person crew per vehicle. However, Austin also found that the equipment reduced the number of households serviced per route from 750 households per day to 650 households per day since the cart and semi-automated equipment combination required more time per pick-up.

The Kinnaman and Fullerton (April, 1997) study discovered that bag/tag programs reduce garbage and increase the amount of recycling more than a subscription programs.

Implications for Toronto: *The City of Toronto should review other large cities that have switched to semi-automated collection systems to ensure that the benefits outweigh the concerns. The programs described in the case studies have used the technology for several years to determine the short and long-term implications, and can likely provide some valuable insights for Toronto. In addition, the City should identify cities that are located in northern climates that experience snow in the winter and have residential density characteristics similar to Toronto. There may be some concern that access to carts will be a problem in the winter; however, there are examples of communities located in northern climates (such as Minneapolis, Minnesota; St. Albert, Alberta; and Drummondville, Quebec) that have successfully used cart collection systems. These communities should be further examined to see how their cart-based systems work. The City of Toronto may want to consider a number of variations on the cart collection theme including using 32 gallon carts for organics collection augmented with a bag program for garbage.*

6. Multi-Family Buildings Continue to Present Challenges:

There are no systems currently in place for dealing with individual tenants within multi-family buildings. Most communities have decided not to get involved in servicing multi-family buildings or to charge directly for the individual waste generated by the tenants. Some communities have established increasing variable rates for different volume containers as an incentive to promote recycling within the multi-family buildings. The reasoning behind providing variable container rates that get progressively more expensive as the size of the container increases is to encourage the property manager/owner to promote recycling activities and thereby reduce the container size and the costs incurred. All the communities, however, extended the recycling programs to apartment buildings, providing the tenants with similar opportunities to participate in recycling activities. Although technology exists to weigh commercial waste bins and charge by weight back to the commercial establishment, this technology is not commonly used for multi-family buildings. If viable, it would encourage further waste diversion programs since the property managers/owners are paying by weight instead of volume

Implications for Toronto: *No viable options have been identified to charge multi-family households at the individual level. Methods of charging variable rates at the building level have been explored by Toronto staff and options will be presented to the Works Committee in 2001.*

7. Mixed Commercial and Residential Areas Can Present Challenges:

Communities that have established separate waste collection programs for commercial and residential areas that receive municipal curbside waste collection have run into problems making distinctions between the different programs. Collection crew are more likely to ignore the more complicated system (i.e. user pay) in the mixed residential and commercial areas, as in the case of Barrie which does not require the commercial sector receiving municipal waste collection to participate in its user pay program. This problem has been resolved by applying the same user pay/PAYT rules to the retail and commercial establishments that receive municipal curbside collection which is required by the communities of Orillia and Stratford. Orillia staff report that most of its commercial customers had no problem adapting to the user pay

programs since they recycle most of their waste anyway (mostly paper and OCC). Profiled PAYT communities in the United States do not offer municipal collection service to the commercial sector but in order to promote recycling, the Cities of Seattle and San Jose have eliminated or significantly reduced the franchise fees or certain taxes for commercial establishments with recycling programs.

Implications for Toronto: *If the City of Toronto chooses to implement a user pay system it should apply it to all buildings that receive municipal curbside waste collection in order to minimize confusion and potential administrative burden. Some surveyed communities in Ontario require all commercial establishments that receive municipal waste collection to participate in the user pay program and do not distinguish the residential sector from the commercial sector in any way. Options for implementing various programs are currently being explored by Toronto staff.*

References

- Association of Municipal Recycling Coordinators (AMRC). 1996. **User Pay Implementation Kit**. Guelph, Ontario.
- Baldwin, Derek. December 10, 2000. "Happy Birthday Recycling!" In **Intelligencer**.
- Burgiel, Jonathan and Raymond Randall. 1998. **National Unit-Based Pricing Survey Results**. A survey sponsored by R.W. Beck, Inc. and the Solid Waste Association of North America.
- Environmental Protection Agency (EPA). April 1997. **Pay-As-You-Throw Success Stories**. United States Environmental Protection Agency, EPA-530-R-97-007.
- Environmental Protection Agency (EPA). December 1998. **Full cost Accountiing in Action**. United States Environmental Protection Agency, EPA-530-R-98-018.
- Environmental Protection Agency (EPA). January 1999. **Rate Structure Design: Setting Rates for a Pay-As-You-Throw Program**. United States Environmental Protection Agency, EPA-530-R-99-006.
- Environmental Protection Agency (EPA). June 1999. **Cutting the Waste Stream in Half: Community Record-Setters Show How**. United States Environmental Protection Agency, EPA-530-R-00-013.
- Horton, Tonia. December 1998. "Environomics: Can the Marriage of Economics and the Environment End Happily Ever After?" In **MSW Management**. Vol. 8, No. 7: 50-57.
- Knapp, Bill. February 1997. "Before You Automate, Have the Plan in the Can". In **World Wastes**, vol. 13. no. 2: 30-35.
- Jenkins, Robin et. Al. May 1999. **The Determinants of Household Recycling: A Material Speicific Analysis of Unit Pricing and Recycling Program Attributes**. From web site Ksnotes1.Harvard.edu.
- Kinnaman, Thomas and don Fullerton. April 1997. **Garbage and Recycling in Communities With Curbside Recycling and Unit-Based Pricing**. Working Paper Serices, National Bureau of Economic Research, Inc. Cambridge Massagchusetts.
- Miranda, Marie Lynn et. Al. 1999. **Unit Based Pricing in the United States: A Tally of Communities**. Nicholas School of the Environment, Duke University, Durham, North Carolina.
- Miranda, Marie Lynn and Sharon LaPalme. 1997. **Unit Based Pricing in the United States: A Tally of Communities**. Nicholas School of the Environment, Duke University, Durham, North Carolina.
- Reschovsky, J.D. and S.E. Stone. 1994. "Market Incentives to Encourage Household Waste Recycling: Paying for What You Throw Away". In **Journal of Policy Analysis and Management**. Vol. 13, No. 1: 120-139.
- Skumatz, Lisa. June 1993. **Variable Rates for Municipal Solid Waste: Implementation, Experience, Economics and Legislation**. Reason Foundation, Los Angeles, California.

Skumatz, Lisa. August 2000. "Source Reduction can be Measured". In **Resource Recycling**. Vol. 38, No. 8: 22-26.

APPENDIX A

Survey Template

User Pay/PAYT Survey

Community _____

Contact _____

State/Prov. _____

Phone # _____

Population _____

Email _____

User Pay/ PAYT	User Pay System	Bag Limit	Pricing	Date Started	% waste diversion increase	% recycling increase	% leaf & yard increase	# BYC increase
Yes	Tag/Bag	0						
No	Container	1						
		2						
		3						
		4						

Program Description

Pricing/Financing

Recycling Program

	Before	After
1	Type of recycling program None Depot throughout community Curbside collection Depot at landfill/transfer station	Type of recycling program None Depot throughout community Curbside collection Depot at landfill/transfer station
2	Materials collected	Materials collected
3	Material Bans at landfill Yes type No	Material Bans at landfill Yes type No
4	Frequency of collection Weekly Bi-weekly other	Frequency of collection Weekly Bi-weekly other
5	Type of Service Municipal service Privately contracted by hhld	Type of Service Municipal service Privately contracted by hhld

6	Financing Municipal taxes Municipal utility fixed fee Pay as you go Private contract arrangement	Financing Municipal taxes Municipal utility fixed fee Pay as you go Private contract arrangement
7	Diversion rate _____ tonne or ton _____ year	Diversion rate _____ tonne or ton _____ year

Leaf and Yard Waste

	Before	After
1	Type of L&Y collection program None Depot throughout community Curbside collection Depot at landfill/transfer station	Type of L&Y collection program None Depot throughout community Curbside collection Depot at landfill/transfer station
2	Materials collected	Materials collected
3	Material Bans at landfill Yes type No	Material Bans at landfill Yes type No
4	Type of Service Municipal service Privately contracted by hhld	Type of Service Municipal service Privately contracted by hhld
5	Financing Municipal taxes Municipal utility fixed fee Pay as you go Private contract arrangement	Financing Municipal taxes Municipal utility fixed fee Pay as you go Private contract arrangement
6	# hhlds with backyard composters	# hhlds with backyard composters
7	diversion rate _____ tonne or ton _____ year	diversion rate _____ tonne or ton _____ year

Food Wastes (if yes, go to end of survey)

Bulky Wastes

	Before	After
1	Type of recycling program None Curbside collection	Type of recycling program None Curbside collection

2	Materials collected	Materials collected
3	Material Bans at landfill Yes type No	Material Bans at landfill Yes type No
4	Type of Service Municipal service Privately contracted by hhld	Type of Service Municipal service Privately contracted by hhld
5	Financing	Financing
6	Capture rate _____ tonne or ton _____ year	Capture rate _____ tonne or ton _____ year

Has participation changed over time? How? Why?

What supporting education and promotion program was implemented?

What illegal dumping problems has your community experienced? How has the problem been solved?

Supporting administration requirements? Additional costs for administration?

Lessons Learned

THANK YOU FOR YOUR HELP

Food Waste Collection Program

	Before	After
1	Type of food waste collection program None Depot throughout community Curbside collection Depot at landfill/transfer station	Type of food waste collection program None Depot throughout community Curbside collection Depot at landfill/transfer station
2	Materials collected	Materials collected
3	Material Bans at landfill Yes type No	Material Bans at landfill Yes type No
4	Frequency of collection Weekly Bi-weekly other	Frequency of collection Weekly Bi-weekly other
5	Type of Service Municipal service Privately contracted by hhld	Type of Service Municipal service Privately contracted by hhld
6	Financing Municipal taxes Municipal utility fixed fee Pay as you go Private contract arrangement	Financing Municipal taxes Municipal utility fixed fee Pay as you go Private contract arrangement
7	Capture rate _____ tonne or ton _____ year	Capture rate _____ tonne or ton _____ year

APPENDIX B

Detailed Case Studies

Bag Limit Case Study Town of Markham

Relevance to Toronto: Recent introduction of a 3-bag limit in large urban community within the GTA.

Demographics:

Population: 190,000

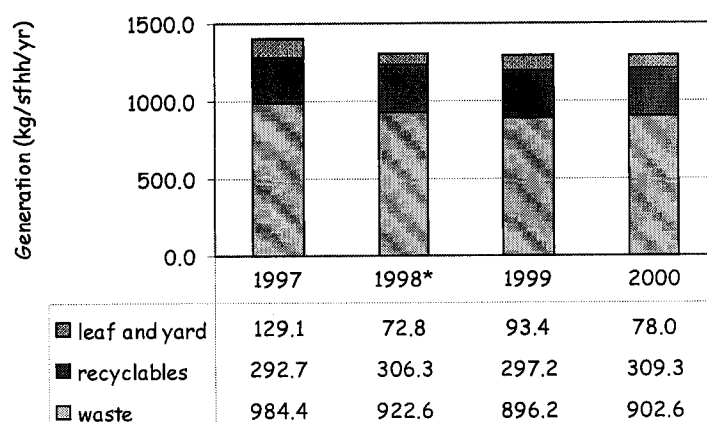
Households: 51,768

- Markham is the largest of nine communities in York Region.

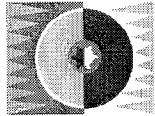
Town of Markham, Waste Diversion at a Glance

Type of System	Date Started	Years with Data*	% change in waste landfilled (kg/sfhh/yr)	% change in recycling (kg/sfhh/yr)	% change in leaf & yard collection (kg/sfhh/yr)	% diversion (without BYC)
			Compared with baseline year 1997			
3 bag limit system	April 1998	1997				30%
		1998	-6%	+5%	-44%	29%
		1999	-9%	+2%	-28%	30%
		2000	-8%	+6%	-40%	30%

Markham - Impacts of User Pay



* Bag limit program introduced April 1998



Program Description:

- Town of Markham introduced a three bag limit in April 1998, called a "voluntary" bag limit program.
- Twelve additional tags are distributed to each household annually and residents may also pick-up additional tags for free at the Civic Centre and recycling depots.
- Amnesty days are offered twice a year (one in spring and fall) whereby the household can place bags of garbage to the curb without requiring additional tags to be placed on the waste.
- Bags placed at the curb without tags will be collected.
- The three bag limit was established partly due to information from setout studies that showed that most householders placed less than 3 bags of garbage at the curb per week (actual setout average was 2.6 bags/household/wk).
- Maximum weight per bag or container is 50 lb. (22 kg.). Collection crew monitor bag weight "by feel" during collection. Orange stickers are placed on bags that exceed maximum weight and are left at the curb with a notice attached to the bags.
- Prior to the 3 bag-limit programs, residents were permitted to place 6 bags at the curb

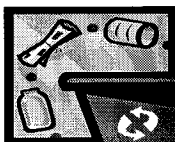


Impacts on Waste to Landfill

Year	SFH*	Tonnes	% Change from base year (1997) in kg/sfhh
1997 (base year)	44350	43,660	
1998	46270	42,690	-6%
1999	48190	43,186	-9%
2000	50110	45,231	-8%

*Note: SFH Household numbers estimated from Current and Forecast Total Housing By Unit Type, 1996-2021 data posted on Markham's website.

- From 1997 to 1999, waste generation dropped from 250 kg. capita/year to 239 kg. capita/year (6% decrease).
- Approximately 8% of householders are placing more than 3 bags of garbage to the curb on a regular basis.
- Less than 4% of households place additional bags of garbage to the curb without a tag (96% of householders are in compliance).



Impacts on Recycling

Year	SFH*	Tonnes	% Change from base year (1997) in kg/sfhh
1997 (base year)	44350	12,980	
1998	46270	14,172	+5%
1999	48190	14,324	+2%
2000	50110	15,500	+6%

*Note: SFH Household numbers estimated from Current and Forecast Total Housing By Unit Type, 1996-2021 data posted on Markham's website.

- The recycling program has not changed since the introduction of the 3 bag limit program.
- The Town provides weekly curbside collection.
- The recycling program collects the following materials: ONP, OMG, OCC, phonebooks, OBB, books, milk/juice cartons, household paper, kraft paper, molded pulp, clean and coloured glass containers, steel and aluminum cans, plastics (#1 & #2).



Leaf and Yard Waste

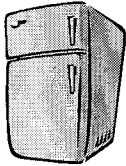
Year	SFH*	Tonnes	% Change from base year (1997) in kg/sfhh
1997 (base year)	44350	5,276	
1998	46270	3,370	+44%
1999	48190	4,503	+28%
2000	50110	3,907	+40%

*Note: SFH Household numbers estimated from Current and Forecast Total Housing By Unit Type, 1996-2021 data posted on Markham's website.

- The Town of Markham provides weekly leaf and yard waste collection from April to November.
- The Town of Markham introduced a ban on grass clippings concurrent with the implementation of the 3 bag limit program.
- Extensive promotion of the ban began in 1997 and the ban was fully implemented in 1998.
- In the summer, a student monitors bags ahead of the collection crew. By-law infraction notices are given out for bags that contain grass. Bags are not left behind. Second

offenders receive a letter from the Director of Environmental Services that outlines the noncompliance and asks the resident to make an appointment to obtain more information of waste diversion.

- Markham advertises the grass ban through posters, cable t.v., newspaper ads and media releases. The town promotes the alternatives to the public, especially in the spring and fall.



Bulky Waste

- Markham has not changed its policy on the collection of bulky wastes, which it collects for free at the curb.
- Residents must make an appointment to have bulky wastes collected.

Changes in Participation over time:

- A survey conducted in the year 2000 showed the compliance rate for the 3 bag limit program at 96%.
- Residents that place bags without tags at the curb more than two times are sent a letter for the Director of Environmental Services and asked to make an appointment with staff to learn more about waste diversion programs.

Education and Promotion:

- Six months prior to the introduction of the bag limit program, each household received a package of information containing an Environmental Booklet, grass cycling gauge, recycling instruction card, newsletter, etc.
- Newspaper ads ran in the local newspaper.
- Additional packages of information were sent after the launch of the 3 bag limit.
- Currently residents receive an annual package containing 12 tags, a yard waste schedule, a guide on how to use the recycling program and statistics showing the successes of the program.

Administration Support:

- The Town of Markham hires six summer students each year to monitor the program.
- Administration is involved in the distribution of the annual package of information sent to every household.
- The Town has made a list of semi-detached homes and/or townhouses, which it uses to monitor the 3 bag limit.

Lessons Learned:

- The Town of Markham stresses the importance of regularly communicating the environmental successes (i.e. increases in recycling rates) associated with the program.
- The Town has discovered better buy-in for the program if it focuses on environmental benefits rather than economic benefits.

User Pay Case Study City of Peterborough, Ontario

Relevance to Toronto: Over 5 years, moved from a 6 to 3 bag limit in 1994, and to a 2 bag limit in 1995. Close to Toronto.

Demographics:

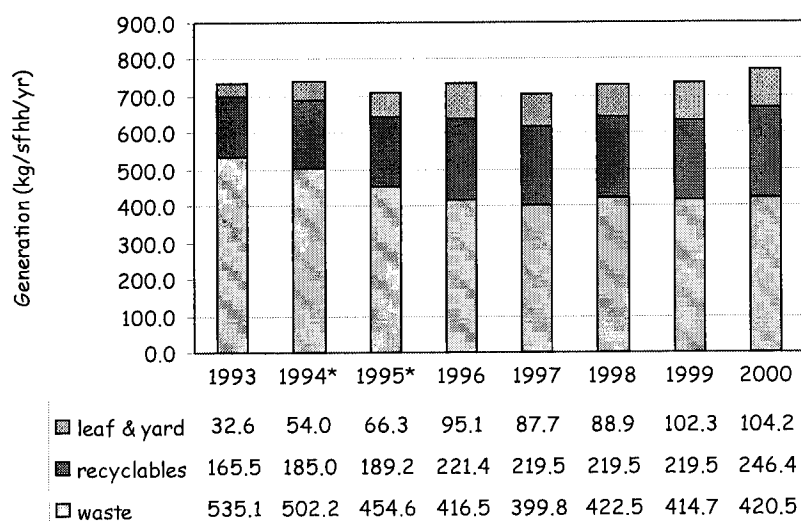
- Population: 68,748 (2000)
- Households: 29,000

City of Peterborough, Waste Diversion at a Glance

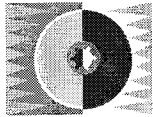
Type of System	Date Started	Years with Data	% change in waste landfilled (kg/sfhh)	% change in recycling (kg/sfhh)*	% change in leaf & yard collection (kg/sfhh)	% diversion (without BYC)
			Compared with baseline year 1993			
Bag Limits	3 bag limit introduced in 1994	1993				+27%
		1994	-6%	+12%	+66%	+32%
		1995	-15%	+14%	+104%	+36%
		1996	-22%	+34%	+192%	+43%
	2 bag limit introduced in 1995	1997	-25%	+33%	+169%	+43%
		1998	-21%	+33%	+173%	+42%
		1999	-23%	+46%	+214%	+45%
		2000	-21%	+49%	+220%	+45%

*Note: New materials added to recycling program in 1993, 1994, 1995 and 2000.

Peterborough - Impacts of Bag Limits



* Bag limit reduced from 6 to 3 in 1994 and 3 to 2 in 1995



Program Description:

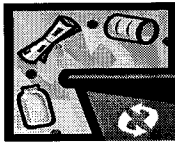
- The City of Peterborough introduced a two bag/container limit per week in 1995. Prior bag weekly limits were 18 bags in 1989, 6 bags in 1990, four bags in 1991 and three bags in 1994.
- An acceptable container is defined as a 120 litres (32 gallon can) or a plastic bag. Containers cannot exceed 23 kg (50lb).
- Households that exceed the two container limit are required to store waste until a subsequent collection period or drop waste at the landfill for a minimum fee of \$5.00.
- The data provided by the City included the following: 1) waste to landfill data includes businesses that participate in the 4 bag business bag limit but excludes most residential multi-units with six or more units. City staff expect these factors to balance out. 2) The recycling tonnages include collection from businesses that participate in the curbside waste collection program and large multi-units.



Impacts on Waste to Landfill

Year	HHs	Tonnes	% Change from base year (1993)
1993 (base year)	27,950	14956	
1994	28,100	14111	-6%
1995	28,250	12842	-15%
1996	28,400	11829	-22%
1997	28,550	11414	-25%
1998	28,700	12126	-21%
1999	28,850	11964	-23%
2000	29,000	12195	-21%

- Average set out of 1.2 bags/household/week.



Recycling

Year	HHs	Tonnes*	% Change from base year (1993)
1993 (base year)	27,950	4627	
1994	28,100	5199	+12%
1995	28,250	5346	+14%
1996	28,400	6289	+34%
1997	28,550	6268	+33%
1998	28,700	6301	+33%
1999	28,850	6956	+46%
2000	29,000	7146	+49%

*Note: The recycling tonnages include collection from businesses that participate in the curbside waste collection program and large multi-units.

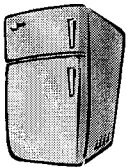
- Weekly collection.
- Curbside Blue Box program since 1987.
- Since 1995, blue box recyclables have been banned from waste disposal.
- The City currently collects: ONP, OCC, OBB, OMG, mixed paper, glass, plastics #1 and #2, aluminum cans and foil, steel cans, empty paint cans, empty aerosol cans, aseptic packages and gable top cartons. Polystyrene can be dropped off at the depot.
- Blue box materials evolved as follows:
 - In 1987, the City collected glass containers, metal cans, ONP and Plastic #1 bottles.
 - Film plastic was introduced in 1991.
 - In 1993, plastic #2 bottles, OMG, OCC and foil were added.
 - In 1994, OBB and phone books were added.
 - In 1995, plastic tubs and jugs and mixed paper were added.
 - In 2000, empty paint cans, empty aerosol cans, aseptic packages and polycoat was added.
- A study showed the average set out per household is 8.8 kg and the average bag weight is 6.6 kg.



Leaf and Yard Waste

Year	HHs	Tonnes	% Change from base year (1993)
1993 (base year)	27,950	910	
1994	28,100	1516	+66%
1995	28,250	1873	+104%
1996	28,400	2700	+192%
1997	28,550	2504	+169%
1998	28,700	2552	+173%
1999	28,850	2950	+214%
2000	29,000	3021	+220%

- Weekly collection between April and November.
- Mandatory leaf and yard waste composting by-law.
- Curbside collection of leaf and yard waste introduced in 1993. Loose collection of leaves since 1990.
- Since 1990, over 13,000 composters have been purchased by residents through the City's subsidy program.
- Since September 1998, the City has provided a 50% subsidy on the cost of a mulching blade, that can be installed on most lawn mowers.
- Yard waste tonnages (above) exclude estimated loose curbside leaf collection. Between 1994 to 1997, an estimated 965 tonnes per year of loose leaves were collected. With the promotion of mulching, the City estimates the following: 465 tonnes in 1998; 431 tonnes in 1999 and 456 tonnes in 2000.



Bulky Wastes

- Since 1992, four large article collections are scheduled each year. Tickets must be purchased the week before collection at City Hall or Public Works for \$15 for the first item and \$5 for each additional item.
- Bulky items are defined as items over 23 kg (50 lbs).

Exchange Day

- Since 1991, the City has sponsored 2-3 "Reusables Exchange" weekends per year. Participants place reusable items to curb on the Friday and pick up remaining items on the Sunday evening.

Textiles Collection

- Since 1996, in partnership with Peterborough Green-Up, two curbside textiles drives are held each year.

Promotion and Education:

- The program is promoted on the website,

Lessons Learned:

- The City always introduced alternatives for reducing waste when new bag limits were introduced.
- Staging program changes over time will help get a higher level of support (e.g., material ban and reduced bag limit).

Future Goals:

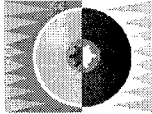
- Collection of food wastes being investigated in 2001.

Bag Limit Case Study Burnaby, British Columbia

Demographics:

Population: 180,000

Households: 36,000 households served



Program Description

- The "Think Three" bag/container limit introduced in January 1997. This was the first time the City imposed a bag limit.
- The maximum allowable weight is 33 kg (50 lb). Cans up to 77 litres and 19" x 22" and bags up to 24" x 36" are acceptable.
- If residents place out more than 3 bags on for weekly pickup, one bag will be left behind with a sticker that reminds the household to "Think Three."



Impacts on Waste to Landfill

- Data for households participating in the "Think Three" program was unavailable.
- An April 2000 survey determined that the average household places out 2.16 bags/cans per week.
- The City was unable to provide data with a breakout of waste to landfill, recycling or leaf & yard waste for the households participating in the "Think Three" program.



Impacts on Recycling

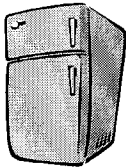
- Blue box program was introduced in 1990.
- Weekly pick-up with garbage collection.
- The municipality currently collects: aluminum and steel cans, glass bottles and jars, plastic bottles #1 & #2 in the Blue Box, ONP in the Blue Bag and OCC and mixed paper in the Yellow Bag.
- Since October 1998, the deposit-return system has included all ready-to-serve beverages (except milk/milk products and infant formulas/meal supplements).

- The Greater Vancouver Regional District (GVRD) has banned the disposal of OCC (since 1997) and newspaper and office paper (since April 1998) at all disposal facilities. GVRD inspectors at local transfer and disposal facilities randomly inspect loads of garbage to determine the presence of banned paper products in the load. Loads containing more than 10% corrugated cardboard, newspaper and office paper (by volume) will be assessed a 50% surcharge. Loads with less than 10% will not be surcharged.¹
- British Columbia mandated a goal of at least 50% reduction in per capita garbage disposal by the year 2000.



Impacts on Leaf and Yard Waste

- Curbside leaf and yard waste implemented Spring 1997 and became city-wide in 1998. Unlimited pickup is available on the same day as weekly garbage and recycling collection from March to November.
- Residents may also use the year round drop off Yard Waste Centre, whereby residents (with proof of residency) can drop off up to 50 kg of yard waste free of charge each day. Additional yard waste is accepted at a charge of \$48/tonne and a minimum \$10 charge is applied during the growing season.
- The City sells composting bins for \$30 with a \$5 delivery option. Between 1998 and 2000, 623 composters were sold.



Bulky Wastes

- Residents can call to arrange for pickup of one bulky item per week during regular garbage collection. Old appliances may also be dropped off at the Recycling Depot.

Changes in Participation over time:

- The City reported no significant changes in participation since the program was introduced in 1997. No issues with illegal dumping have been observed.

Administration Support:

- Initial promotion of the "Think Three" program included: distributing door hangers to all households, publishing advertisements in local papers, news releases and truck advertising with the "Think Three" slogan.

¹ FAQ (Frequently Asked Questions) about recycling and garbage.
www.gvrd.bc.ca/services/garbage/faq/Old_in%20progress/swfaq.html. Accessed 2001 February 7.

Bag Limit and User Pay Case Study City of Barrie, Ontario

Relevance to Toronto: Large, urban community closest to Toronto that imposed a 2-bag limit with a mature recycling program.

Demographics:

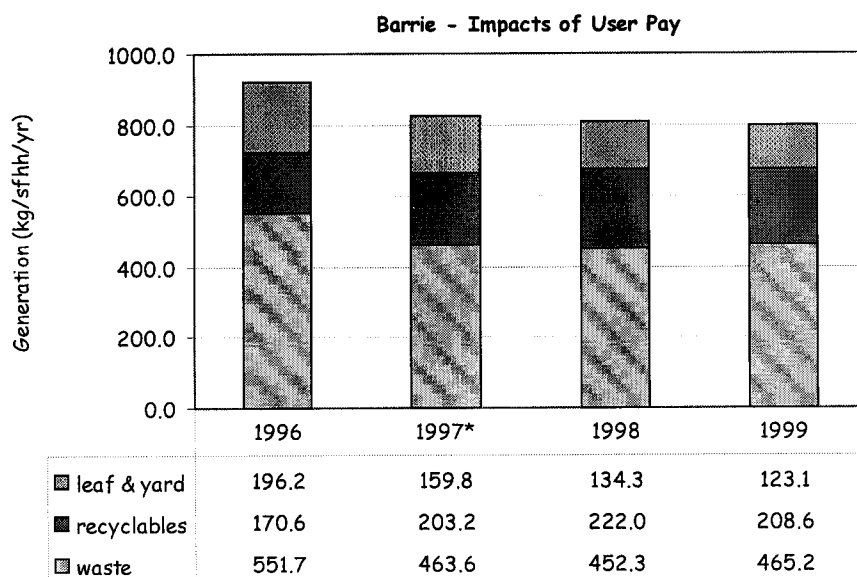
Population: 100,000 (1999)

Households: 37,164

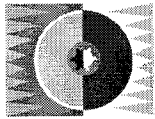
- The City of Barrie is currently one of the fastest growing municipalities in Canada.
- Annual growth rate of approximately 4 per cent. (Between 1996-2021, Barrie and the surrounding area are expected to grow 63 per cent to a total population of 185,000.)

City of Barrie, Waste Diversion at a Glance

Type of System	Date Started	Years with Data	% change in waste landfilled (kg/sfhh)	% change in recycling (kg/sfhh)	% change in leaf & yard collection (kg/sfhh)	% diversion (with BYC)
			Compared with baseline year 1996			
Partial Mandatory 2 bag/tag system	1997	1996				+40%
		1997	-16%	+19%	-19%	+44%
		1998	-18%	+30%	-32%	+50%
		1999	-16%	+22%	-37%	+48%



* User pay introduced in 1997



Program Description:

- Partial user pay system introduced May 1997.
- Two bags can be set out at no charge each week.
- Tags for additional bags cost \$1.00 each. Although the revenue from tag sales is redirected against collection and disposal costs, it does not meet costs.
- The original intent of the bag limit and bag tags was not as a financing mechanism, but to promote waste diversion.
- There are no time restrictions on tag usage.
- Bags set out without tags are left at curbside.
- Maximum weight per bag is 60 lbs (27 kg.). Enforcement is left to the discretion of the haulers who monitor the weight of the bags "by feel". Bags exceeding the restriction are left at curbside.
- Tags are available at participating retail outlets. Participating retailers do not receive a commission for selling the bag tags. Retailers are noted in the waste reduction calendar and lists of store locations are distributed to residents on request. The City has basic signage available for retailer to use to advertise bag tags.
- Annual tags sales have steadily increased; however, a comparable number of bags have not been observed curbside.
- User pay program has not been incorporated into the waste management by-law; instead, a Council motion governs it.



Impacts on Waste to Landfill

Year	SFHs ¹	Tonnes	% Change from base year (1996) in kg/sfhh
1996 (base year)	32,682	18,032	
1997	33,569	15,564	-16%
1998	34,593	15,647	-18%
1999	37,164	17,289	-16%

- Prior to the introduction of the partial user pay program, there was no bag limit for garbage setout in Barrie.

¹ Note: Units of collection supplied by Barrie include businesses that receive curbside collection. Businesses are limited to setting out a maximum of 10 bags. It is roughly estimated that 6-8% of the waste collected curbside is from the business sector. (Pers. Comm. Mark Collins)

- Actual setout rates have not been formally recorded, however it is generally observed that 2 bags per household are set out.



Impacts on Recycling

Year	SFHs	Tonnes	% Change from base year (1996) in kg/sfhh
1996 (base year)	32,682	5,574	
1997	33,569	6,820	+19%
1998	34,593	7,680	+30%
1999	37,164	7,751	+22%

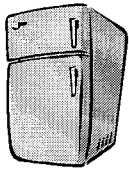
- Recyclables are collected through a weekly municipal curbside service.
- The municipality currently collects: ONP, OCC, OMG, OBB, mixed paper, plastic bottles #1 and #2, aluminum and steel cans, glass, aluminum foil trays and Tetra Pak boxes.
- Financed through municipal taxes.
- The materials collected curbside have remained the same since partial user pay was implemented, except Tetra Pak has been added to the program and diapers have been eliminated. However, diapers can be dropped off at the landfill at no charge.
- OCC is banned from landfill.



Impacts on Leaf and Yard Waste

Year	SFHs	Tonnes	% Change from base year (1996) in kg/sfhh
1996 (base year)	32,682	6,413	
1997	33,569	5,364	-19%
1998	34,593	4,645	-32%
1999	37,164	4,574	-37%

- Leaf and yard waste is collected bi-weekly through municipal curbside collection. In October and November the service is increased to weekly collection.
- Prior to user pay there was always a weekly service.
- It is estimated that 3,200 tonnes of organic material was diverted in 1998 (3,500 in 1999) through backyard composting.
- The number of composters sold prior to and since partial user pay is unavailable.



Bulky Waste

- Bulky Waste collection was eliminated in 1997.
- Prior to 1997, furniture, appliances, fencing, C & D waste and scrap tires were collected at curbside.
- Scrap tires are banned from landfill.

Food Wastes

- Considering implementing food waste collection in the future. The plan is temporarily on hold due to changes in senior management

Changes in Participation over time:

- Participation has not changed to any great extent.
- Increase in sales of tags is considered partly due to population growth.
- Upon implementation of the user pay system, illegal dumping increased for the first 3 - 4 months. City staff would sort through bags to identify the owner of the waste. Upon identification, the individual would be sent a "threatening" letter with a photo of the evidence. Also included would be an invoice that included the cost to collect and landfill the waste, and the associated administrative (person hours) associated. The media discouraged illegal dumping by covering the tactics the City would employ, if required.
- Illegal dumping has virtually disappeared. However, there are 1-2 calls per month involving incidents where residents have dumped garbage on other residents' property. Under the City by-law, city staff can sort through the bags and charge the residents up to a \$5,000 fine. No fines have been issued to date.
- City conducted a waste composition study in October 1997 and another in February 2001.

Administration Support:

- Initially, staff went door-to-door distributing informational packages to promote the program. Now the "calendar" is the primary promotional product.
- Upon implementation, the contractor would leave a general information booklet behind with the untagged waste, for residents that did not comply with the bag limit and bag tags.
- In the first year only, the City experienced approximately 10-15% increase in administration costs
- Grocery and hardware stores sell the tags. Administrative staff drop tags off to retailers every three weeks. There is no mark-up on the price of the tags.

Lessons Learned:

- A problem arose relating to the number of "legal units" per stop (such as at multi-residential buildings and houses with basement apartments). To remedy this problem, a database was generated using information from property assessment. Using this information, the number of bags allowed per stop per collection day was determined. Advice: Municipalities considering user pay should determine this information before implementing a program.

Future Goals:

- Looking into a full user pay system and curbside food waste collection.
- For Spring 2001, the City is designing stickers for the contractor to leave on bags that have not been tagged or exceed maximum allowable weight.

User Pay Case Study City of Orillia

Relevance to Toronto: Municipality with advanced distribution of 40 tags per year, close to Toronto.

Demographics:

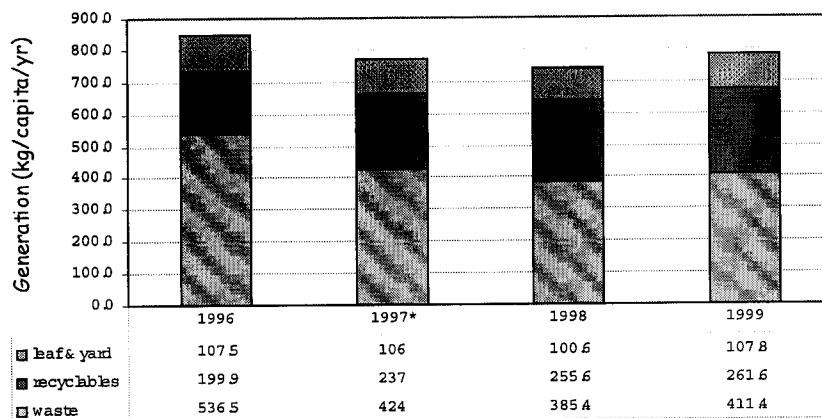
Population: 27,882

Households: 11,742 (estimated)

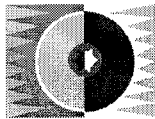
City of Orillia, Waste Diversion at a Glance

Type of System	Date Started	Years with Data	% change in waste landfilled (kg/sfhh/yr)	% change in recycling (kg/sfhh/yr)	% change in leaf & yard collection (kg/sfhh/yr)	% diversion (without BYC)
Compared with baseline year 1996						
Partial 40 "free" tag system	July 1997	1996				+36%
		1997	-21%	+18%	+1%	+45%
		1998	-28%	+28%	-6%	+48%
		1999	-23%	+31%	-0%	+47%

Orillia - Impacts of User Pay



*Userpay introduced in July 1997



Program Description:

- The City of Orillia introduced a partial user pay program in July 1997.
- Forty free tags are distributed to each household each year (was originally 50 tags/year).
- Additional tags may be purchased in packages of five for \$7.50 (or \$1.50 each).
- Tags can be purchased at participating retail outlets, City Hall and the Waste Diversion Site.
- In 1997, when the City of Orillia launched the partial user pay program each household initially received 50 tags for 50 weeks (or one tag per week). When a waste composition study (1997) revealed that organics & recyclables were being placed in the waste stream, the number of tags distributed to each household was reduced to 40 tags per year in July 1999.
- Prior to the launch of the program, there was no limit on the amount of garbage that could be set out at the curb on any given week.
- By 1995, the City was dipping into its reserve fund to finance its solid waste programs.
- The Garbage Tag Program was introduced primarily as a waste diversion and cost containment initiative and not as a source of revenue generation.



Impacts on Waste to Landfill

Year	SFH*	Tonnes**	% Change from base year (1996) in kg/sfhh
1996	11000	5,901	
1997	11371	4,819	-21%
1998	11742	4,525	-28%
1999	11742	4,831	-23%

*Household numbers estimated using Statistics Canada 1996 data and the 1998 Ontario Municipal Directory.

** Solid waste tonnage includes approximately 10% commercial waste.

- In 1999 a waste composition study determined the average set out rate for households placing garbage curbside was 1.4 bag/bundle/cans. However, the overall set out rate was 1.04.
- Prior to the implementation of the user pay program, there was no limit on the number of bags of garbage that could be placed at the curb every week.
- Bags placed at curb without a tag are stickered and left behind. Residents can call the City for more information and if this remains a problem, a City employee visits the resident.

- Bags that exceed the weight restriction of 20 kg (44 lbs) are tagged and left behind.



Impacts on Recycling

Year	SFH*	tonnes	% Change from base year (1996) in kg/sfhh
1996	11000	2,199	
1997	11371	2,692	+18%
1998	11742	3,001	+28%
1999	11742	3,072	+31%

*Household numbers estimated using Statistics Canada 1996 data and the 1998 Ontario Municipal Directory.

- The current curbside recycling program collects ONP, OCC, OBB, mixed household paper, paperback books, molded pulp, aluminum trays and foil, glass containers, aluminum and steel cans and plastics (#1, #2, #4, #5, #7 and expanded polystyrene).
- In early 2000, the recycling program was expanded to include plastics #4, #5 and #7.



Impacts on Leaf and Yard Waste

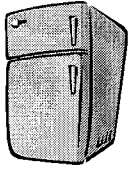
Year	SFH*	Tonnes	% Change from base year (1996) in kg/sfhh
1996	11000	1183	
1997	11371	1211	+1%
1998	11742	1181	+6%
1999	11742	1266	0%

*Household numbers estimated using Statistics Canada 1996 data and the 1998 Ontario Municipal Directory.

- Leaf and yard waste material is collected at the curb on a weekly basis from April to November.
- There are no bans in place (i.e. no grass bans).
- Between 1996-1999 a total of 2183 composters were sold, with the following breakdown: 535 in 1996; 1102 in 1997; 314 in 1998; and, 232 in 1999.
- Although the City of Orillia received permission to compost produce waste (i.e. kitchen scraps) in 1996, implementation of the program was delayed to allow maximum saturation of backyard composters among property owners. Subsequently, produce waste is being collected in a pilot study comprising of 450 homes. Since April 2000,

produce waste collection has been available city-wide (program receives little promotion).

- The quantity of leaf and yard waste collected from year to year is highly weather dependent.



Bulky Wastes

- The City does not collect bulky waste.

Changes in Participation over time:

- The City has not reported any discernable change in illegal dumping after the introduction of user pay. Any illegally dumped material is sorted and the owner is charged the clean-up costs.

Education and Promotion:

- The program was given good press coverage (i.e. weekly newspaper column, signs at transit stops, etc.) and residents were sent promotion materials including brochures.

Administration Support:

- No change in administrative support since the tags are mailed to each household once a year

Lessons Learned:

- City of Orillia reported that distributing tags in advance reduced protest to the change.
- Staff feel that distribution of tags may ease transition to the user pay program.
- Staff mention that one free bag at the curb is different than giving away the tags, as residents are encouraged to put garbage out weekly with the former. The tag system allow residents to save tags for the future. Residents become accustomed to using the tags and drivers do not have to worry about duplexes.
- Prior to the implementation of the program, Council proposed to distribute 26 tags (one tag for every two weeks) but after a few months pressure from residents Council was forced to change the policy and distribute 50 tags for 50 weeks or one per week.

User Pay Case Study St. Catharines, Ontario

Relevance to Toronto: Largest community in Ontario to implement a user pay program and only Region in Ontario to implement user pay in all area municipalities.

Demographics:

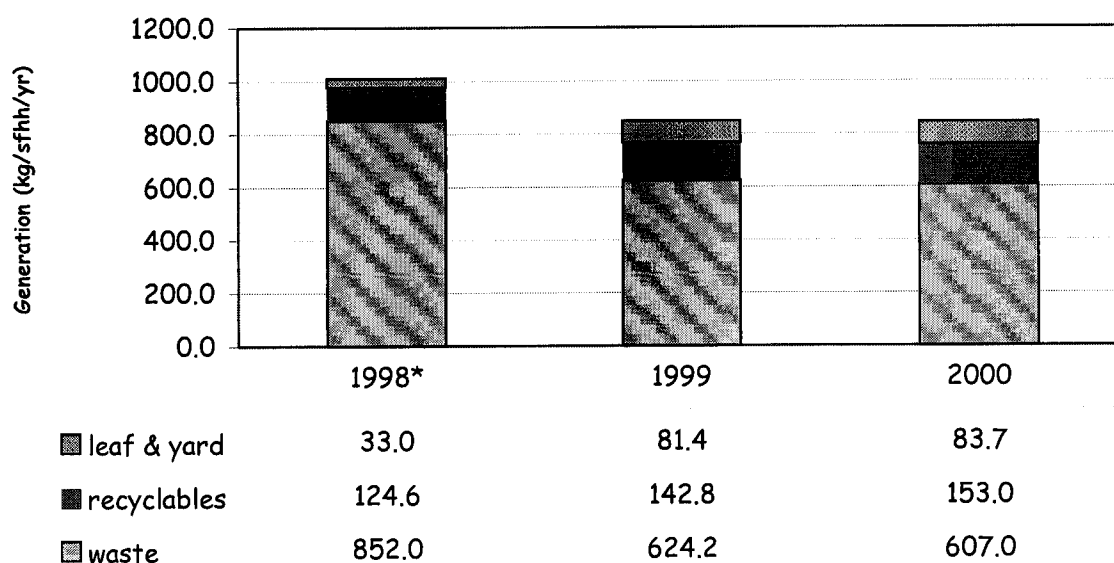
Population: 131,000 (2000)

Households: 55,741 (2000)

St. Catharines, Waste Diversion at a Glance

System	Date Started	Years with Data	% change of waste landfilled	% change in recycling	% change in leaf & yard collection	% diversion (without BYC)
			<i>Compared with baseline year 1998</i>			
Tag/Bag	April 1999	1998				+16%
		1999	-27%	+15%	+147%	+26%
		2000	-29%	+23%	+154%	+28%

St Catharines - Impacts of User Pay



* User pay introduced in 1998



Program Description:

- The Region has introduced a 3 part phased-in approach to bring all municipalities into a partial user pay program by April 2001.
- The phased-in approach is in response to the Region assuming responsibility for all waste management services in 1996. Municipalities are phased-in as their existing collection contracts expire and the Region takes over the services (the Region only administered the contracts up to then).
- Under the partial user pay program, residents are permitted to place 3 "free" bags of garbage at the curb per unit without requiring a tag. Tags cost \$1 each.
- Currently 7 out of 12 communities are on line. The communities of St. Catharines, Thorold and Niagara-on-the-Lake came on-line in April 1999. Other communities (four) came on-line March of 1998 (Lincoln, Wainfleet, Pelham and West Lincoln) and the remaining five communities (Fort Erie, Grimsby, Niagara Falls, Port Colborne, and Welland) will come on-line April 2001.
- Tags cost \$1 each and the sales of garbage tags are used to reduce collection costs included in taxes. Tags can be purchased at local convenience stores.
- Revenues to go toward reducing collection costs included in taxes.
- The partial user pay program is written in the Regional Waste Management By-law.
- In 2002, the Region is planning to reduce the single-family limit per unit to two containers, multi-unit residential buildings with 6 or more units to 12 containers and IC&I and mixed-use buildings to 7 containers per property.¹



Impacts on Waste to Landfill

Year	SFHs	tonnes	& Change from base year (1998)
1998	54,763	46,658	
1999	55,252	34,486	-27%
2000	55,741	33,835	-29%

- While there has been no setout study in the City of St. Catharines, the Region conducted a setout study in Niagara Falls in 1996 and determined that the average household placed 2.7 bags/containers of waste to the curb per week.
- Bags of garbage that are not tagged are left behind with a "non-compliance sticker" explaining the problem and providing a number to call for further information.

¹ Region of Niagara. 2001. Regional Niagara Solid Waste Collection Harmonization Plan Level of Waste Collection Service.



Impacts on Recycling

Year	SFHs	tonnes	& Change from base year (1998)
1998	54,763	6,823	
1999	55,252	7,891	+15%
2000	55,741	8,526	+23%

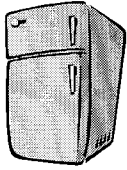
- The municipality currently collects: ONP, OBB, OCC, OMG, household paper, glass containers, aluminum and steel containers, plastics #1, #2, #4, #5, #6 (including plastic bags), aluminum foil and plates.
- Recyclables are banned from landfill.



Impacts on Leaf and Yard Waste

Year	SFHs	tonnes	& Change from base year (1998)
1998	54,763	1,807	
1999	55,252	4,496	+147%
2000	55,741	4,667	+154%

- Leaf and yard waste is banned from the waste stream.



Bulky Wastes

- Bulky goods (e.g., furniture) are collected free of charge on regular waste collection day. Residents must call three days in advance regular pick-up day.
- White goods are collected year round on call-in basis

Changes in Participation over time:

- Owners of illegally dumped waste are sent letters explaining the situation. There have been no repeat offenders.
- The Region of Niagara staff reported that it was too soon to report on changes in participation that had been observed. It appears compliance is good to date.

Promotion and Education:

- Full intensive marketing plan developed for the introduction of the user pay program
- Residents receive "The Waste Watcher" newsletter, which is also posted on the web site.

Administration Support:

- New staff were not hired but staff responsibilities were shuffled.
- The Regional finance department handles tag distribution.

Lessons Learned:

- Staff consider illegal dumping a touchy matter, especially in developing wording for the by-law.

User Pay Case Study Town of Georgina, Ontario

Relevance to Toronto: First full user pay program in GTA. One of few examples where recycling programs before and after user pay stayed the same and direct comparisons can be made.

Demographics:

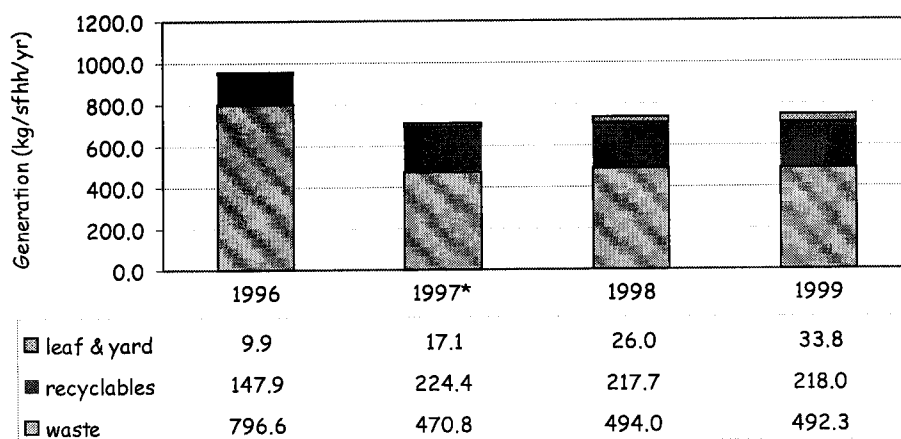
Population: 38,335 permanent residents

- SHF: 12,775 permanent residential households, urban and rural mix. In addition, approximately 2,035 households are treated as seasonal.

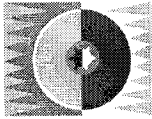
Town of Georgina, Waste Diversion at a Glance

Type of System	Date Started	Years with Data	% change in waste landfilled (kg/sfhh/yr)	% change in recycling (kg/sfhh/yr)	% change in leaf & yard collection (kg/sfhh/yr)	% diversion (with BYC)
Compared with baseline year 1996						
Full Bag/Tag system	January 1997	1996				+19%
		1997	-41%	+52%	+72%	+37%
		1998	-38%	+47%	+162%	+36%
		1999	-38%	+47%	+241%	+37%

Georgina - Impacts of User Pay



* User pay introduced in 1997.



Program Description:

- Full user pay system implemented in January 1997. Bag tags are \$1 each.
- Maximum weight per bag or container is 50 lb. (22 kg.). Collection crew monitor bag weight "by feel" during collection. Orange stickers are placed on bags that exceed maximum weight and are left at the curb.
- Maximum size of any bag is 76 cm by 122 cm. Maximum size of can is 50 cm by 90 cm.
- Tags may be purchased at over 60 retailers. Participating merchants do not receive a commission for selling the bag tags. Town staff distributes the bag tags on a weekly or biweekly schedule, and upon request. Upon delivery of the bag tags, the merchants receive an invoice and payment is due within 30 days. Participating retailers are identified in promotional advertising and are provided a window sign to identify the store as a bag tag distributor.
- Amnesty Days are held in May and September, whereby residents can set out a maximum of 5 bags without tags.
- Tags help to offset collection and disposal costs, which were further supplemented by approximately 1.4% of the tax levy in 1999.
- Without introducing user pay, Georgina faced a 9% increase in taxes to offset increases in waste management costs.



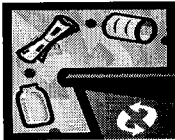
Impacts on Waste to Landfill

Year	SFHs	Tonnes	% Change from base year (1996)
1996 (base year)	11,995	9,555	
1997	11,225	5,285	-41%
1998	12,369	6,110	-38%
1999	12,778	6,291	-38%

Note: Weigh scale data is not available prior to January 1997. 1996 information is based on the average waste generation in other York Region municipalities as recorded at the Keele Valley Landfill site.

- Random 'Curbside Bag Counts' are performed monthly to estimate the average set out rate for bags/household/week the setout rate has changed as follows:
 - In 1996, the average number of bags/household/week was 1.8.
 - In 1997, this number decreased to an average of 0.76 bags/household/week, showing a 58% reduction.
 - In 1998, the average set out rate was further reduced by 16% to an average of 0.64 bags/household/week/.
 - In 1999, the average setout rate increased marginally from the year previous, averaging 0.71 bags/household/week (reduction of 61% from 1996).

- Before user pay, a maximum of 10 bags was allowed per residence per collection. This maximum was eliminated upon introduction of user pay.



Impacts on Recycling

Year	SFHs	Tonnes	% Change from base year (1996)
1996 (base year)	11,995	1,174	
1997	11,225	2,519	+52%
1998	12,369	2,693	+47%
1999	12,778	2,786	+47%

- The municipality provides a weekly curbside collection.
- The municipality currently collects: ONP, OMG, OCC, household paper, glass containers, aluminum and steel cans, plastics #1 and #2 with screw top lids. There has been no significant expansion of materials collected since user pay system implemented.

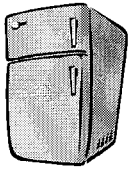


Impacts on Leaf and Yard Waste

Year	SFHs	Tonnes	% Change from base year (1996)
1996 (base year)	11,995	119	
1997	11,225	192	+72%
1998*	12,369	322	+162%
1999	12,778	432	+241%

Note: Service expanded.

- Prior to user pay, leaf & yard waste was collected in the fall only. In 1998, service was expanded to a spring and fall collection. Service was expanded due to public pressure. Currently, there are three spring and two fall collections.
- Leaf and yard waste does not require a tag.
- The Town has had a backyard composter program since 1991/1992. Since 1998, composters have been available year round for a cost of \$25 per unit.
- The Town cites that 45-50% of households have backyard composters, and a 90% participation rate.
- The Town has distributed an estimated 5,000 composters since 1994. Information is not available on whether the rate of composter sales increased after user pay was implemented.



Bulky Waste

- Bulky wastes are collected year round, once a month. A maximum of five bulky items can be set out per property. Each item must have a \$1 sticker.
- Prior to user pay, bulky waste was collected monthly from May and October, with a maximum of five items.

Changes in Participation over time:

- The Town of Georgina recorded 167 incidents of illegal dumping in 1997 (or 0.01% of households not complying with program). The number of recorded illegal dumping incidents has risen (which is attributed to an increase in inspections) in 1998 and 1999, with 356 and 342 recorded incidents, respectively (an average of one incident of illegally dumped garbage per day).
- The Town established a by-law prohibiting illegal dumping. Fines are set at \$100 if the owner of the garbage is identified.
- There was a 6% decrease in tag sales from 1997 to 1999. Town staff assumed that residents diverted more wastes and set bags at curb that were totally full.

Promotion and Education:

- Public meetings were held in summer 1996. Educational campaign began 6 months prior to program implementation. The user pay program was advertised in newspaper through Q & As. Flyers and the waste management newsletters were inserted into local newspaper.
- Mayor participated in a call-in show on the local cable television station.
- Currently education and promotion involves posting general advertisements in the local paper. Each year the user pay program is described in an annual report.

Administration Support:

- One additional staff member (inspector) was hired to deal with illegal dumping at \$30,000 per year.
- User pay has proven to be 14.3 % less costly to total system cost compared with no user pay. Net municipal cost savings = 51% less costly than with no user pay.
- "The reduction in the waste management budget resulted from: bag tag revenues, a decrease in the garbage collection contract due to the decreased amount of garbage to be collected; avoided tipping fees from the 40% reduction in waste to landfill; and, an increase in recycling revenues. Balanced by: increased yard waste costs; increased administration fees; printing and advertising costs to promote the program; an increase in the recycling contract due to the increased amount of recyclables to be collected." (Source: Town of Georgina: Report No. PPW-98-22)

- Participating retailers are identified in promotional advertising and are provided a window sign to identify the store as a bag tag distributor.

Future Goals:

- Intend to focus on continued public education. For example, it is important for new residents to understand that waste management costs cannot be absorbed through the tax base in the Town of Georgina.
- Considering promoting curbside exchange programs.
- Continue to promote diversion through composting.
- No plans to increase the price of bag tags or expand the recycling program.

User Pay Case Study City of Stratford

Relevance to Toronto: One of very few user pay programs in Ontario.

Demographics:

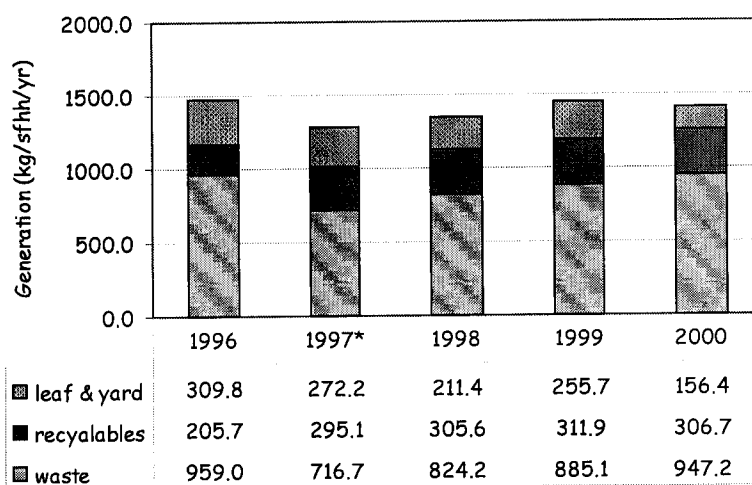
Population: 30,000

SFH: 6,990

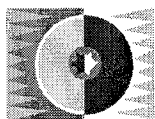
City of Stratford, Waste Diversion at a Glance

Type of System	Date Started	Years with Data	% change in waste landfilled (kg/sfhh/yr)	% change in recycling (kg/sfhh/yr)	% change in leaf & yard collection (kg/sfhh/yr)	% Diversion (without BYC)
			Compared with baseline year 1996			
Partial 2 bag/tag system	January 1997	1996				+35%
		1997	-25%	+43%	-12%	+44%
		1998	-14%	+49%	-32%	+39%
		1999	-8%	+52%	-17%	+39%
		2000	-1%	+49%	-50%	+33%

Stratford - Impacts of User Pay



* Full user pay program introduced in January 1997



Program Description:

- Full user pay program introduced in January 1997. Tags cost \$1.20 each.
- The program is called "Pay as you Waste Program" (PAWP).
- Containers < 128 litres and standard garbage bags require one tag. Small grocery bags require a half tag. Containers between 129 - 240 litres require two tags and containers between 241 - 360 litres require three tags.
- Bulky wastes require special tags ranging from \$10 to \$27, which can be purchased at City Hall.
- Residents can drop waste off at landfill for \$0.50 /bag, to a maximum of 5 bags per week.
- User pay is written into the City of Stratford's waste management and collection by-law, which also includes enforcement procedures and sets fines for illegal dumping.
- Tags are available at the City Hall, some select retail stores and the Kiwanis Centre.
- Weight restrictions apply. Bags and cans must not exceed 22 kg (50 lb).
- The City of Stratford placed no limits on the amount of garbage placed at the curb, prior to the implementation of the full user pay program.
- The user pay program is supported by a grass clipping ban.
- The City has introduced twice yearly curb swaps of items called the "Treasure Hunt".
- Waste management (collection and disposal) costs removed from the tax bill.



Impacts on Waste to Landfill

Year	SFHs	Tonnes (Curbside)	Tonnes (Self-Haul)	Total Tonnes	% Change from base year (1996) in kg/sfhh
1996	6,778	6500	0	6,500	
1997	6,792	3368	1500	4,868	-25%
1998	6,816	2928	2690	5,618	-14%
1999	6,875	2536	3549	6,085	-8%
2000	6,990	2733	3888	6,621	-1%

- Due to the lower cost to dispose waste at the landfill (\$0.50 per bag at landfill compared with \$1.20 per bag at curbside), Stratford staff have experienced a significant increase in residential self-hauled waste going to landfill (160% increase since the introduction of user pay). Up to 800 vehicles arrive weekly to the landfill to discard their residential waste, which averages 2.1 bags per vehicle.
- Staff would like to see the cost at landfill increase to reduce the amount of waste taken by residential self-haulers.
- The number of setouts has decreased from an average of 2.2 bags per setout (prior to user pay) to 1.0 bag per setout (after user pay).
- The weight of the average setout has increased from 12 lb. per bag (prior to user pay) to 18 lb. per bag (after user pay).
- Prior to the user pay program, residential garbage collection required two garbage trucks (3-4 crew). Currently, the contractor requires only one garbage truck (2 crew) to complete the same collection schedule. This is likely a result of less waste being collected curbside and increasing amount self-hauled to landfill.



Impacts on Recycling

Year	SFHs	Tonnes	% Change from base year (1996) in kg/sfhh
1996	6,778	1,394	
1997	6,792	2,004	+43%
1998	6,816	2,083	+49%
1999	6,875	2,144	+52%
2000	6,990	2,144	+49%

- City staff have reported that participation in the recycling program has increased from 80% participation to 100% participation since the introduction of user pay.
- Prior to user pay, curbside collection of recyclables required 2-3 side-loader trucks. Currently, the collection of recyclables requires the use of 4 side-loader trucks.
- Boxboard was the only new material introduced into the recycling program during the introduction of user pay.
- The recycling program collects ONP, OCC, OBB, household paper, glass containers, aluminum and steel cans, plastics #1 and #2 and #6, plastic bags/film.
- Curbside recyclables are collected bi-weekly.

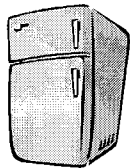


Impacts on Leaf and Yard Waste

Year	SFHs	Tonnes*	% Change from base year (1996) in kg/sfhh
1996	6,778	2,100	
1997	6,792	1,849	-12%
1998	6,816	1,441	-32%
1999	6,875	1,758	-17%
2000	6,990	1,093	-50%

*Note: Tonnage includes residential leaf and yard waste dropped off.

- The City of Stratford introduced a ban on grass clippings in 1993.
- City staff reported not selling more backyard composters as a result of the user pay program. Composters cost \$25 each.
- It is estimated that almost 50% of households have a backyard composter.
- Leaf and yard waste materials are collected twelve times a year at the curb. Leaf and yard waste does not require a tag.



Bulky Wastes

- The City has introduced special tags for different bulky waste items and white goods: bulky furniture requires a \$10 tag attached to each item; large appliances without freon require a \$22 tag attached to each item; and large appliance with freon require a \$27 tag attached to each item.
- Bulky furniture can be set out with the garbage during regular collection days.
- White goods are collected once a month.

Changes in Participation over time:

- A review of the user pay program by the Public Steering Committee, six months after the program's implementation, resulted in one recommended change, to incorporate a small bag tag (half of the original tag cut lengthwise) to be used on grocery bags.
- Staff have seen a significant increase in the amount of residential waste taken to the landfill, which costs less than half the price of a tag to dispose.
- Staff have experienced few illegal dumping cases, less than 15 per year. Approximately 60 residents (since 1997) have been charged the cost to collect the untagged bags and sort through them.

- The majority of problems experienced involve setout of bags without tags. In these cases, the bags are left at the curb. The contractor notifies the City and a letter is sent to the household explaining the problem.

Education and Promotion:

- During the launch of the user pay program each household received a pamphlet describing the program and the City ran advertisements in the local newspaper and on the local radio.

Administration Support:

- The only additional administration effort reported is the time required to track the sales of tags to participating retail outlets.

Lessons Learned:

- Tags were made available for purchase six months prior to the implementation of the user pay program to enable residents to become accustomed to the idea.

Pay-User Pay Case Study City of St. Albert, Alberta

Relevance for Toronto: Only variable container subscription program in Canada.

Demographics:

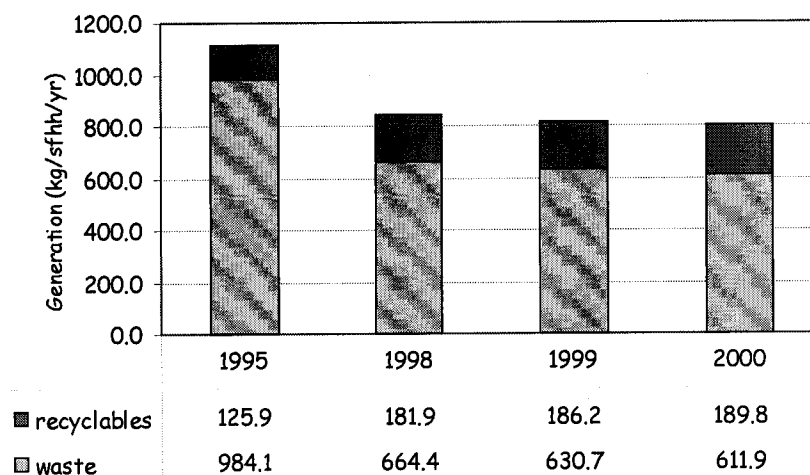
Population: 51,716 (2,000)

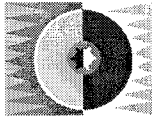
Households served: 15,388 (2000)

City of St. Albert, Waste Diversion at a Glance

Type of System	Date Started	Years with Data	% change in waste landfilled (kg/sfhh/yr)	% change in recycling (kg/sfhh/yr)	% change in leaf & yard collection (kg/sfhh/yr)	% Diversion (without BYC)
			Compared with baseline year 1995			
Variable Container and Bag/tag System	July 1996	1998 1999 2000	-32% -36% -38%	+45% +48% +51%	Data unavailable	+21% +23% +24%

St. Albert - Impacts of User Pay





Program Description:

- St. Albert was the first community in Canada to implement a variable rate container system in July 1996. Residents have the option of subscribing to a bag/tag program or a variable rate container program.
- Current rates are as follows:

Bag/Tag program	Variable Container System	Monthly Rate
1 bag set out per week (52 tags)	Not applicable	\$4.55
2 bags (104 tags)	1 can or 32 gallon toter set out per week	\$7.25
4 bags (208 tags)	2 cans or 64 gallon toter set out per week	\$12.65
6 bags (312 tags)	3 cans or 96 gallon toter set out per week	\$18.05

Note: The monthly fees above include a flat fee of \$1.85 to cover the cost of the composting and recycling facilities.

- The user pay system is complemented with a recycling (depot) and leaf & yard waste (depot and curbside) program.
- Utility bills are issued every two months. The waste management services charge is on the same utility account as water and sewage charges. In January 1994 the waste disposal expenditures (private landfill tipping and recycling depot) were transferred from the tax base to the utility bill as a flat fee of \$3.00 per month. In 1996 the collection costs were transferred from the tax base to the utility bill as a flat fee of \$3.00 per month. The total flat rate was \$6.00 per month and included costs for recycling, waste collection and transportation, and landfill and tipping fees.
- Residents may change their container size once in a calendar year without penalty. Subscriptions are changed upon receipt of the labels.
- The tags are coloured differently each year and expire at the end of each year. Residents are given a two week grace period in the new year to use tags from the previous year. Tags permit flexibility by allowing residents to vary the number of bags set out each week.
- In addition, residents can purchase tags for extra refuse at \$1.50 per tag at City Hall or the local pool.
- Residents receive an extra four tags per year for the additional waste that may be generated around the Christmas and Easter holiday seasons.
- In 1996, St. Albert's waste management operating budget was financed by 71% user fees, 1% extra garbage stickers, 3% recycling revenues and 25% mill rate. In 1997, the

system was financed entirely by user fees and extra garbage tags and recycling revenues created a year-end surplus.

- In 1999, the City researched weight-based systems and found it would be too expensive to implement because the fleet of trucks would need to be replaced.



Impacts on Waste to Landfill

Year	SFHs	Tonnes	% Change from base year (1995) in kg/sfhh
1995	13,100	12,892	
1996	Data unavailable		
1997			
1998	14,507	9,638	-32%
1999	14,947	9,427	-36%
2000	15,388	9,416	-38%

- Based on the national 1988 benchmark year, St. Albert achieved in 1999 a 44% reduction in garbage.
- In 2000, approximately 88% of St. Albert households subscribed to the user pay program.
- A summary from December 2000 reports that the breakdown of subscription levels was as follows:

Bag/Tag program	% of Total Subscribers	Variable Container System	% of Total Subscribers
1 bag set out per week (52 tags)	16.5%	N/a	
2 bags (104 tags)	38.9%	1 can or 32 gallon toter set out per week	19.3%
4 bags (208 tags)	8.1%	2 cans or 64 gallon toter set out per week	14.2%
6 bags (312 tags)	0.5%	3 cans or 96 gallon toter set out per week	2.5%

- The City estimates that the average set out rate prior to the subscription system was 2 cans (4 bags) per week. In 1996, the average subscription translated to 1.4 cans or 2.8 bags. In 2000, almost 75% of accounts subscribed to one can, 2 bags or 1 bag options. The program started with a two can default subscription.
- The collection crew will leave behind bags that are not tagged correctly or exceed the weight limit. A "Notice" sticker that lists 15 possible infractions is adhered to the bag that is left at the curb. Residents are encouraged to call the Public Works Department if they require additional information.



Impact on Recycling

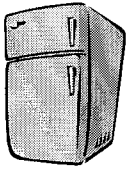
Year	SFHs (subscribers)	Tonnes	% Change from base year (1995) in kg/SFH
1995 (base year)	13,100	1649	
1996	Data unavailable		
1997			
1998	14,507	2639	+45%
1999	14,947	2783	+48%
2000	15,388	2920	+51%

- There is one centralized depot where residents can bring their recyclable materials. The depots are not staffed.
- Recycling is financed through a utility flat fee of \$1.85/month.
- At the depot, the municipality currently collects: ONP, OCC, OMG, mixed paper, milk cartons, glass containers, steel and aluminum cans, aluminum foil containers, milk jugs and clear plastic #2 and hockey sticks.
- Two bottle depots in St. Albert accept pop and beer cans; wine, water, beer and juice bottles and juice tetra paks.



Impacts on Leaf and Yard Waste

- St. Albert offers a Green Cart Program for curbside collection of organics from April to October. The Green Cart program was introduced at the same time as the subscription system. Residents can arrange to rent the carts at \$5.25 per month for six months or through a one time fee of \$31.50 for six months; however, the bi-weekly curbside service is provided at no charge. Providing the service costs the City approximately \$36,000 per year.
- Currently 775 households (5% of all households in the user pay program) subscribe to the Green Cart Program. Arrangements are made directly with the contractor.
- In 2000, an average of 470 kg was collected from each of the subscribing households over the six month collection period.
- Food wastes are not accepted for curbside collection or at the depot.
- There is a compost depot open 24 hours a day/seven days a week for St. Albert residents to drop off leaf and yard waste materials.
- On-site composting is encouraged; however, the municipality does not currently distribute backyard composters.



Bulky Wastes

- Two Eco Stations in Edmonton (one of which is a short drive from St. Albert) accept bulky wastes for drop off applying the following fee schedule: refrigerators, washers, dryers, sofas, dressers, large TVs are \$7.00 per item. Reclining chairs, TVs and desks cost \$3.00 per item. Tires (max. 5 per load), small microwaves and lamps are \$1.00 per item. Bagged garbage and kitchen chairs are \$1.00 each. Mattresses and scrap metal are accepted at no charge.
- St. Albert residents are encouraged to use the Eco Stations for disposal of bulky wastes.

Changes in Participation over time:

- A pre-survey conducted in 1992 revealed that 64% of respondents believed that a user pay system would be the most equitable way to charge for the City's waste management services, as opposed to a flat fee or a hidden cost component in the property taxes.
- A post-survey conducted in 1999 identified the following issues among community members:
 - 63% thought user pay system was not flexible enough (respondents felt there was a need for a less than one can option)
 - 54% satisfied with service and 40% dissatisfied.
 - 12% thought the program was a money grabber.
- Government responded with a revised system in May 2000. The key elements of the new program included:
 1. Introduction of a one bag subscription level.
 2. Oversized bags can be set out with two tags.
 3. Allowable bag size increased to 30" x 34".
 4. Flexibility in weekly set out rate for "bag" subscribers.
- Little illegal dumping has been experienced.

Education and Promotion:

- Residents were involved early in a public consultation involving: an environmental issues survey (1992), development of an Environmental Master Plan (1993), summer pilot programs (1994 and 1995) and information/survey brochure (March 1996).
- The launch of the program included development of information brochures, a telephone hotline, subscription gathering, press releases, billboards, door hangers and other types of advertising (e.g., dance troupe)
- Current communications include the website, brochures, billing inserts.
- 1999 survey pointed to the need for an enhanced communication program to help residents become more proactive in waste diversion and reduction and celebrate

successes. Previously, communication materials often focussed on the rules of the PAYT system.

Administration Support:

- The program cost \$95,000 to implement: design and administration, \$15,000; inquiries, \$7,500; processing of subscriptions, \$7,500; hotline staffing, \$7,000; advertising, consultation and start-up, \$60,000. The implementation cost per household was \$6.80.
- There was a revenue shortfall the first year of the program due to the overwhelming number of residents that subscribed to the lowest level of subscription of 1 can/week.

Lessons Learned:

- Community support critical (i.e. public consultation, public information, public education)
- To gain support from elected officials, educate them.
- Consult legal department early regarding by-laws and risks.
- Make options available for multi-family, churches and businesses.
- Default to a 2 can subscription if resident does not respond to subscription request.
- Leniency period for first two months of program. All refuse was collected but a door hanger "notice" was left behind.
- Set rates on lowest anticipated average, so that if subscription levels are lower than anticipated, the necessary revenue is acquired.
- A 1999 User Pay Report states that the success of the waste management program is largely due to the commitment of environmental protection by Council, City administrators and the community. Political support was obtained through reports and memos to Council from the General Manager of Engineering, personal communication with Council and general communication products.

Future Goals

- To eliminate yard waste to landfill.
- Have a consultant currently evaluating the program.

Utility/Flat Fees Case Study City of Edmonton, Alberta

Relevance to Toronto: First large Canadian community to finance part of the waste management services using a flat fee and separate utility fund, for both single-family and multi-family waste management services.

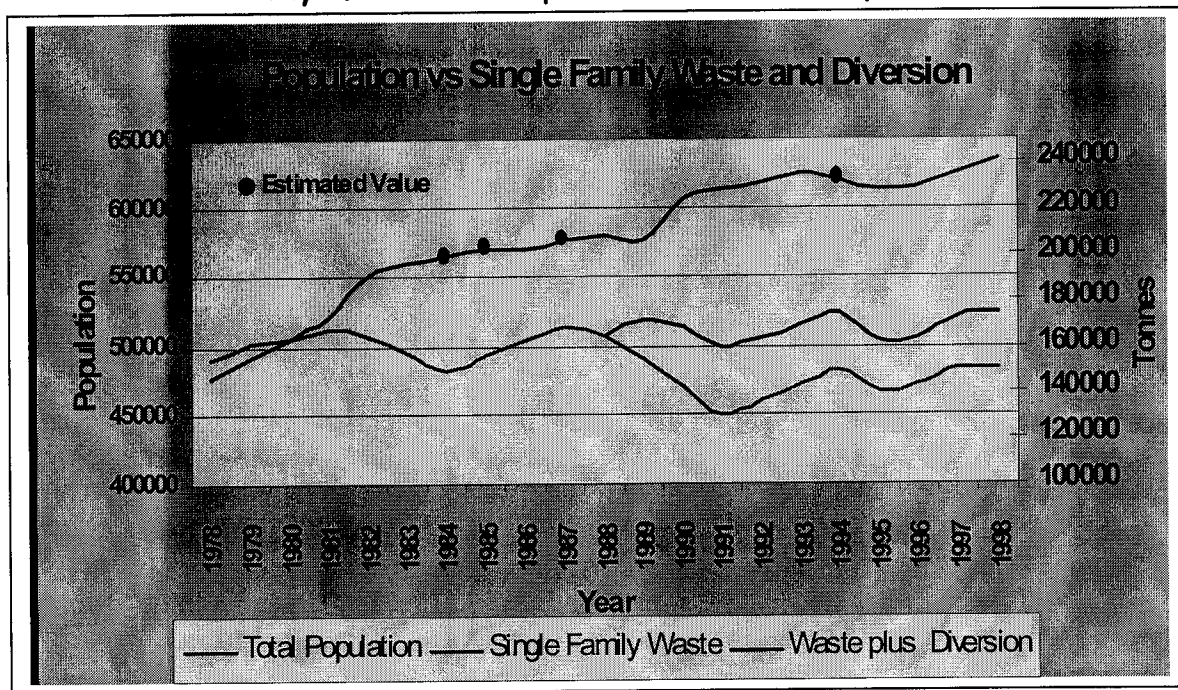
Demographics:

Population: 650,000

City of Edmonton Waste Diversion at a Glance

Type of System	Date Started	Years with Data*	% change in waste landfilled (kg/capita/yr)	% change in recycling rate (kg/capita/yr)	% change in leaf & yard collection	% diversion (without BYC)
			Compared with baseline year 1994			
Flat Fee/ Utility Fund	July 1995	1994				14%
		1995	-2%	-17%		13%
		1996	-6%	-20%	Not offered	13%
		1997	-2%	-12%		13%
		1998	-2%	-6%		14%

City of Edmonton Impacts of Flat Fee/Utility Fund





Program Description:

- In July 1995, a flat utility fee was adopted to cover part of waste costs. In 2000, waste management expenditures were covered 57% by the utility fee, 36 % by the tax base and 7% by tipping fees and the sale of recyclables. The average cost per single family household (SFH) was \$138 in 2000.
- Property taxes cover the following costs: collection related activities such, garbage and recyclables collection, management of the community recycling depots and the Eco Stations, and as public education.
- The monthly utility bill fees cover the following costs: all disposal-related activities, including a transfer station for garbage, the recyclables processing plant, the co-composting facility, landfill disposal and the leachate treatment plant.
- Currently, SFH are charged \$8.00 each month for weekly garbage collection and disposal on the monthly utility bill. The City has considered financing waste management services solely through the utility bill, however the proposal was declined in order to maintain the status quo.
- Although the system charges directly for waste and covers part of the cost through this mechanism, there are no incentives to reduce waste.



Impacts on Waste to Landfill

Year	Population	Tonnes	Kg/capita	% Change from base year (1994) in kg/capita
1994 (base year)	620,693	~150,000	242	
1995	614,871	~145,000	236	-2%
1996	616,369	~140,000	227	-6%
1997	625,454	~148,000	237	-2%
1998	636,000	~150,000	236	-2%

- The impact of the flat utility fee in 1995 on waste to landfill and diversion is difficult to analyze. Between 1994 and 1995, both waste and recycling tonnages dropped. This has been attributed to several factors including: 1) introduction of the utility fee 2) decline in population 3) National Packaging Protocol 4) number of blue boxes being used and 5) the high price of newsprint in 1995.
- In 1999, the average amount of waste produced per household was 770 kg.



Impacts on Recycling:

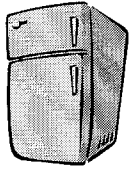
Year	Population	Tonnes	Kg/capita	% Change from base year (1994) in kg/capita
1994 (base year)	620,693	25,177	41	
1995	614,871	20,794	34	-17%
1996	616,369	20,120	33	-20%
1997	625,454	22,353	36	-12%
1998	636,000	24,270	38	-6%

- A curbside blue box recycling program was introduced in 1988 and a blue bag program was introduced in 1999.
- The municipality currently collects: OCC, OBB, ONP, OMG, polycoat, aseptic containers, mixed paper, aluminum and steel containers, empty aerosol cans, plastics #1 through #5) and glass.
 - A survey conducted in 1999 determined that 81% of SFH participate in curbside recycling. (Communities with an average income of less than \$40,000 had a 65% or lower participation rate and communities with an average income greater than \$40,000 had a participation rate of 86% or greater.)
- Authorized depots accept ready-to-serve beverage containers covered under Alberta's *Beverage Container Recycling Regulation*.



Impacts on Leaf and Yard Waste

- Prior to 2000, the City of Edmonton did not collect any leaf and yard waste material
- In 2000, composting of residual garbage stream at a recently constructed composting facility was introduced as part of a unique partnership with TransAlta Enterprises.
- All organic waste is treated as part of the mixed waste stream processed at the Clover Bar facility



Bulky Waste:

- Bulky wastes may be dropped off at Eco Station depots at the following rates: \$7.00 per item for refrigerators, couches, large televisions; \$3.00 per item for chairs, lamps, small TVs and large microwaves, and; \$1 per item for tires (maximum five), small microwaves and lamps.

Changes in Participation over time:

- Edmonton's Waste Management Branch Annual Report 1999 indicates that customer satisfaction on waste management services dropped 9% in 2000, from 80% in 1999.

Promotion and Education:

- The city operates a recycling hotline.

Administration:

- Two main reasons for switching to the blue bag program, as reported in Edmonton's web site, are:
 1. the bags, along with other waste initiatives, are part of a more cost-effective total waste system; and
 2. bags are more convenient for residents.

Lessons Learned:

- The administration proposed a volume based user pay financing system in 1992 and 1994, which was rejected by City Council on both occasions. Staff felt that the Administration should have better explained the user pay system to City Council and residents.

Future Goals:

- The City's Waste Management Branch considered raising the monthly charge for waste disposal to \$17 over a five year period to eliminate drawing upon property taxes for waste disposal operations. However, at this time, no changes to the fee structure are planned.

Bag Limit and User Pay Case Study

Capital Regional District (Oak Bay, Esquimalt, Victoria, Saanich)

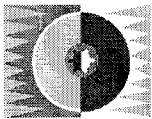
British Columbia

Relevance to Toronto: Relatively large urban Canadian community - one of the first in Canada to move to user pay.

Demographics:

Population (all CRD): 334,871 (1998 estimated)

Households (core municipalities): 59,095



Program Description:

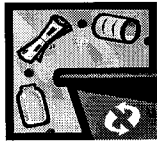
- In January 1992, a partial user pay system was introduced in the Capital Regional District (CRD)'s four core municipalities: Oak Bay, Esquimalt, Victoria and Saanich.
- Households can set out one can (maximum 100 litres) per week, and stickers for extra cans or bags can be purchased for between \$1.50 and \$2.50, depending on the municipality.



Impacts on Waste to Landfill

- An 18% reduction in waste to landfill was observed in the four core municipalities after the first year of the program.¹
- At the time of this report, data for waste to landfill for the four core municipalities was unavailable.

¹ Capital Regional District, Engineering Department. 1993 May. Solid Waste Division: 1992 Annual Report.



Impacts on Recycling

Year	SFHs	Tonnes	% Change from base year (1991) in kg/sfhh
1991	47562	6661	
1992	47562	7374	+10%
1993	47562	6516	-2%
1994	51111	6548	-9%
1995	51919	7425	+2%
1996	53143	7479	0%
1997	54023	8395	+11%
1998	56769	8719	+10%
1999	59095	8690	+5%
2000	59095	10760	+30%

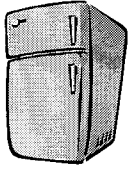
- Recyclables are collected biweekly.
- The municipality currently collects curbside: ONP, OCC, mixed paper, glass, tin and plastic #1.
- The Blue Box program was introduced in 1989 and the following materials were collected: newspapers, glass and tin. Mixed paper was added to curbside collection in 1992. Plastic #1 and OCC was added in May 2000.
- In February 1992, CRD opened drop-off depots to accept: OCC, OBB, mixed paper, OMG and plastic bottles #1 and #2. The depot currently collects: OCC, OBB, OMG, mixed paper, Plastics #1-#7 (except styrofoam), glass containers, metal containers, aluminum foil, empty aerosols, and ferrous and nonferrous metals.
- Encorp Pacific (Canada) authorized depots accept beverage containers that are covered under the *Beverage Container Stewardship Program Regulation*.
- Paper (e.g., OCC, ONP, directories, mixed paper) has been banned from disposal in the CRD since 1998.



Impacts on Leaf & Yard Waste

- In May 1992, a temporary yard waste composting facility was opened.
- Leaf & yard waste can be dropped off at CRD's composting facility for a minimum charge of \$5.00 or \$50/tonne. The core municipalities also offer drop-off services. For example, the City of Victoria offers a Saturday drop-off for \$3.00 per car load (trunk) or \$6.00 per pickup truck.
- The area municipalities also provide a leaf collection curbside.

- CRD introduced a backyard composting program in May 1992, and by 1999 25,000 composters had been sold.



Bulky Waste

- White goods can be dropped off at the recycling facility at Hartland Landfill. A maximum of two items per visit are permitted.
- White goods are banned from disposal by CRD.
- Households are responsible for making their own arrangements for the disposal of other bulky items or have the option to self-haul to the landfill.

Salvage Area

- Households can drop off reusable items at the Salvage Area at no charge. The items are donated to charitable organizations. Acceptable items include: radios, small appliances, small televisions, computers, microwaves, clean textiles, sewing machines, bicycles, toys, lawnmowers, garden tools and kitchen utensils.

Bag Limit and User Pay Case Study City of Delta, British Columbia

Relevance to Toronto: Community within the Greater Vancouver Regional District that has moved from a flat fee 3-can limit to a 2-can limit with a flat fee and user fees on extra waste.

Demographics :

Population: 93,300

SHF: 26, 500



Program Description

- Introduced a 3 can limit in 1988 and reduced the limit to 2 can in 1994.
- Additional tags can be purchased from the contractor for \$15/dozen or \$1.25 each. As the City does not pay a tipping fee, the number of additional tags purchased has not be accurately tracked.
- Residents are provided 12 free stickers annually.
- Until 1997, the City also provided residents with 2 free vouchers for use at the landfill (up to 750 kg). The vouchers were discontinued as it was observed that households were storing waste to take to landfill.
- Once a year, a Spring Clean-up Week is held whereby residents can place unlimited bags to curb. The City has observed an increase in waste being set out during that week.
- A standard container is considered to have a diameter of approximately 60 cm (24") and a height of approximately 75 cm (30") and not exceeding 28 kg (60 lbs) when filled.
- The municipality does not provide garbage collection to multi-family dwellings and small commercial establishments.
- A flat fee is charged annually on utility bill along with water and sewage charges. The bill shows separate lines for garbage collection (\$50) and recycling (\$52). The cost for garbage collection includes leaf and yard waste collection four times a year and one Spring Cleanup Day.



Impacts on Waste to Landfill

- In 1995, when two can limit introduced, waste sent to landfill decreased by 3%.
- Tonnage data for waste, recycling, and leaf and yard waste collection was not provided by the City for this study.



Impacts on Recycling

- Currently, the following materials are collected through weekly curbside collection: ONP, OCC, OMG, mixed paper, glass containers, aluminum and steel cans, and plastic (#1, #2, #5). Mixed plastic and mixed paper were added to recycling collection when the can limit dropped to two in 1994.
- The Greater Vancouver Regional District has banned OCC (since 1997), and newspaper and office paper (since 1998) at disposal facilities.
- Recycling increased 15% when went from 3 can limit to 2 cans.
- Angus Reid survey estimates that Delta's blue box participation rate is 90%.¹
- Encorp Pacific (Canada) authorized depots accept beverage containers that are covered under the *Beverage Container Stewardship Program Regulation*.

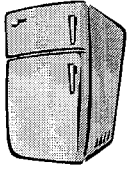


Impacts on Leaf and Yard Waste

- Residents can place a maximum of 20 bags of leaf & yard waste on specified collection days four times a year. To help identify bags/containers of yard waste, stickers are available at specified municipal locations.
- There are no leaf & yard waste bans at landfill.
- Residents can also drop off up to 50 kg per visit of yard waste free at the Vancouver Landfill Composting Site.
- Since 1992, Delta has sold 10,250 subsidized backyard composters.²

¹ Corporation of Delta. 2000. Environmental Stewardship Programs: 1990 - 2000.
http://www.corp.delta.bc.ca/Eng/ESD/environmental_stewardship_files/environmental_stewardship_2000.htm. p. 11.
Accessed 2001 February 9.

² Corporation of Delta. 2000. Environmental Stewardship Programs: 1990 - 2000.
http://www.corp.delta.bc.ca/Eng/ESD/environmental_stewardship_files/environmental_stewardship_2000.htm. p. 13.
Accessed 2001 February 9.



Bulky Wastes

- Residents can drop off appliances at the landfill at no charge.
- Residents can place bulky items out during Spring Clean-Up Week at no charge.
- Residents are required to make their own arrangements at other times during the year.

Administration Support:

- Provided workshops on vermicomposting, backyard composting, recycling, etc. The City placed ads and published brochures.

Lessons Learned

- It is important to have a long-term plan, whereby goals (e.g., new materials for recycling) can be written into new contracts and prices negotiated.
- Focus groups can help identify how the municipality can make the transition to decreased can limit easier.

User Pay Case Study Town of Newmarket, Ontario

In September 1999, the Town of Newmarket, Ontario (population 66,700), implemented a partial user pay system with a four bag limit. Additional bags cost \$1.00 and the tags may be purchased at three locations in town. The revenue from 42,716 tags sold in 2000 went towards solid waste and recycling.

Starting three months before the official kick-off of the program, a student was hired to warn households that were setting out five or more bags about the upcoming bag tag fee. A promotional campaign included informational inserts with the water bill, brochures, local newspaper and the Town's website.

The Superintendent of Public Works reported that no significant change in waste was observed, although between 1998 - 2000 overall materials recycled increased 20%. No new materials were introduced into the bi-weekly recycling program at the launch of the program. Leaf and yard waste is collected once a month between May and November. White goods and bulky items are collected on an on-call basis with the first item \$10.00 and additional items \$5.00.

A slight increase in illegal dumping was observed after the implementation of the new program. For example, some people would place their garbage in front of other households. If the owner of the refuse was identified, the Town would press charges. The program required no additional staff or administrative requirements.

In the future the Town will consider reducing the bag limit and will study opportunities to reduce the organic component of the waste stream by participating in York Region's proposed composting program.

User Pay Case Study City of Worcester, Massachusetts

Relevance to Toronto: Even though the data are limited, this is the largest municipality identified in the US that uses metered bags.

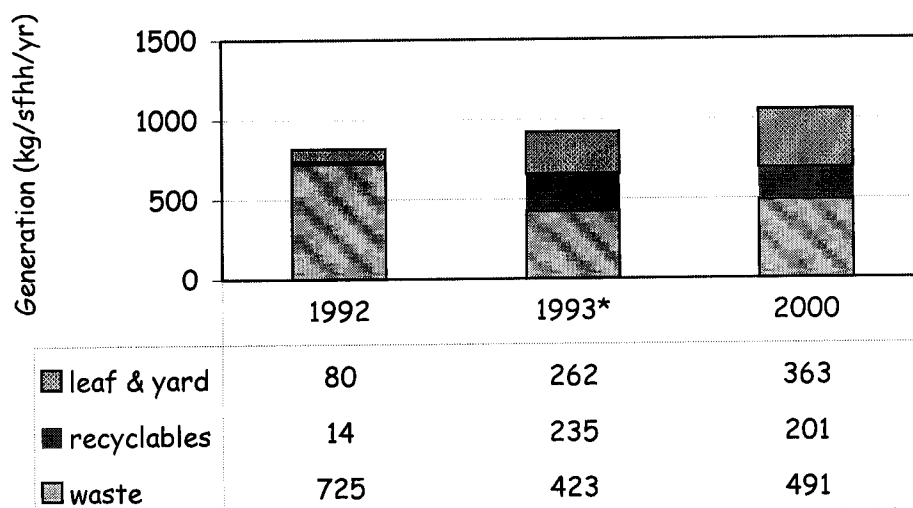
Demographics:

Population: 169,759

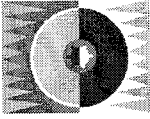
Households: 51,914

System	Date Started	Years with Data	% change of waste landfilled	% change in recycling	% change in leaf & yard collection	% diversion (without BYC)
			Compared with baseline year 1992			
Metered bag program	November 1993	1992				+12%
		1993	-43%	+1585%	+226%	+54%
		2000	-32%	+1392%	+353%	+53%

Worcester - Impacts of PAYT



* User pay introduced in 1993.



Program Description:

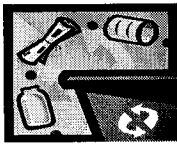
- Metered bag program introduced in November 1993. Residents can choose from two sizes of bags that may be purchased at grocery stores and mini-marts. Bags are sold in packages of five: Each 30 gallon bag is \$0.50 and each 15 gallon bag is \$0.25. There is no bag limit.
- The maximum weight per 30 gallon bag is 30 lbs and per 15 gallon bag is 15 lbs.
- The City's bag supplier distributes bags directly to participating retailers. The company invoices the City for the bags distributed and the City bills the retailers twice monthly for the number of bags received.
- The City does not provide waste or recycling services to commercial establishments or multi-family buildings with more than six units.
- Currently, 1/3 of the solid waste management program is funded by user fees (bag sales) and the remainder is funded through the general fund. The proportion of the budget funded by bag sales has decreased, due to factors such as increases in labor costs and tipping fees.



Impacts on Waste to Landfill

Year	SFH	Tonnes	% Change from base year 1992
1992 (Base year)	49,824	36,120	
1993	50,083	21,210	-42%
2000	51,912	25,511	-32%

- The City has not studied set-out rates.



Impacts on Recycling

Year	SFH	Tonnes	% Change from base year 1992
1992 (Base year)	49,824	699	
1993	50,083	11,785	+1585%
2000	51,912	10,433	+1392%

- Curbside collection was introduced at the same time as PAYT in November 1993. Prior to PAYT, the City provided drop-off depots only.
- The municipality has provides a weekly curbside collection.
- aseptic containers, plastics #1 - #7, Aluminum cans and foil, steel cans and scrap metal.
- There are material bans at landfill. A local ordinance prohibits recyclables, as defined by the DPW. Commissioner, to be placed in any solid waste bag for collection. Enforcement involves a warning and fines up to \$100. Collection crews will sticker bins containing inappropriate materials and leave the non-recyclable items in the bins. According to Massachusetts' solid waste facility management regulations, 310 CMR 19.017¹, the following materials are banned from disposal, incineration or transfer for disposal (and transfer since April 1, 2000) at a solid waste disposal facility (effective dates in brackets):
 - white goods (December 31, 1991)
 - aluminum, steel or bi-metal food and beverage containers, and glass bottles and jars (December 31, 1993)
 - single polymer plastics and recyclable paper (December 31, 1994).
- Massachusetts has a beverage container deposit law, whereby residents receive US\$0.05 for each deposit container redeemed.

¹ Massachusetts Department of Environmental Protection. Frequently asked questions about the Massachusetts waste bans. www.state.ma.us/dep/bwp/dswm/files/wbgidy2k.doc. Accessed 2001 January 5.



Impacts on Leaf and Yard Waste

Year	SFH	Tonnes	% Change from base year 1992
1992 (Base year)	49,824	3,627	
1993	50,083	11,890	+226%
2000	51,912	17,114	+353%

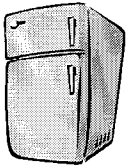
- Curbside collection for leaves is provided in fall through a street sweeping collection program.
- There are 3 drop-off locations that operate 3 days a week from April to November at no charge.
- There are material bans at landfill. Disposing of leaf and yard materials in the waste stream is prohibited by state bans and a local ordinance.
- According to Massachusetts' solid waste facility management regulations, 310 CMR 19.017², the following materials are banned from disposal, incineration or transfer for disposal (transfer since April 1, 2000) at a solid waste disposal facility (effective dates in brackets):
 - leaves (December 31, 1991)
 - other yard waste (December 31, 1992)
- In 1996, the city composted 27% of residential waste through materials collected at drop-off sites and fall leaf collection.³

Backyard composting:

- The City promotes backyard composting as a source reduction activity and promotes it by sponsoring home composting bin sales and a state composting class offered twice per year.
- The City has sold 414 composters through its program from 1995 to 1999, with an average increase of 83 per year.

² Massachusetts Department of Environmental Protection. Frequently asked questions about the Massachusetts waste bans. www.state.ma.us/dep/bwp/dswm/files/wbgidy2k.doc, viewed 01/05/01.

³ United States Environmental Protection Agency. 1999. Cutting the Waste Stream in Half: Community Record Setters Show How. Pg. 158.



Bulky Wastes

- There is no additional charge for curbside collection of bulky items. Residents contact the hauler in advance to book an appointment. The hauler will send the household a sticker to place on the item on the appointed day.
- The City is planning the opening of a new recycling facility. This centre will provide residents with drop-off services for bulky wastes, yard materials, metals and HHW.

Changes in Participation over time:

- The City did not observe an increase in illegal dumping that can be attributed to the PAYT program.

Promotion and Education:

- State of Massachusetts provides Worcester with an annual grant that the City uses to produce "recycling brochures" that include information about Worcester's solid waste programs.
- When PAYT and curbside recycling was introduced, the media blitz consisted of using 22 billboards, television, radio, newspaper and distribution of a bumper sticker "Pay a little. Save a lot." The program also received a lot of exposure for approximately two months before the program began, as it was an election year. In order to respond to the 1,000 calls per day from residents, the City set up a 6-member team (Recycling Information Centre) weeks before the program started.
- Information has been provided in three languages: English, Spanish and Vietnamese.
- Currently, promotion includes an automated 24 hour information hotline, educational outreach to schools, an annual mailing and a web site. Communication materials (e.g., flyers) are often inserted into the packages of bags, and solid waste program information is printed on the packaging.
- All components of the new program were communicated to Council members, including bag specs to collection procedures.
- City staff are planning a recycling campaign which will feature "recycling tip of the week" in the local newspaper.

Administration Support:

- Four new positions in Public Health and Code Enforcement were created for program monitoring (e.g., overstuffing bags) and enforcement (e.g., illegal dumping).
- Between 1993 and 1996, 12 waste collection positions were eliminated due to increased recycling and composting.

Lessons Learned:

- Work with retail stores to examine issues including amount of mark-up on bags, state taxes on bags, shelf space dedicated to other trash bags, and ordering and stocking bags.⁴
- Develop a "whole program" that includes public education, outreach and awareness. Develop a good compliance plan and enforce it. "Leave no stone unturned."
- Staff feel that recycling rates have dropped off because residents have become complacent and it is time for a refresher campaign which is being planned.

Future Goals:

- The City is planning the opening of a new recycling facility. This centre will provide residents with drop-off services for bulky wastes, yard materials, metals and HHW.

⁴ Coneg Study 1995

Pay-As-You-Throw (PAYT) Case Study City of Seattle

Relevance to Toronto: Large urban municipality with a mix of single and multi-family households and many years experience with a variable subscription can system.

Demographics:

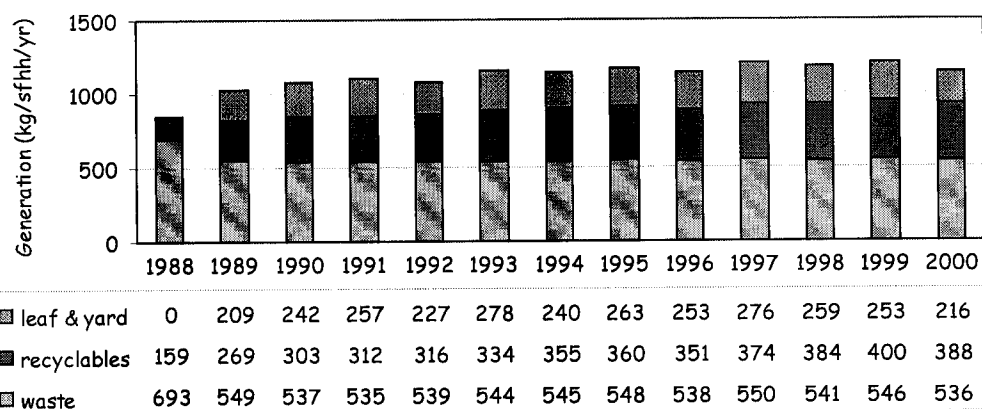
Population: 534,700 (1996)

- In 1995, there were 2.07 persons per household. In 1995, 30% of the population lived in multi-family housing.

City of Seattle, Waste Diversion at a Glance

System	Date Started	Years with Data	% change in waste landfilled (kg/sfhh/yr)	% change in recycling landfilled (kg/sfhh/yr)	% change in leaf & yard collection landfilled (kg/sfhh/yr)	% diversion
			Compared with baseline year 1988			
Variable Container Service	1981, expanded in 1989	1988				+19%
		1989	-21%	+69%		+47%
		1990	-23%	+91%	+16%	50%
		1991	-23%	+96%	+23%	52%
		1992	-22%	+99%	+9%	50%
		1993	-21%	+110%	+33%	53%
		1994	-21%	+124%	+15%	52%
		1995	-21%	+127%	+26%	53%
		1996	-22%	+121%	+21%	53%
		1997	-21%	+135%	+32%	54%
		1998	-22%	+142%	+24%	54%
		1999	-21%	+152%	+21%	54%
		2000	-23%	+144%	+3%	53%

Seattle - Impacts of User Pay



Program Description:

- Variable garbage rates were introduced in 1981, whereby households had the option of subscribing to the 32 gallon can or two or more 32 gallon cans. In 1989, in support of the City's 60% recycling goal, the program was changed from backyard pickup to curbside pickup, and a 19 gallon can (Mini Can) was added. In 1992, the 12 gallon Micro Can was introduced.
- With the current volume based, variable rate system, residents can place extra garbage curbside by purchasing a \$5.50 tag or by participating in the automatic billing system, i.e., charges will automatically be added to their utility bill.
- Curbside recycling was introduced in 1988 and curbside yard collection began in 1989. The subscription rate system includes the cost of providing the recycling program; however, requires households to subscribe to curbside yard waste service (see Leaf and Yard Waste Section).
- Garbage is collected weekly, and currently yard waste and recyclables are collected biweekly on an alternating schedule (same day as garbage service).
- Charges for garbage appear on households' combined water, sewer and garbage bills every other month.
- In 1999, the residential subscription rate system contributed 56% towards the Solid Waste Fund Revenue. Revenue sources also include 14% taxes, 28% commercial disposal and 2% other revenue.

- The current subscription rates are as follows:

Service Level	Curb or Alley Rates (\$US)	Backyard Rates (\$US)
micro can 12 gallon	10.05/month	Not available
mini can 19 gallon	12.35/month	Not available
one 32 gallon can	16.10/month	22.50/month
two 32 gallon cans	32.20/month	45.00/month
each additional 32 gallon can	16.10/month	22.50/month

- As per City Ordinance, a mandatory garbage charge applies for all occupied and unoccupied dwelling units, whether the services are used or not. An exception to this mandatory charge may be granted if a property will not be occupied or used as a residence for a minimum of 60 consecutive days.



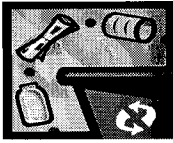
Impacts on Waste to Landfill

Year	SFH	Tonnes ¹	% Change from base year (1988)
1988 (base year)	136,716	94,692	
1989	137,245	75,358	-21%
1990	137,774	73,941	-23%
1991	138,303	74,043	-23%
1992	138,832	74,797	-22%
1993	139,361	75,835	-21%
1994	139,937	76,224	-21%
1995	140,342	76,939	-21%
1996	141,086	75,920	-22%
1997	141,508	77,858	-21%
1998	141,860	76,786	-22%
1999	142,450	77,724	-21%
2000	143,157	76,732	-23%

- In 1998, customer enrollment for can service was as follows: 4% micro-can, 25% mini-can, 63% one can and 8% for two or more cans. Before 1989, 60% of customers subscribed to the one 32 gallon rate.

¹ Based on a 1996 GIS analysis of residential collection route areas, the City estimates that 58% of residential waste is generated by can customers (generally SFH to fourplex). (Source: Seattle's 1999 Solid Waste Annual Report: Seattle Public Utilities, Resource Planning, Forecasting, and Evaluation. 2000 March.) The tonnage reported above has accounted for this. Note: Data originally included waste collected from residential multi-unit (generally 5+ units) dumpster accounts.

- Prior to PAYT, the average household set out 3.5 x 30 gallon containers per week. After PAYT this decreased to ~1.6 x 30 gallon containers per week.



Impacts on Recycling

Year	SFH	tonnes ²	% Change from base year (1988)
1988 (1 st year)	136,716	21,724	
1989	137,245	36,957	+69%
1990	137,774	41,764	+91%
1991	138,303	43,144	+96%
1992	138,832	43,805	+99%
1993	139,361	46,608	+110%
1994	139,937	49,715	+124%
1995	140,342	50,520	+127%
1996	141,086	49,455	+121%
1997	141,508	52,883	+135%
1998	141,860	54,467	+142%
1999	142,450	56,995	+152%
2000	143,157	55,520	+144%

- Recyclables are collected biweekly on same day as garbage collection
- Curbside recycling collection was introduced in 1988. In 1988, the following materials were collected: ONP, mixed paper, OCC, glass containers, and aluminum and tin containers.
- PET was introduced in 1989 and HDPE bottles in April 1992.
- Ferrous metals (such as metal hangers, screws and nails, and hinges) were introduced in 1993.
- In April 2000, polycoated paper, aseptic packages and all other plastics (except polystyrene) were added to the program.
- Until April 2000, north end customers were required to use different bins to separate their recyclables. The south end customers have used 96 gallon recycling carts for more than 10 years. Both the North and South end share the same history for materials collected for recycling. Since April 2000, all households can use a 96 or 64 gallon cart to collect co-mingled recyclables (except glass is collected in a separate bin). The carts have the residents' addresses on them.
- The diversion rate for recyclables was 19% in 1987 (prior to the expanded PAYT program) to 29% in 1996.

² Tonnage for curbside collection only. All households on can program can participate in the recycling program.

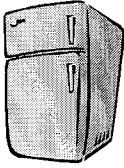


Impacts on Leaf and Yard Waste

Year	SFH	tonnes ³	% Change from base year (1989)
1988	136,716		
1989 (1 st year)	137,245	28,719	
1990	137,774	33,366	+16%
1991	138,303	35,564	+23%
1992	138,832	31,561	+9%
1993	139,361	38,732	+33%
1994	139,937	33,632	+15%
1995	140,342	36,963	+26%
1996	141,086	35,682	+21%
1997	141,508	39,127	+32%
1998	141,860	36,783	+24%
1999	142,450	36,049	+21%
2000	143,157	30,878	+3%

- The City provides a biweekly subscription based curbside yard waste collection. Prior to 2000, a flat rate applied to curbside collection of yard waste. January 2000, a variable rate was introduced for curbside yard waste collection in order to promote grasscycling and backyard composting. Subscribing households are charged base rate of \$4.25/month that includes pickup of up to four x 32 gallon units per collection. Additional 32 gallon units may be placed out for \$1.50 each. The collectors record the extra bags placed at curb, transmit this information to the City, and the City adds the charge to the solid waste bill.
- A City Ordinance bans disposing of leaf and yard waste in the garbage.
- In 1998, approximately 58% of eligible accounts were signed up for curbside yard waste collection. Alternatively, clean yard waste can be dropped off at recycling and disposal stations for \$11.05 per trip.
- The monthly charge for curbside collection does not cover the costs of the leaf and yard waste program. Garbage rates supplement the cost.

³ Tonnage from self-haul not included in analysis.



Bulky Wastes

- Curbside collection of bulky wastes is provided by appointment only. The charge is \$20/item and items with CFCs require an additional \$5 charge
- Large appliances may be also dropped off at recycling and disposal depots for \$15.70 per appliance (limit of two per load).

Changes in Participation over time:

- In 1996, a survey revealed that 90% of residents were very satisfied with the waste management system and 94% believed reducing waste is important.
- Illegal dumping was experienced so the City significantly increased illegal dumping rates.

Education and Promotion:

- Seattle has an "Informed Neighbourhood" program aimed at disseminating information on waste management and diversion to members of the community, which includes training residents on recycling and composting, who in turn act as a neighbourhood resource for one year.
- Twice a year, residents receive a newsletter called the Curb Waste News and residents receive additional information inserts in their bills.
- The City maintains a comprehensive web site about its waste management and diversion program.

Administration Support:

- Two full time staff, with strong economic backgrounds were hired to design and implement the variable can structure. Currently, the City employs a full time staff person to oversee the rate development process.
- Analysis of various programs revealed that achieving 60% recycling and 40% disposal proved the least cost of all the alternatives.

Lessons Learned:

- Keep promotion clear and simple, and tailor the message/communications to the audience. Six key elements to a successful promotional campaign include: market research, public involvement and outreach, promotion campaigns, involve collection crew and other staff, and address customer diversity.
- PAYT is considered part of an integrated diversion program, since it helps to reinforce waste diversion behaviors. PAYT cannot operate on its own; it must work in conjunction with convenient, low cost recycling services.

- An Environmental Protection Agency report profiling Seattle, offers the following tips for replication: target messages to reach a diverse public through market research and pay trash haulers partially based on tons collected so that as recycling increases, savings result.

Pay-As-You-Throw (PAYT) Case Study City of Austin, Texas

Relevance to Toronto: One of the largest US cities with a variable rate subscription system.

Demographics:

Population: 642,994 (2000)

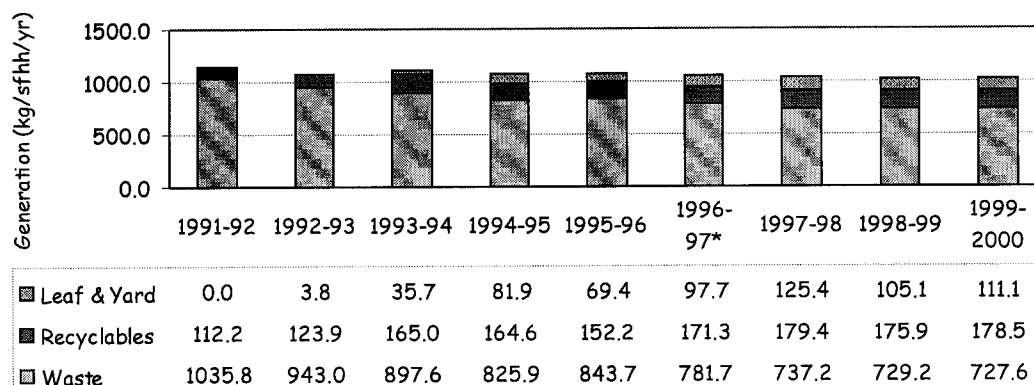
- Households served in 99-2000 - 136,200

City of Austin, Waste Diversion at a Glance

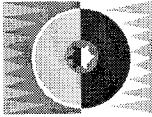
System	Date Started	Years with Data	% change in waste landfilled (kg/sfhh/yr)	% change in recycling rate (kg/sfhh/yr)	% change in leaf & yard collection (kg/sfhh/yr)	% diversion (without BYC)
Compared with baseline year 91-92						
Variable Container Service	Phased in 1992 - 1995, with variable rate in September 1997.	1991-92				+10%
		1992-93	-9%	+10%		+12%
		1993-94	-13%	+47%		+18%
		1994-95	-20%	+47%		+23%
		1995-96	-19%	+36%		+21%
		1996-97	-25%	+53%	0%	+26%
		1997-98	-29%	+60%	+28%	+29%
		1998-99	-30%	+57%	+8%	+28%
		1999-2000	-30%	+59%	+14%	+28%

Notes: Austin's fiscal year is October 1 to September 31. Austin phased in its PAYT program over several years starting in 1993-94 (fiscal year). PAYT was fully introduced throughout the city by 1997-98 (fiscal year). However, 1991-92 is used as a baseline year to eliminate the effects of the pilot PAYT program (with the exception of leaf and yard waste collection).

Austin, Texas - Impacts of User Pay



*User pay city-wide in September 1997



Program Description:

- A pilot project, conducted from July 1991 to June 1992 (in ~3,000 SFH), was so successful that in the Fall of 1993, City Council voted in favour of adopting the full PAYT system throughout the city.
- The PAYT system was implemented over several years in three main phases: 1) first phase involved 30,000 households 2) second phase involved 50,000 households and 3) third phase with remaining 43,000 households (representing ~90% of SFHs).
- To implement the billing system changes, the City initiated a temporary city-wide hybrid sticker program. Customers paid a base fee of \$11.64 for a 60-gallon can and purchased stickers at \$2.00 for each additional bag of garbage. The City provided each household with 6 free stickers to start.
- Once the billing system changes were implemented, the existing variable can program commenced September 1, 1997.
- The billing system works by issuing each resident with a 60-gallon cart containing a serial number, which is recorded in a data-base and used for billing purposes. If residents choose to exchange their carts for a different size then the exchanged cart serial number is re-recorded in the data-base. Otherwise, it is assumed that the household has a 60-gallon cart and is billed accordingly.
- There is no charge to downsize to a to a smaller can; however, there is a \$15.00 charge associated with increasing the size of the can or adding a cart.
- The rate structure includes recycling and leaf and yard waste collection.
- Current rates are as follows:

Size of cart	Base Rate (\$US)	Second Cart Rate (\$US)
30 gallon cart	\$11.75/month	\$4.75/month
60 gallon cart	\$14.50/month	\$7.50/month
90 gallon cart	\$17.25/month	\$10.25/month



Impacts on Waste to Landfill

Year	SFHs	Tonnes	% Change from base year (1990-91)	% change with introduction of variable rate (September 1997)
1990-91 (base year)	112,400	116,422		
1992-93	121,100	114,197	-9%	
1993-94	123,300	110,676	-13%	
1994-95	125,300	103,480	-20%	
1995-96	127,200	107,318	-19%	
1996-97*	131,200	102,565	-25%	
1997-98	132,000	97,315	-29%	-6%
1998-99	134,643	98,183	-30%	-7%
1999-00	136,000	99,103	-30%	-7%

Note: Variable rate introduced in September 1997.

- Currently customer enrollment is as follows: 12% use 30 gallon cans, 82% use 60 gallon cans and 6% use 90 gallon cans. The subscriptions ratios have remained steady over time.



Impacts on Recycling

Year	SFHs	Tonnes	% Change from base year (1990-91) in kg/sfhh	% change with introduction of variable rate (September 1997) in kg/sfhh
1990-91 (base year)	112,400	12,609		
1992-93	121,100	15,000	+10%	
1993-94	123,300	20,346	+47%	
1994-95	125,300	20,622	+47%	
1995-96	127,200	19,359	+36%	
1996-97*	131,200	22,476	+53%	
1997-98	132,000	23,684	+60%	+5%
1998-99	134,643	23,681	+57%	+3%
1999-00	136,000	24,310	+59%	+4%

* Note: Variable rate introduced in September 1997.

- The City of Austin currently collects the following materials: ONP, OCC, OMG, mixed paper, aluminum and steel/tin cans, glass containers, flattened plastic bottles (#1 and #2).
- The City of Austin does not collect recycling from apartment complexes or businesses. Apartment complexes with more than 100 units and businesses with more than 100 employees must provide on-site recycling in accordance with the Commercial and Multi-Family Recycling Ordinance. Apartments with less than 100 units can take recyclables to a specified drop-off site

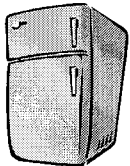


Impacts on Leaf and Yard Waste

Year	SFHs	Tonnes	% Change from base year (1996 - 97) in kg/sfhh
1992-93	121,100	463	
1993-94	123,300	4,407	
1994-95	125,300	10,258	
1995-96	127,200	8,831	
1996-97* (base year)	131,200	12,821	
1997-98	132,000	16,549	+28%
1998-99	134,643	14,146	+8%
1999-00	136,000	15,137	+14%

Note: Variable rate introduced in September 1997.

- The City provides weekly collection of leaf and yard waste. Residents can place grass clippings, leaves and branches (less than 5 feet long and 3 inches in diameter) for curbside collection. The city also offers brush collections for yard materials that exceed the requirements above. Containers cannot exceed 50 lbs.
- The City will not collect leaf and yard waste in plastic bags for composting. Yard materials placed in plastic bags require a \$2.00 tag (as required for extra refuse) and will be taken to landfill.



Bulky Wastes

- Residents receive collection on scheduled days twice a year. Before PAYT residents were required to make their own arrangements with a hauler or take the waste to landfill.

Changes in Participation over time:

- The City has a subsidized program for low-income residents who are issued a special health card for use at city clinics. The City provides the clinic with garbage stickers

and in turn, the clinic distributes the stickers to low-income residents based on the size of the household and a number of factors.

- Austin has an anti-litter campaign, and an increase in illegal dumping has not been observed.

Education and Promotion:

- Block leaders can volunteer to put out yard signs announcing collection day.
- The education and promotion campaign involved the use of direct mailings to households, a specially produced PAYT video aired on local television, newsletters and a public hotline.
- Voice mail/hotline system provided means for staff to monitor concerns and provided residents an opportunity to offer feedback
- All educational literature is provided in English and Spanish.

Administration Support:

- Some additional administrative/infrastructure costs were identified. Additional staff were hired to improve customer service for phone inquiries and group presentations. Other identified costs included the cost to retrofit collection vehicles to be semi-automated and provision of carts to households.

Lessons Learned:

- Rates must be structured so that the fixed costs are shared equally among householders with the difference in rates reflecting disposal costs.
- To ensure a smooth transition from the pilot project to full-scale implementation throughout the City, PAYT has been implemented in stages in four city areas. The Solid Waste Director suggested large cities use a phased-in approach because it allows staff to incorporate community feedback into the program design and to provide the level of customer service that is necessary in a large city.
- Solid Waste Director also suggested visiting other cities to learn how others communities plan their routes, use their equipment and respond to customers.
- The semi-automated collection system has resulted in a significant decrease in employee injuries associated with collection.
- During the implementation of Phase II, the city encountered a series of problems, including
 1. A reduction in the collection rate from twice per week to once per week required new routing schedules; consequently, houses and streets were missed until the collection crews became familiar with their new routes. The scheduling of new routes has been reduced from three to five routes converted per day to a maximum of four converted per week to give drivers a chance to learn the routes before they begin them.
 2. The addition of recyclable material resulted in a shortage of recycling vehicles which resulted in an increase in dead routes (a route that cannot be completed in a day) and long work days for the collection crew.

3. The switch from a manual collection system to a semi-automated collection system increased the collection time at every stop. The previous route size of 750 homes per day was too much and had to be reduced to 650 homes per day, assuming an eight hour work day. This has resulted the additional hiring of 4 collection crew.

Pay-As-You-Throw (PAYT) Case Study City of San Jose, California

Relevance to Toronto: Large urban example of a volume based variable rate subscription system.

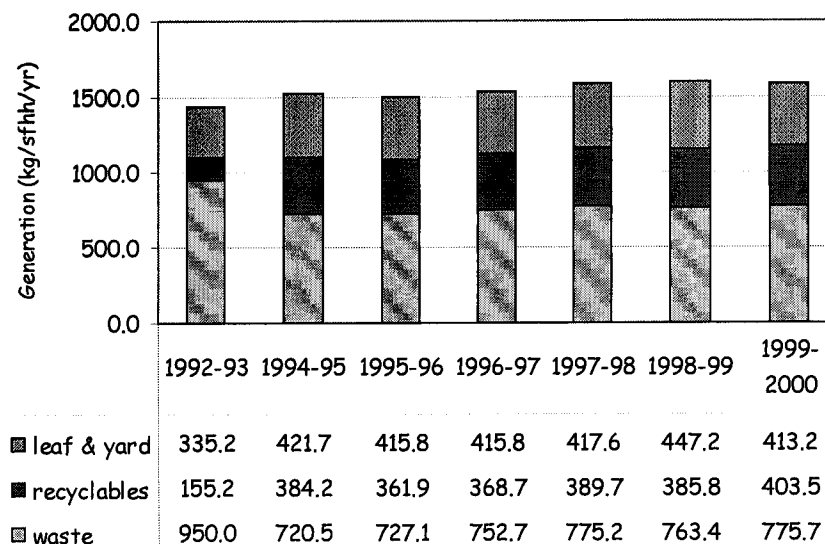
Demographics

Population: 850,000 (1999)

System	Date Started	Years with Data	% change in waste landfilled (kg/sfhh/yr)	% change in recycling (kg/sfhh/yr)	% change in leaf & yard waste collection (kg/sfhh/yr)	% Diversion (without BYC)
			Base year 1992-93			
Volume based variable rate	July 1993	1992-93				+34%
		1994-95	-24%	+148%	+26%	+53%
		1995-96	-23%	+133%	+24%	+52%
		1996-97	-21%	+138%	+24%	+51%
		1997-98	-18%	+151%	+25%	+51%
		1998-99	-20%	+149%	+33%	+52%
		1999-00	-18%	+160%	+23%	+51%

* 1992 tonnage data for single family households only, as mdfs considered commercial at this time.

San Jose - Impacts of User Pay



* Full user pay volume based variable rate program in 1993



Program Description

- The City introduced a full user pay volume based variable rate program in 1993, supplemented with a bag/tag option for additional waste and bulky items (before 1993, residents were charged a monthly flat fee for unlimited disposal).
- User pay was implemented as part of "Recycle Plus" program in 1993. As an incentive to maximize recycling, the city's privately contracted haulers are paid per household and they receive bonuses for the tonnage of recyclables marketed.
- San Jose operates an Integrated Waste Management Program which provides revenues for two funds: The IWM Fund (a special enterprise fund established in 1994) and the City of San Jose's General Fund. The IWM Fund's revenues come from five main sources: SFD rate charges (60%), MFD rate charges (21%), source reduction and recycling fees on commercial businesses (15%), miscellaneous residential service fees such as extra trash stickers and bulky good collection services (5%) and interest earned during the year (1%). The General Fund is supported by the commercial franchise fees and a disposal facility tax.
- The General Fund is used to support the Recycle Plus Special Rate Program that provides reduced rates (~30%) to low-income households and persons with disabilities.
- The city is authorized to collect a portion of IC&I fees to support the source reduction and recycling programs operated in the city. The legislation enables the City to collect US \$0.32 for every tonne delivered by the IC&I sector to the landfill and permits the city to apply a charge on the gross receipts of commercial haulers. The fees collected represent approximately 17% of the revenues collected in the IWM fund. This is also equivalent to the annual shortfall between annual revenues collected from the variable rate program and annual expenditures.
- The current subscription rates are as follows:

Cart Size	Current Monthly Fee (US Dollars) (1999)	% of SFH subscribing to the different cart sizes in 2001
32 gallon	14.95	84%
64 gallon	29.90	14%
96 gallon	44.55	<1%
96 gallon + 32 gallon	59.80	<1%
96 gallon + 64 gallon	74.75	<1%

- Extra 32 gallon bags can be set at curb with a garbage sticker for \$3.75. Extra tags can be purchased at libraries (\$1 from each sale goes to the libraries) and several retail outlets.



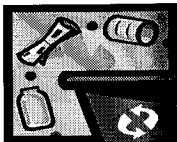
Impacts on Waste to Landfill

Year	SFH	Tonnes	% Change from base year (1992) in kg/sfhh
1992-93* (base year)	180,000	171004	
1993-94	Data unavailable		
1994-95	185411	133593	-24%
1995-96	187156	136073	-23%
1996-97*	188900	142183	-21%
1997-98	190728	147856	-18%
1998-99	192555	147004	-20%
1999-00	195460	151616	-18%

*1992 Data unavailable from San Jose. Information from Duke University Report and verified by San Jose representative that the data was reasonable.

** ** Annual waste generation 1997-98 based on 9 months of data extrapolated over 12 months..

- 84% of the City subscribes to the 32 gallon container, which is set as the default size by the city (if residents do not contact the city to subscribe to a different sized container then it is assumed they want the 32 gallon container)



Impacts on Recycling

Year	SFH	Tonnes	% Change from base year (1992) in kg/sfhh
1992-93 (base year)*	180,000	27941	
1993-94	Data unavailable		
1994-95	185411	71237	148%
1995-96	187156	67735	133%
1996-97	188900	69650	138%
1997-98	190728	74324	151%
1998-99	192555	74285	149%
1999-2000	195460	78871	160%

*1992 Data unavailable from San Jose. Information from Duke University Report and verified by San Jose representative that the data was reasonable.

- City-wide curbside recycling was introduced in 1986. Currently residents receive weekly collection.

- The municipality currently collects: ONP, OMG, OCC, mixed paper, aluminum and steel cans, aluminum foil, plastics #1 - #7, aseptic containers, milk cartons, textiles, used oil and oil filter, empty aerosol cans and scrap metals (defined as miscellaneous items made of at least 80% metal, including drained auto parts). Used motor oil is not collected from multi-family households.
- The materials added to the program in 1993 at the launch of the PAYT and "Recycle Plus" programs included: mixed paper, OCC, HDPE, PS, LDPE, scrap metals and used oil (Prior to the Recycle Plus Program, the municipality collected: ONP, glass bottles, aluminum and steel cans and PET)
- In 1997, aerosol cans, drained auto parts and plastics #3-7 were added to collection, and oil filters were added in 1998.
- The City of San Jose is experiencing an 89% participation rate in its recycling program.
- California has a Beverage Container and Litter Reduction Act (AB2020) that requires a deposit on certain beverages. The containers collected through the bottle bill are not included in the recycling data provided for this case study.

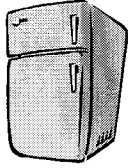


Impacts on Leaf and Yard Waste

Year	SFH	Tonnes	% Change from base year (1992) in kg/sfhh
1992 (base year)*	180,000	60328	
1993	Data unavailable		
1994	185411	78191	26%
1995	187156	77816	24%
1996	188900	78544	24%
1997	190728	79646	25%
1998	192555	86113	33%
1999	195460	80766	23%

* 1992 Data unavailable from San Jose. Information from Duke University Report and verified by San Jose representative that the data was reasonable.

- City-wide curbside collection was introduced in 1991. The weekly year round un-containerized (i.e., in loose piles) leaf and yard waste is collected from single family and multi family households.
- The average household places leaf and yard waste material at the 2.5 times per month per household.
- The City sells backyard composters and worm composters at special events.
- Over 4,000 composters have been sold in the last 3-4 years.



Bulky Wastes

- There is a special pickup for bulky items, on an on-call basis. For single family households, the cost is \$19 for three items, which is added to the bill

Changes in Participation over time:

- Survey results indicate that residents are satisfied with the program: 88% were satisfied with the program in 2000. This is an increase from 80% in 1993.
- There is little illegal dumping observed. Fines are applied if the person is identified.

Education and Promotion:

- The PAYT promotional campaign featured the program's fairness to gain public acceptance. Promotional efforts included the use of print and broadcast media, over 250 community meetings and informational packages were produced in three languages (English, Spanish and Vietnamese).
- The public was involved in the program design through the use of a questionnaire mailed to 186,000 households. Surveys were also conducted at malls.

Administration Support

- The number of customer service representatives actually required to respond to customer inquiries was an additional \$3 million above the anticipated administrative cost of \$2 million.

Lessons Learned

- Timing of the program is important.
- Staff did not anticipate how quickly residents would take to recycling and request a smaller size of waste container than the default 32 gallon container. This situation resulted in an immediate revenue shortfall in the first year.
- Important to get elected officials to buy in and to implement the program within one council term.
- Educate residents.

Future goals

- The City is considering implementing food waste organics program in year 2003-04 after conducting several pilot programs.
- Recently tendered service contracts that will begin on July 2, 2002 will include:
 - Commingled recycling in new wheeled carts
 - Containerized yard trimming service on a subscription basis
 - Home delivery of compost bins.

Pay-As-You-Throw (PAYT) Case Study City of Portland, Oregon

Relevance to Toronto: Large urban community.

Demographics:

Population: 505,000

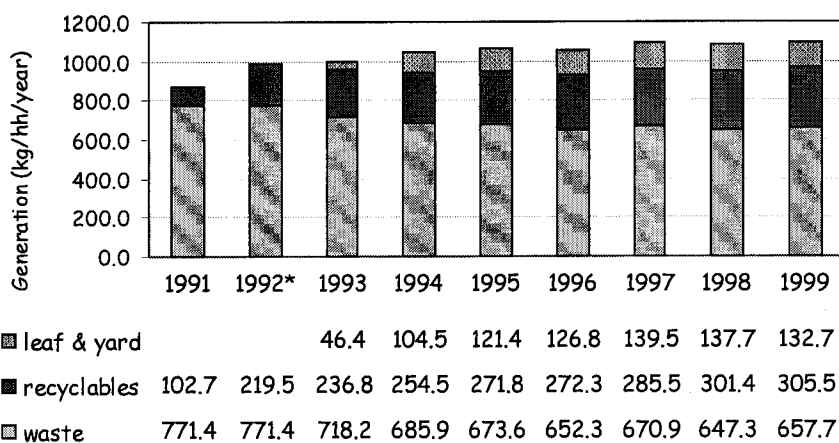
Households: 187,268 (2000)

City of Portland, Waste Diversion at a Glance

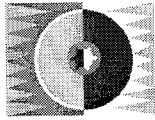
Type of System	Date Started	Years with Data*	% change in waste landfilled (kg/sfhh/yr)	% change in recycling (kg/sfhh/yr)	% change in leaf & yard collection (kg/sfhh/yr)	% diversion (without BYC)
Compared with baseline year 1991						
Variable container system	February 1992	1991				+12%
		1992	0%	+114%		+22%
		1993	-7%	+131%*		+28%
		1994	-11%	+148%*	+125%	+34%
		1995	-13%	+165%*	+162%	+37%
		1996	-15%	+165%	+174%	+38%
		1997	-13%	+178%	+201%	+39%
		1998	-16%	+193%	+197%	+40%
		1999	-15%	+197%	+186%	+40%

*Notes: in 1996, 2% was diverted through the bottle bill. (38% + 2% = 40%). 1993 is used as the baseline year for calculating the % change in leaf and yard waste. After PAYT, the following materials were added to the recycling program: scrap paper in 1993, milk cartons, aseptic containers and aerosol cans in 1994 and plastic bottles and phone books in 1995.

Portland, Oregon - Impacts of User Pay



* Oregon introduced a variable can program in February 1992. Leaf and Yard Waste collection began in April 1992



Program Description:

- In response to Oregon's Recycling Act (SB 66) that established a 50% recovery goal for 2000, Portland's Solid Waste & Recycling Program introduced a residential franchise system for garbage and recycling in February 1992. Private haulers are assigned specific exclusive residential areas to service by the city. Residential haulers pay franchise fees to the City and these fees are dedicated to solid waste and waste reduction program management.
- The Portland Bureau of Environmental Services sets the rates charged by the haulers. The rate structure is designed to cover expected hauler expenditures (e.g., collection and disposal costs, administration and equipment maintenance), and includes an operating margin of 9.5% and a franchise fee (currently 4%).
- Households that subscribe to weekly garbage and recycling collection also receive yard waste collection every other week.
- To encourage residents to reduce waste generation, the rate charged for the 20-gallon mini-can service rate is below the cost to provide the service.

City of Portland Rate Structure

Container	Monthly Rate Per Container ¹ (\$ US)
Weekly Pickup - Cans	
20 gallon Mini-can	15.60
32 gallon	17.85
Weekly Pickup - Rollcarts	
35-40 gallon	19.40
60 gallon	23.00
90 gallon	26.25
Weekly Pickup Containers	
1.0 cubic yard	54.90
1.5 cubic yard	74.15
2.0 cubic yard	93.45

Note: There is the option to subscribe for one to four containers at the service levels of 32 gallon container to 90 gallon. Carts can be leased from the haulers.

- Occasional extra garbage is charged \$4.50 per bag or can (extra yard waste is also charged as discussed in the Leaf and Yard waste section).

¹ Rates also exist for multiple can/rollout service, containerized service, recycling or yard waste collection only, on-call collection and clean up containers. Charges are also applied for non-curb pickup and distances beyond 75 feet of the curb.



Impacts on Waste to Landfill

Year	SFHs	Tonnes per household	% Change from base year 1991
1991 (Base year)		Na OR 0.771	
1992	Household numbers not available	0.771	0%
1993		0.718	-7%
1994	Data provided as lb. waste per unit served	0.686	-11%
1995		0.674	-13%
1996		0.652	-15%
1997		0.671	-13%
1998		0.647	-16%
1999		0.658	-15%

- As of December 1999, customer enrollment was as follows: 17% used mini-cans, 61% used single 32-35 gallon containers, 6% used monthly 32 gallon cans and the remaining 16% subscribed to 60 or 90 gallon roll-cart or multiple can service.



Impacts on Recycling

Year	SFHs	Tonnes per household	% Change from base year (1991)
1991 (base year)	Household numbers not available	0.103	
1992		0.220	114%
1993	Data provided as lb. recyclables per unit served	0.237	131%
1994		0.255	148%
1995		0.272	165%
1996		0.272	165%
1997		0.285	178%
1998		0.301	193%
1999		0.305	197%

- Curbside recycling has been offered since June 1987. The recycling program was included in the franchise program in February 1992. As such, residents receive weekly recyclables pickup on the same day as garbage.
- Prior to PAYT, residents could recycle the following materials: ONP, aluminum and steel cans, glass and OCC.

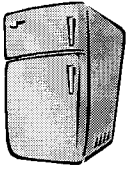
- Since the introduction of PAYT, the City has expanded its recycling program on an annual basis: scrap paper (i.e. junk mail, OBB, kraft paper) added in 1993, Milk cartons aseptic containers, and aerosol cans added in 1994 and plastic bottles and phone books added in 1995.
- Since 1996, Portland businesses have been required to recycle 50% of their waste.
- City and state regulations require haulers to collect a minimum of eight recyclable materials.
- The franchisees currently collect: ONP, OMG, OCC, OBB, mixed papers, milk cartons, aseptic containers, narrow necked plastic bottles #1 -#7, aluminum and steel cans, aluminum foil, aerosol cans, scrap metal, glass and motor oil (SFDs only).
- A commingled system of collecting recyclable materials was introduced in 1999, as a result of extensive public input, pilot programs, time and motion studies and focus groups.
- Oregon currently has a bottle bill, which contributes approximately 2% to the recyclables stream.



Impacts on Leaf and Yard Waste

Year	SFHs	Tonnes per household	% Change from base year (1993)
1991			
1992 (1 st year)	Household numbers not available	Not available	
1993		0.046	
1994		0.104	+125%
1995	Data provided as lb. Leaf and yard waste per unit served	0.121	+162%
1996		0.127	+174%
1997		0.140	+201%
1998		0.138	+197%
1999		0.133	+186%

- Yard waste has been collected at curbside since April 1992.
- If yard waste is set at curb in cans, it must be marked "Yard Debris Only." Haulers (or the City) will provide yellow yard debris stickers at no charge.
- In July 1999, the charge for each extra bag, container or bundle of yard waste (above the base level biweekly service of a 32 gallon equivalent) increased from \$1.00 to \$1.50.



Bulky Wastes

- Since 1991, the City has arranged weekend depot events with the assistance of neighbourhood associations. Residents are asked to donate a nominal fee as a neighbourhood fundraiser.
- In 1998, the City piloted the curbside collection of bulky wastes and due to the success from the pilot areas, a curbside bulky waste collection was contracted out. Residents arrange for pickup by calling hauler directly. The hauler estimates the charge for the service at point of request and the extra charge will be added to the residents bill.

Changes in Participation over time:

- Since Spring 1996, department staff have authority to deal with certain cases of illegal dumping, such as when individuals place garbage in another person's or company's garbage receptacle. Offenders are issued either warning notices or notices of civil penalty depending on the offense.
- The 1998-99 City Auditor's Report found that 76% of residents rate garbage and recycling services as good or very good.
- Prior to implementing the program, political and public support was obtained through extensive public meetings and briefings of council.

Administration Support:

- Portland only incurs the direct costs to administer the program.
- Funds collected from the franchises are used to finance the city's residential trash, recycling and composting program, education programs, publicity and franchise oversight.

Lessons Learned:

- PAYT trash rates encourage customers to reduce waste and increase diversion; know the public and conditions in your jurisdiction and plan accordingly; be responsive to the public, and; focus on convenience, striving to continuously make participation easier over time.
- It is important to have local support for the program. Utilize local haulers and develop the program to reflect the community.

Pay-As-You-Throw (PAYT) Case Study City of Minneapolis, Minnesota

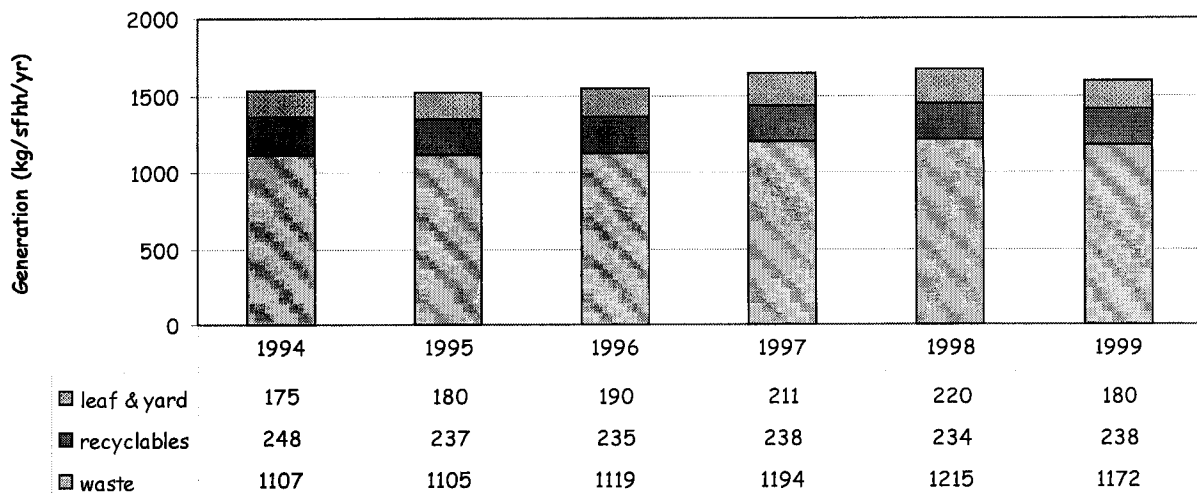
Relevance to Toronto: Large urban example of a flat fee with a volume based variable rate system.

Demographics:

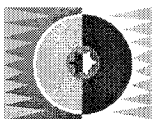
Population: 358,785 (1996)

Households: 176,461

Minneapolis - Impacts of User Pay



* The chart was produced using "owner-occupied" household numbers (Source: Property Management Systems and Inspections). At the time of this report, data for households served was unavailable.



Program Description

- Minneapolis introduced the variable rate fee in January 1995. Residents choose between a 94 gallon cart at \$4/month or a 20 gallon cart at \$2/month. Prices have not changed since program implementation.
- Residents may place up to two extra bags of garbage curbside each week; however, households that regularly generate excess waste must arrange for an additional cart. In addition, if households place out more than the extra two bags on any given week, the waste will be picked up.

- In addition, a solid waste base fee (currently \$20.75/month) is collected through a charge on the utility bill. This solid waste fee was introduced in January 1988 at \$5/month. The fee covers the collection of garbage, yard waste, recycling, bulk wastes, vouchers and other services.
- Households can register for a \$7/month recycling credit which will be applied to their utility bill.
- Maximum weight for the 94 gallon cart is 200lbs.



Impacts on Waste to Landfill

- Over 3,800 households switched to the 20 gallon cart during the first year of the variable rate program.¹



Impacts on Recycling

- Biweekly collection of recyclables (since October 1987) on the same day as garbage collection.
- The City currently collects: ONP, OCC, OBB, OMG, mixed paper, aluminum and steel cans, glass bottles and jars, household batteries and plastic bottles.
- City wide monthly curbside collection was introduced in November 1983. Materials collected at this time included: ONP, OCC, aluminum and steel cans and glass bottles and jars. Used motor oil and auto batteries were collected from November 1983 to May 1986.
- In June 1989, a recycling credit was added to the bill (\$7/unit/month since January 1990) for building participating in the program.
- Household batteries were added to the program in October 1990. Plastic bottles were added in November 1990. Plastic jars, tubs and single-use microwave containers added in July 1991 (discontinued in March 1996). OMG added in February 1993. Phone books, milk/juice and drink boxes added in January 1994 (discontinued in November 1997). OBB and mixed paper added in March 1996.
- November 1997, TVs, computers and computer monitors collected separate from garbage.
- The participation rate in the recycling program is approximately 90%.²

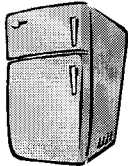
¹ City of Minneapolis, Public Works. 2000. Historical Highlights. <http://www.ci.minneapolis.mn.us/citywork/public-works/solid-waste/history.html>. Accessed 2001 February 28.

² City of Minneapolis, Public Works. 2000. Overview. <http://www.ci.minneapolis.mn.us/citywork/public-works/solid-waste/overview.html>. Accessed 2001 February 28.



Impacts on Leaf and Yard Waste

- Weekly collection is provided from mid-April to mid-November on the same day as garbage collection.



Bulky Wastes

- Curbside collection of large appliances and metal items since July 1990.
- Large metal items are picked up with biweekly recyclables collection.
- Two large items may be placed out weekly for pickup with garbage collection.

User Pay Case Study Aurora, Illinois

Relevance to Toronto: Reasonably mature program where sticker sales finance waste management system.

Demographics:

Population: 132,354

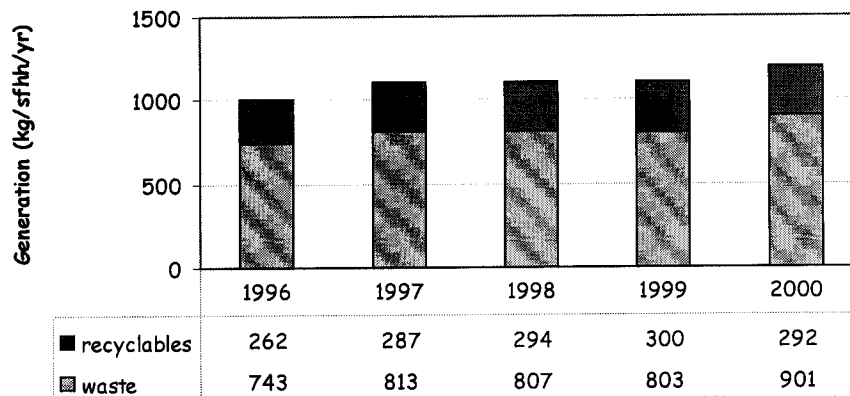
SHF: 36,500 (SFD to fourplex)

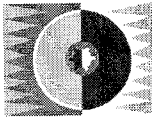
City of Aurora, Waste Diversion at a Glance

Type of System	Date Started	Years with Data	% change in waste landfilled (kg/sfhh)	% change in recycling (kg/sfhh)	% change in leaf & yard collection (kg/sfhh)	% diversion (without BYC)
			Baseline data unavailable*, compared with 1996			
Tag/Bag Container	November 1991	1996			Data unavailable	+26%
		1997	+9%	+10%		+26%
		1998	+9%	+12%		+27%
		1999	+8%	+15%		+27%
		2000	+21%	+12%		+24%

* The City keeps records for 5 years.

Aurora - Impacts of User Pay





Program Description

- Sticker program with weekly curbside collection.
- Renegotiated refuse collection contract in 1991 to introduce a user pay sticker program. The City introduced the sticker program to avoid tax increase with the initiation of the new recycling program. Sticker program was selected because of the ease and versatility of implementation.
- Merchants at approximately 46 locations sell stickers. Revenue and collections division sells garbage stickers and recycling bins. The contractor is responsible for sticker sales (printing and distributing). The contractor charges the City \$1.13 and the sticker is sold for \$1.20. The City receives the \$0.07 revenue, which primarily goes toward salaries for inspectors.
- In 2000, 2,344,000 stickers were sold at the \$1.20 equivalent.
- In 1998, the sticker price was raised to \$1.20 (from \$0.98) for a 32-gallon bag or can and \$0.60 (from \$0.49) for a 14-gallon sticker. Since 1998, solid waste management is entirely funded through the sticker fees. No taxes toward solid waste management
- Multi-family buildings contract privately for waste and recycling service.
- Financing in 1996: 73% curbside user fees (stickers) and 27% residential taxes. With the sticker program, all money goes to the contractor, and they are responsible for turning their own profit.
- Financing in 1990 was 100% residential taxes.



Impacts on Waste to Landfill

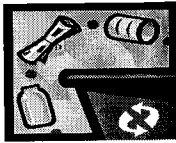
Year*	SFHs	Tonnes	% Change from base year (1996) in kg/sfhh
1996	32080	23829	
1997	32934	26759	9%
1998	34217	27624	9%
1999	35500	28497	8%
2000	36500	32878	21%

*Note: User pay program introduced in 1991. Data unavailable for 1990 - 1995.

- Tonnage of residential waste sent to disposal decreased by 35%¹. New programs produced a reduction of 40% by volume in residential refuse, dropping from 90,000 cubic yards during implementation in 1991 to 53,500 cubic yards in 1992.²

¹ *Innovative Financing Options Study Group – Report on Case Study Research Findings*. June 1998.

- Upon implementation, the new programs allowed city to reduce residential refuse volume by 40% and add additional waste collection services, while reducing the cost burden to the general fund³



Impacts on Recycling

Year*	SFHs	Tonnes	% Change from base year (1996) in kg/sfhh
1996	32080	8394	
1997	32934	9467	10%
1998	34217	10056	12%
1999	35500	10646	15%
2000	36500	10651	12%

*Note: User pay program introduced in 1991. Data unavailable for 1990 - 1995.

- Curbside recycling was introduced in 1991 with user pay sticker program. Weekly collection occurs on same day as garbage collection.
- The following materials are currently collected: ONP, OMG, mixed paper, aluminum and steel cans, plastics 1-7, glass, empty aerosol and paint cans, aseptic containers. When the program was introduced in 1991, materials collected included paper, aluminum and glass. Additional materials were added since 1993.

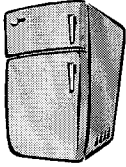


Leaf and Yard Waste

- Leaf and yard waste collection introduced in 1990.
- Leaf and yard waste data is not available as it is not accurately tracked due to variable weather conditions.
- Yard waste funded by franchise sticker program, requiring customers to purchase yard waste stickers for \$1.20 each.
- The City does not sell composters.
- In 1990, State of Illinois banned leaf and yard waste from landfill.

² Breckinridge et al. 1994. *Quantity Based Disposal Fees Manual*. Prepared for Illinois Department of Energy and Natural Resources. p.82.

³ Breckinridge et al. 1994. *Quantity Based Disposal Fees Manual*. Prepared for Illinois Department of Energy and Natural Resources. p.81.



Bulky Wastes

- All items with a sticker will be accepted curbside. Pickup is unlimited.

Changes in Participation over time:

- The City experienced problems with illegal dumping, so public education system was implemented and Solid Waste Inspectors were hired. As yard waste is a common material dumped, it is difficult to identify the responsible individual. Tickets will be issued and range from \$25, \$50 and \$100 for repeat offences.
- About 100 incidents were recorded in the first year. In 2000, of a total of 236 citations issued, approximately 30% were related to illegal dumping.
- Program took about 8-9 months to implement. The City Council first considered changing the system in July 1990 and the system design was confirmed by March 1991 with input from solid waste staff, the hauler and a citizen advisory commission (18 members). Public officials used speeches, meetings and interviews to sell the program.⁴

Administration Support:

- \$120,000 increase in administrative costs.⁵

Lessons Learned:

- After financing decision is made, be proactive and educate the public as much as possible.
- In the case of rental properties, if tenants move out and do not adhere to the user pay program, the property owner is responsible.
- Important to have an ongoing education & outreach program to deal with population growth in the City (in Aurora approximately 1,000 households/year).

⁴ Breckinridge et al. 1994. Quantity Based Disposal Fees Manual. Prepared for Illinois Department of Energy and Natural Resources. p.81.

⁵ Innovative financing options study group - Report on Case Study Research Findings. 1998 June.

User Pay Case Study City of Grand Rapids, Michigan

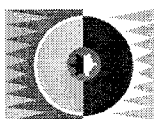
Relevance to Toronto: Unusual situation of city crews in direct competition with private sector haulers.

Demographics

Population: 192,000

Households: 69,452

Households served: 42,000



Program Description:

- The user pay system was introduced in 1972. City crews compete with private sector haulers for business.
- Residents can choose to buy tags (\$1 each), special bags (\$10 for a package of ten), or a City Refuse Container (\$10 plus \$52 for an annual license sticker for the container).
- The maximum allowable weight per container or bag is 30 lb and maximum volume is 30 gallons.
- Refuse bags and tags are sold at fire stations, the City Treasurer's Office, supermarkets and neighbourhood stores.
- Weekly collection is provided.
- Before July 2000, the structure of the program allowed residents to pay only for the services they wanted, i.e., there was a charge for both leaf and yard waste collection and recycling. Since July 2000, all residents can participate in the City's recycling program free of charge. (See recycling section.)
- User fees are supplemented with taxes to cover waste management program costs.
- The program was implemented to address problem of deficit in the City's Refuse Collection and Disposal Fund (i.e., reserve fund) .
- Households that do not properly tag waste set curbside are given one week to resolve the problem. After this given time period, the City charges households the cost of removal which includes an administration fee (\$40), collection and disposal (\$20) and \$10 for each appliance.¹
- The data required to fully analyze the impact of user pay on waste to landfill, recycling and leaf and yard waste collection, was not received at the time of this report.

¹ Miranda, M.L. and J.E. Aldy. 1995. *Unit Pricing of Residential Municipal Solid Waste: Lessons from Nine Case Study Communities*. Prepared for US Environmental Protection Agency.

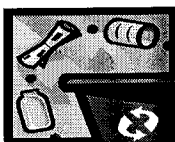


Impacts on Waste to Landfill

- The data provided by the City shows no observable change in waste to landfill since 1995.² This could be related to the relatively low fees that are charged per unit of waste disposed over the history of the program (see chart below).

Fee Structure History³

Dates	Fee (city bag/tag)
7/86 - 6/87	\$0.35/\$0.25
7/89 - 6/90	\$0.45/\$0.35
1/93 - 6/94	\$0.85/\$0.75
8/94 - 1/95	\$0.85/\$0.85
10/98	\$1.00/\$1.00



Recycling

- Since July 2000, the City has offered its recycling program free of charge.
- Prior to July 2000, residents that participated in the recycling program paid \$24/year.
- The City currently collects the following materials: ONP, OCC, OBB, mixed paper, glass containers, aluminum and steel containers, aluminum foil, empty aerosol cans, plastic bottles #1 & #2 and household batteries. OCC was added in 1998.
- In Michigan, bottle deposits apply to beverages, such as: beer, soft drinks, carbonated and mineral water, wine coolers and canned cocktails.



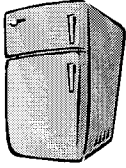
Leaf and Yard Waste

- Curbside yard waste collection has been offered since March 1995.
- Currently the service is weekly, during most of the year. However, in the winter season when regular collection is not provided, the contractor will provide pickup of yard materials on request.
- Residents set out yard waste in special bags that are sold in packages of five for \$4.25 or attach a \$0.85 tag to each bundle of yard materials.

² Waste to landfill fluctuated from 38,000 - 39,000 tons per year between 1995 - 2000.

³ Fees for 1986 to 1995 from Miranda, M.L. and J.E. Aldy. 1995. Unit Pricing of Residential Municipal Solid Waste: Lessons from Nine Case Study Communities. Prepared for US Environmental Protection Agency.

- The fee does not cover the cost of the program. City staff estimate the additional cost for each bag collected is \$1.43.



Bulky Wastes

- Large appliance stickers can be purchased for \$10 each.
- Bulky waste stickers cost \$5 each.
- Bulky wastes are collected curbside on the same day as regular refuse collection.
- Stickers are sold at fire stations, City Treasurer's Office, supermarkets and neighbourhood stores.

User Pay Case Study City of Los Angeles, California

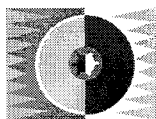
Relevance to Toronto: Largest US community with a flat subscription rate and variable rate pricing on extra waste. (Note: data on tonnages unavailable.)

Demographics:

Population: 3,823,000 (2000 estimate)

Total households: 1,330,800 (1999 estimate)

Households served: 720,000



Program Description:

- Los Angeles is the largest residential collection district in the United States. Over 5,000 tons per day are collected from the residential sector.¹
- In general, the City provides service to sfds, multi-family with 2-4 units and some larger mfd.
- Households receive a standard base level of service that consists of three containers: 95 gallon for single stream recyclables, 60 gallon for yard waste (includes fruit and vegetable trimmings) and a 60 gallon for refuse. Residents that occupy two or more City lots may receive an additional 60 gallon green cart at no cost.
- The basic level of service is funded through a Sanitation Equipment Charge of \$6/mo. for single family dwellings and \$4/mo. for apartments (served by the City) and the General Fund. Fees are charged to residents for amounts above the basic service levels.²
- Since July 1996, residents who require additional garbage or leaf and yard waste containers on a regular basis can arrange for an additional refuse container at \$5.00 per month and an additional leaf and yard waste container at \$2.50 per month. (The minimum service is six months.) In addition, extra tags may be purchased in sets of five for \$5.00, for extra garbage or leaf and yard waste, with a maximum of 25 per year per customer. Tags are available at collection district yards and by mail by sending a check or money order to the City.
- The collection cost per household is approximately \$1.72 for recyclables, \$3.24 for yard trimmings and \$5.75 for refuse.³
- Private haulers pick up refuse materials and recyclables from commercial and industrial sectors and ~34,000 apartments and condominiums with five or more units. Private

¹ City of Los Angeles. 2000 November. Solid Resources Program Fact Sheet. <http://www.lacity.org/SAN/santext/factsht.htm> Accessed 2001 February 20.

² City of Los Angeles. Major activities. www.cityofla.org/SAN/sanmact.htm, Accessed 2001 February 23.

³ City of Los Angeles. 2000 November. Solid Resources Program Fact Sheet. <http://www.lacity.org/SAN/santext/factsht.htm> Accessed 2001 February 20.

haulers require a license to operate in the City; however, there are no specific diversion goals for private haulers. Private haulers provide diversion data to the City on a voluntary basis and there is no assurance with regards to the accuracy of the data.

- According to a December 2000, Bureau of *Sanitation's Residential Curbside Recycling Program Audit Report*, methods to "ensure appropriate diversion of waste by private haulers to improve overall diversion rates" are under consideration.
- There are two main extra capacity fee exemptions⁴:
 - Customers that meet the requirements of Lifeline status receive the first 30 gallons of extra capacity trash at no charge, and \$2.50 for each 30 gallon increment above. General guidelines to be eligible for Lifeline include: individuals at least 62 years old or disabled, with a total annual income of less than \$20,500.
 - Households with seven to 10 occupants that qualify under the DPW high-density water rate program receive the first 30 gallon increment of extra capacity trash at no additional charge. Households with more than 10 occupants receive a second 30 gallon increment at no additional charge.
- The recycling, yard trimmings, refuse and special collection program has an annual budget of \$42,057,512.



Impacts on Waste to Landfill

- Approximately 1.5 million tons of materials (yard trimmings, household refuse and recyclables) were collected from 720,000 households in FY1998-1999.
- City Council approved a 70% diversion goal for the year 2020 as proposed in the City Solid Waste Management Policy Plan, in October 1994.
- Automated collection of refuse began roll-out in 1991.
- California Integrated Solid Waste Management Act, assembly Bill 939 (AB 939) mandates 50% diversion of waste from each city in California by 2000.
- Data on tonnages for waste to landfill, recycling and leaf and yard waste was unavailable for this study.



Impacts on Recycling

- City wide curbside yellow bin recycling program began in April 1995. In December 1998, a citywide weekly automated commingled 95 gallon blue container curbside program began. (Note: Bins were distributed over a 14 month period.)

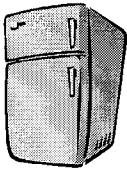
⁴ City of Los Angeles. Fees for extra capacity collection of trash and yard trimmings. www.lacity.org/san/sanfees.htm. Accessed 2001 February 21.

- The City currently collects: OCC, OBB, OMG, mixed paper, steel and aluminum food and beverage containers, steel aerosol cans, glass jars and bottles, empty paint cans, plastic bottles # 1 and #2.
- The curbside program collection recycling rate averages 39%⁵
- Recycling tonnage has increased 150% with the introduction of the single stream recycling with the 95 gallon container.⁶
- A survey revealed that 92% of customers approved the 95 gallon blue container system.
- The recycling container set out rate increased to 82% with the introduction of the blue containers.⁷



Impacts on Leaf and Yard Waste

- City-wide automated curbside collection of yard waste began roll-out in 1991.
- In addition to typical yard waste, residents are allowed to place fruit and vegetables trimmings in their "green" container for weekly collection.
- Residents may also dispose of yard trimmings free of charge upon showing a voucher card at the drop-off site. Purchase of voucher cards require a Department of Water and Power (DWP) bill or picture ID that shows proof of residency.



Bulky Wastes

- Bulky item pickup is offered on an on-call basis at no charge to residents serviced by the City. Households must call at least two days before regular scheduled collection day. Alternatively, residents can drop off items at the local collection yard. Building materials and automobile parts are not accepted.

⁵ City of Los Angeles. 2000 November. Solid Resources Program Fact Sheet. <http://www.lacity.org/SAN/santext/factsht.htm> Accessed 2001 February 20.

⁶ City of Los Angeles. 2000 November. Solid Resources Program Fact Sheet. <http://www.lacity.org/SAN/santext/factsht.htm> Accessed 2001 February 20.

⁷ City of Los Angeles. 2000 November. Solid Resources Program Fact Sheet. <http://www.lacity.org/SAN/santext/factsht.htm> Accessed 2001 February 20.

Pay-As-You-Throw (PAYT) Case Study City of San Francisco, California

The City San Francisco (population 752,000) is located in California and provides residential waste management services to approximately 333,000 households (six units or less).

San Francisco has a variable container PAYT program, whereby payment from residents is based on the size and number of containers. Currently, residents can choose between two sizes of refuse containers: 20 gallon (\$7.01/month) and 32 gallon (\$11.68/month). Additional containers are available for \$10.51 per month. Approximately 6% of subscribers use the 20 gallon can, 80% use the 32 gallon can and the balance of accounts (14%) subscribe to greater than 32 gallons. If residents generate extra garbage they can call-in to arrange for pickup with an approximate charge of \$3.00 per 32-gallon can.

The current rate program includes the collection of recyclables, however yard waste is not collected. Currently, the following materials are collected: ONP, OMG, OBB, OCC, mixed paper, glass containers, aluminum and steel food and beverage cans, aluminum foil, plastics #1 and #2, and empty metal paint and aerosol cans. The estimated cost of the curbside recycling program is \$2.00 per household per month. Curbside recycling has been offered since 1989.

One of the interesting features of San Francisco's program is the recent introduction of the "Fantastic Three Program" in February 2000. This program is a three-stream residential collection program, which provides the separate collection and composting of green organics (i.e. food scraps). This program makes San Francisco the first large city in the US to initiate city-wide collection of organic material.

The program was tested over a 2 $\frac{1}{2}$ year period by piloting a variety of curbside organics collection programs. It is expected that 2/3 of the City will participate in the green cart component of the new program.

The program will use a 3-cart system for single-family households that will include three 32-gallon carts, each for commingled recyclables, food and yard waste and garbage, respectively. The proposed monthly cost of service is \$18.43 per month. A staff member anticipates that recycling rates will increase 20% with introduction of the Fantastic Three program.

All single-family households and multifamily buildings with individual trash billing for their unit will receive the three carts. Each unit will receive a kitchen pail for food wastes. Larger buildings (generally 6 or more units) that do not have individual billing for trash and

recycling service will receive large centralized bins for garbage and recyclables to share. In larger multi-residential buildings, green carts for compostables will be provided only on request to buildings that identify an individual that will be responsible for the bin (including rolling it to the curb). Small commercial establishments are able participate in the Fantastic Three Program and materials will be picked up on-route with the residential waste.

The roll-out of the "Fantastic Three Recycling Program" will require new carts for recycling and garbage, new fleet of split-compartment collection trucks, new recycling sort lines and material processing equipment.

Currently a study is underway that will recommend the best means of outreach, and is expected to include phone banking, newspaper inserts, booths at community events and PSAs. City staff feels that public outreach is essential to the success of the Fantastic Three Program.

Managers' Reports

Request for Recommendation Priorities Committee

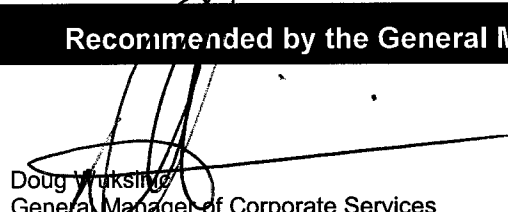


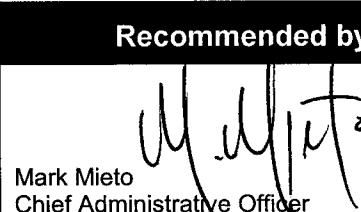
Type of Decision									
Meeting Date	February 12 th , 2003				Report Date	February 7 th , 2003			
Recommendation	☒	Yes		No		Priority	☒	High	Low
	Direction Only					Type of Meeting	☒	Open	Closed

Report Title
Bill 210 - Electricity Pricing, Conservation and Supply

Policy Implications + Budget Impact	
☒	This report and recommendation(s) have been reviewed by the Finance Division and the funding source has been identified
☒	Background attached

Recommendation
WHEREAS Section 142(1) of the Electricity Act, 1998 required municipalities to convert their existing electricity businesses into corporations incorporated under the Business Corporations Act within two (2) years of its entitlement; and WHEREAS on December 9th, 2002, Bill 210 - The Electricity Pricing, Conservation and Supply Act, 2002 received Third Reading and Royal Assent; and WHEREAS Bill 210 amends the Electricity Act, 1998 by adding Section 159.1 to require a municipality that beneficially owns voting securities in a corporation incorporated under Section 142 of the Electricity Act, 1998, to pass a resolution affirming that the
☒ Recommendation attached

Recommended by the General Manager
 Doug Wuksling General Manager of Corporate Services

Recommended by the C.A.O.
 Mark Mieto Chief Administrative Officer

Date: February 7th, 2003

Report Authored By

Doug Wuksinic
General Manager of Corporate Services

Division Review

Recommendation (Cont'd)

Corporation should continue to be incorporated under the Business Corporations Act within ninety (90) days of Bill 210 receiving Royal Assent; and

WHEREAS Bill 210 also provides several consequences for failure to pass the required resolution and submit the necessary Certificate certifying the passing of the resolution, it is hereby recommended that the Corporation of Greater Sudbury Hydro Inc./Hydro Du Grand Sudbury Inc. (GSHI) should continue to be incorporated as a Business Corporations Act company as provided in Sub-section 142(1) of the Electricity Act, 1998; and

THAT the City Clerk be requested to prepare and file with the Minister of Energy the necessary Certificate required under Section 159.1 of the Act; and

THAT the Mayor and City Clerk be authorized to execute same.

Background

The purpose of this Report is to recommend that Council confirm the status of Greater Sudbury Hydro Inc./Hydro Du Grant Sudbury Inc. (GSHI) as a "For-Profit" Corporation, as required by Bill 210 - Electricity Pricing, Conservation and Supply Act, 2002, which received Royal Assent on December 9th, 2002. Council must confirm the status of the GSHI within ninety (90) days (March 10th, 2003) from the date Bill 210 receives Royal Assent.

In 1999, Provincial Legislation mandated that all municipalities review options for the future of their Hydro Electric Commissions (Bill 35 - Electricity Competitions Act). Ultimately, the Transition Board and the Council of the City of Greater Sudbury made the decision to operate the Hydro as a "For-Profit" Corporation.

The recently introduced Bill 210 requires that Council confirm the decision to operate the distribution services (GSHI) on a "For-Profit" basis within ninety (90) days of Royal Assent (March 10th, 2003).

For your information, I have attached recent documentation provided to the Board of Directors of the Greater Sudbury Hydro Inc. on this matter; specifically:

- ▶ A Memorandum dated 2003-01-27 to the Board of Directors from Mr. Doug Reeves, President & Secretary and Mr. S.A. Pawlowicz, Vice-President of Greater Sudbury Hydro Inc./Hydro Du Grand Sudbury Inc. entitled "*For Profit vs Non-Profit*"
- ▶ A Report dated January 24th, 2003 from Macquarie and Ogilvy Renault entitled "*Legal and Financial Analysis of For-Profit and Zero-Return LDCS*",

Date: February 7th, 2003

And a Letter dated 2003-01-29 to Mr. Mark Mieto, Chief Administrative Officer of the City of Greater Sudbury from Mr. Doug Reeves, President/CEO and Secretary of Greater Sudbury Utilities Inc./Services Publics Du Grand Sudbury Inc. outlining the recommendation of the Board; specifically, the Board has passed the following Resolution:

"THAT the Board recommend to the Corporation's Shareholder, that Greater Sudbury Utilities Inc. subsidiary, Greater Sudbury Hydro Inc. continue as a "For-Profit" Corporation as required by Bill 210, The Electricity Pricing, Conservation and Supply Act, 2002."

An Executive Summary of the information provided outlines the following benefits of passing a Resolution to operate the distribution company, Greater Sudbury Hydro Inc./Hydro Du Grand Sudbury Inc. as "For-Profit" as:

- 1) The Utility is a valuable asset in excess of \$70 million to the City of Greater Sudbury. Operating on a "For-Profit" basis, maintains and will increase its value for both the retention and re-capitalization or possible sale or merger;
- 2) The City is able to utilize any future dividends and interest from the Promissory Note in order to address capital financing requirements for infrastructure renewal, and in this manner is providing direct benefit from returns on this investment to the taxpayers;
- 3) The valuation of GSHI is based on both the present net value of its future cashflows based on distribution rates and a multiple of book value of its assets. The valuation of the asset in a "For-Profit" exceeds that of a "Not-For-Profit";
- 4) The City's 2001, 2002 and Draft 2003 Current Budgets have received the benefit of funding from the Utility as a result of implementing the "For-Profit" model. This funding is equivalent to a tax rate increase of approximately 2 percent in 2003;
- 5) The City of Greater Sudbury has invested significant time and resources to implement the "For-Profit" model. Reversing this will be time-consuming and costly.

On the other side, the implications of not passing a Resolution to operate GSHI as a "For-Profit" are:

- a) If the City does not pass a "For-Profit" Resolution, the electricity company would not be able to declare dividends or increase its debt obligation either through creating new debt or expanding existing debt to the Shareholder;
- b) The ability to sell the distribution company is eliminated as Bill 210 specifically prevents a Shareholder from disposing of its share interest in the company if it does not pass a resolution to continue to operate the company as a "For-Profit" Corporation;
- c) The Ontario Electricity Board (OEB) will deem an application to have been made for a rate order that incorporates a zero percent return on common equity, which effectively converts the Corporation into a "Not-for-Profit" business, without the benefits of a "Not-for-Profit" status.

Date: February 7th, 2003

Based on all of the foregoing, it is recommended that Council of the Greater City of Sudbury accept the recommendation of the Board of Directors of Greater Sudbury Hydro Inc./Hydro Du Grand Sudbury Inc. and declare the distribution company as a "For-Profit" Corporation, as required by Bill 210 - The Electricity Pricing, Conservation and Supply Act, 2002.

MEMORANDUM TO THE BOARD OF DIRECTORS

2003-01-27

MEMBERS OF THE BOARD OF DIRECTORS:

"FOR PROFIT VS NON-PROFIT"

REQUEST FOR APPROVAL: That the Board recommend to the Corporation's Shareholder, that Greater Sudbury Utilities Inc. subsidiary, Greater Sudbury Hydro Inc. continue as a "For Profit" Corporation as required by Bill 210 – Electricity Pricing, Conservation and Supply Act, 2002.

REMARKS: In 1999, Bill 35 – Electricity Competition Act mandated that the City of Sudbury review options for the future of the Sudbury Hydro Electric Commission, Capreol Hydro Electric Commission and Nickel Centre Hydro Electric Commission. Ultimately, Council through the Transition Board made the decision to operate Greater Sudbury Hydro Inc. as a "For Profit" Corporation as provided in Subsection 142(1) of the Electricity Act, 1998. The recently introduced Bill 210 requires that the Council of the City of Greater Sudbury confirm the decision of operating the distribution utility on a "For Profit" basis prior to March 10, 2003.

Should the City not pass a "For Profit" resolution the distribution utility will not be able to declare dividends or alter its debt structure either through creating new debt or amending existing debt to the Shareholder.

The OEB will deem an application to have been made for a rate order that incorporates a 0% return on common equity which effectively converts the Corporation into a not for profit business, however without the benefits of not for profit status. The Corporation will continue to be liable for PIL taxation including its obligation to pay tax on the Corporation's capital. Furthermore, the ability to sell or modify the ownership structure of the distribution company is eliminated as Bill 210 specifically prevents the Shareholder from disposing of its share interest if the City does not pass a resolution to operate the company as a "For Profit" Corporation.

.../2

The valuation of Greater Sudbury Hydro Inc. is based on both the net present value of its future cash flows based on distribution rates and a multiple of book value of its assets. On this basis, the valuation of the Corporation as a "For Profit" far exceeds that of a "Not for Profit". Access to this value must be preserved in order to keep both sales and refinancing options open for the long term.

The City of Greater Sudbury has built the net interest payment that it receives from the Utility into its financial operating plans. The Utility had the ability to make these payments without passing on a rate increase to its customers. The Utility could have increased its rates to reflect a prescribed market adjusted rate of return but decided against such an option. If the City does not pass a "For Profit" resolution it appears with a higher degree of certainty, that distribution rates would be reduced by a rate order that would claw back earnings before interest. Such an action would result in negative financial implications to the City.

Because the Utility has a 0% market adjusted rate of return incorporated in its rates, any negative aspects of a "For Profit" designation can be effectively managed, we have been good corporate citizens and have not "gouged the consumer".

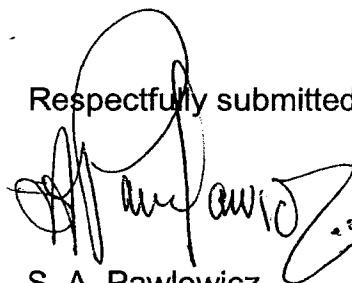
In conclusion, "For Profit" designation preserves the status quo and a significant number of potential opportunities for the future. It is management's unequivocal recommendation that the City pass a resolution that Greater Sudbury Hydro Inc. continue as a "For Profit" Corporation.

Recommended for Approval,



Doug Reeves, P. Eng.,
President & Secretary.

Respectfully submitted,



S. A. Pawlowicz,
Vice President.

TO: The Chair, and
Board of Directors



**LEGAL AND FINANCIAL ANALYSIS OF FOR-PROFIT
AND ZERO-RETURN LDCS**

COMMISSIONED BY THE ELECTRICITY
DISTRIBUTORS ASSOCIATION
JANUARY 24, 2003

EXECUTIVE SUMMARY

The recently enacted Electricity Pricing, Conservation and Supply Act, 2002 ("Bill 210, the EPCS Act") fixes the commodity price for electricity payable by certain customers at 4.3 cents per kilowatt hour and caps distribution rates until at least May 1, 2006. This legislation also requires the municipal shareholder(s) of a local distribution corporation ("LDC") to decide whether to affirm the current commercial status of the utility or, alternatively, have it revert to an entity which cannot earn a profit and is prohibited from exercising many of the rights associated with commercial enterprises (referred to herein as a "Zero-Return LDC").

In making this decision, the municipal shareholder(s) of the LDC will have to consider the impact of the decision on the financial viability of its utility. While all LDCs will be affected by the freeze on distribution rates, the Zero-Return LDC will additionally be impacted by the many statutory restrictions which will apply as a result of assuming the Zero-Return status. In assessing the financial viability of its utility, the municipal shareholder will also have to consider the provisions of the Municipal Act which may affect the manner and the extent to which the municipality can financially support the utility, a concept commonly referred to as "bonusing".

This report has been commissioned to identify the legal and financial issues imbedded in the For-Profit and Zero-Return models.

From a legal perspective, this Report summarizes the regulatory regime in place prior to the introduction of Bill 210, the EPCS Act, describes the distribution-related aspects of Bill 210, the EPCS Act, and discusses the relevant provisions of the Municipal Act, 2001, in particular, the provisions on bonusing. The question of whether the municipal shareholder is legally permitted to infuse capital or increase lending to the LDC is raised. The Report then turns to an analysis of the financial implications of the new legal framework for the LDC, depending upon whether its current commercial status is affirmed (that is, it remains a "For-Profit LDC") or whether it becomes a Zero-Return LDC.

The key financial implications of Bill 210, the EPCS Act, on LDCs are grouped into three categories: operations, capital funding and shareholder return. In order to analyze and illustrate the financial implications for LDCs under the For-Profit and Zero-Return scenarios, a financial model was created to simulate an LDC with a fixed asset base size of \$100 million and an assumed allowance for working capital, to derive its rate base. The implications of the distribution rate regime beyond 2006 are also considered.

Assumptions and Findings

The key factor determined to affect an LDC's ability to withstand the financial impacts of Bill 210, the EPCS Act, is **growth**, which will impact revenues, expenses, working capital, expansion capital and shareholder return. Secondary factors are also identified and addressed in the report. The analysis in Sections 7 and 8 of the Report considers three different growth scenarios under both the For-Profit and the Zero-Return cases:

- Zero Growth LDC: an LDC with zero growth in its rate base;
- Low Growth LDC: an LDC with 2% annual growth in its rate base; and
- High Growth LDC: an LDC with 6% annual growth in its rate base.



**OGILVY
RENAULT**

EDA Report Final.Doc
Printed 24/01/03:

PAGE I

170

Financial Implications – For-Profit LDCs

The analysis indicates that a For-Profit LDC should be able to continue to pay for its operating expenses and taxes in all growth scenarios.

There is no requirement to finance capital in the zero growth LDC since it is assumed that in this scenario, incremental capital expenditures are equal to zero. However, LDCs in the low and high growth scenarios do require funding of capital expenditures. The analysis indicates that the low growth LDC should be able to fund capital expenditures without borrowing; it may encounter problems with lenders if it wants to borrow enough to optimize cash flow and maintain its capital structure. The high growth LDC would not be able to fund capital expenditures without borrowing but should have access to external debt markets provided that the municipal shareholder infuses additional equity capital.

If the municipal shareholder holds existing LDC debt, there are measures which can be taken to enhance the LDC's ability to access the external debt market.

Enterprise value of the For-Profit LDC has been reduced by the passing of Bill 210, the EPCS Act, and is highly dependent on the regulatory regime applicable after 2006. Most significantly, in the high growth (6%) scenario, assuming a constant capital structure (debt and equity split), there is a need for shareholders to infuse equity capital into the LDC.

Financial Implications – Zero-Return LDCs

The analysis indicates that the Zero-Return LDC should be able to continue to pay for its operating expenses and taxes in all growth scenarios, but margins between revenue and operations, maintenance and administration expenses are smaller than for a For-Profit LDC.

After taking into consideration interest expense on initial capitalization and (if applicable) incremental capital expenditures, the Zero-Return LDC would have negative free cash flow in all cases and it would be virtually impossible to source external financing for capital expenditures. Thus, cash injection by the shareholder is necessary under both the low growth and high growth scenarios in order to fund capital expansion obligations of the LDC (assuming replacement capital is funded by the depreciation expense recovered in rates). Additional cash could potentially be sourced from the forgiveness of interest expense on existing municipally held debt, to the extent this is legally permissible. Depending on the specific situation of each LDC, this may or may not be sufficient to finance the required capital expenditures going forward.

If the LDC has external debt in place, it is likely that the existing debt would go into default and would require concessions/support from the municipal shareholder.

Enterprise value for the Zero-Return LDC would be even more severely reduced than that of the For-Profit LDC in all growth scenarios.



OGILVY
RENAULT

TABLE OF CONTENTS

1. Introduction	1
2. Legal Considerations	2
2.1 Historical Legal Context	2
2.2 New Legal Framework	2
3. Rights of a For-Profit LDC vs. a Zero-Return LDC	4
3.1 Rights of a Person	4
3.2 Constating Documents	4
3.3 Management and Governance	5
3.4 Finances of the LDC	6
3.5 Impact of the Municipal Act, 2001 on LDC Finances	7
3.5.1 Bonusing	7
3.5.2 Finances of the Municipalities	9
4. Financial Considerations	10
4.1 Key Financial Implications	10
4.1.1 Operations	10
4.1.2 Capital Funding	10
4.1.3 Shareholder Return	10
5. Financial Implications Analyzed	12
5.1 Performance Based Rate Making	12
5.2 Theory of Rate Making	12
5.3 Implications for LDC Operations	14
5.4 Capital Funding	14
5.4.1 Initial LDC Capitalization	14
5.4.2 Working Capital	15
5.4.3 Replacement and Expansion Capital	15
5.4.4 Bank / Debt Capital Markets Financing	16
5.5 Shareholder Return	17
5.6 Impact of Bill 210, the EPCS Act	17
5.6.1 Distribution Rates	17
5.6.2 Working Capital	18
6. Scenario Analysis	20
7. Financial Implications - For-Profit LDCs	22
7.1 Operations	22
7.2 Capital Funding	22
7.2.1 No Incremental Debt Financing	23
7.2.2 Incremental Debt Financing	24
7.2.3 Sourcing of External Debt	24
7.2.4 Existing Municipal Debt	25
7.3 Shareholder Return	25



7.4	Conclusion	26
8.	Financial Implications - Zero-Return LDCs	27
8.1	Operations	27
8.2	Capital Funding	27
8.2.1	No Incremental Debt Financing	27
8.2.2	Sourcing of External Debt	28
8.2.3	Implications for Existing External Debt	29
8.2.4	Financial Support from Municipal Shareholder	29
8.3	Shareholder Return	30
8.4	Conclusion	30
9.	Decision Implementation	32

APPENDICES

Appendix A – Sections 159.1 and 159.2 of the Electricity Act

Appendix B – Model Assumptions



1. INTRODUCTION

Bill 210, the EPCS Act received Royal Assent on December 9, 2002. Bill 210 was introduced in the legislature by the Government of Ontario in response to a period of high electricity prices following the opening of the electricity market in May of 2002.

From the perspective of the LDCs, Bill 210, the EPCS Act, amends the Ontario Energy Board Act, 1998 (the "OEB Act") and the Electricity Act, 1998 (the "Electricity Act") in fundamental ways. Bill 210, the EPCS Act, also amends the Assessment Act, the Corporations Tax Act and the Retail Sales Tax Act to meet energy conservation and environmental goals by providing incentives to generate electricity from alternative or renewable sources of energy and to use energy-efficient household appliances.

New OEB Act provisions fix the commodity price for electricity payable by certain consumers to 4.3 cents per kilowatt hour (or such lower price as may be determined by regulation) and cap the distribution rates which LDCs can charge to all customers at their current levels or lower until at least May 1, 2006.

The new section 159.1 of the Electricity Act requires the municipal shareholder(s) of each LDC to make a decision whether or not to pass a resolution to affirm the current commercial status of the LDC. If a resolution is not passed and a certificate to that effect forwarded to the Minister of Energy by March 8, 2003, specific statutory restrictions are placed upon the LDC affecting its operations, rates, financing and earnings.

For each municipal council, the question of whether to affirm the LDC's current status will necessarily involve political considerations of local importance. The decision, however, also has significant legal and financial implications which must be understood and addressed by LDC management and its municipal shareholder(s) as part of the decision-making process. The Electricity Distributors Association has commissioned this Report by Ogilvy Renault and Macquarie North America Ltd. in order to provide the decision-makers with the legal and financial information required to make an informed decision as to how to respond to section 159.1 of the Electricity Act (see Appendix A).



OGILVY
RENAULT

2. LEGAL CONSIDERATIONS

2.1 Historical Legal Context

Prior to the enactment of the Energy Competition Act, 1998, all LDCs (then referred to as municipal electric utilities or MEUs) were public, non-profit bodies which obtained their powers and obligations under the Public Utilities Act (or under special legislation which mirrored the Public Utilities Act) and were governed by publicly elected or appointed commissioners. As an adjunct to local government, the LDC shared certain privileges with the municipal corporation, such as the right to tax-roll hydro arrears.

Bill 35, the Energy Competition Act, 1998, received Royal Assent on October 30, 1998 and fundamentally changed the structure of the municipal electric utilities. The Energy Competition Act, 1998 was composed of several schedules, most notably, the Electricity Act and the OEB Act. Municipal corporations were given two years after section 142 of the Electricity Act was proclaimed into force (on November 7, 1998) to incorporate a corporation under the Ontario Business Corporations Act (the "OBCA") through which to distribute electricity. While there would continue to be municipally-owned electricity distribution companies, they would no longer be commissions established pursuant to the Public Utilities Act or special legislation, but ordinary business corporations established and functioning in the same manner as private sector corporations, subject to restrictions laid out in the OEB Act (for example, pursuant to section 70 of the OEB Act, a distributor could only carry on the business of generating or retailing electricity through an affiliate).

Each newly-incorporated LDC obtained its assets by way of a transfer by-law passed by the local municipality. The asset transfer constituted payment for the shares and the promissory notes issued to the municipality upon incorporation. While the municipality was to be the initial shareholder of the LDC, the legislation placed no restrictions on the power of the municipality to sell some or all of its shares to someone else. Indeed, private sector shareholders of LDCs emerged in some cases.

2.2 New Legal Framework

Pursuant to Bill 210, the EPCS Act, unless a municipal shareholder passes a resolution which affirms the current status of the LDC and delivers to the Minister of Energy a certificate confirming the passage of the resolution within 90 days of section 159.1 of the Electricity Act coming into force (amounting to a deadline of March 8, 2003), a host of consequences will follow which have legal and financial implications.

The legislated consequences of failing to pass an affirming resolution (referred to, for convenience, as the "Zero-Return consequences") are the following:

- (a) An application based on a projected revenue requirement that incorporates a 0% return on common equity shall be deemed to have been made, and the Ontario Energy Board ("OEB") shall make an order to replace each existing applicable rate order. The OEB order shall incorporate a 0% return on common equity and shall not increase any of the other components of the revenue requirement or increase the rates set out in the existing order;
- (b) No dividends can be declared;
- (c) The LDC cannot sell, lease or otherwise dispose of all or substantially all of its assets, liabilities or obligations, and cannot dismiss all or substantially all of its employees;
- (d) A municipal shareholder cannot dispose of any of its interest in the LDC. A non-municipal shareholder can dispose of its interest where the OEB has made a rate order incorporating a 0% return on common equity, but only in accordance with section 159.2 of the Electricity Act (see Appendix A), which sets up a



OGILVY
RENAULT

mechanism through which the private shareholder's interest is valued as of November 8, 2002, before the current rate freeze was announced;

- (e) The LDC cannot increase the amount of LDC debt held by the municipality, whether directly or indirectly through a non-municipal shareholder; and
- (f) The LDC cannot enter into an agreement for goods and services with an affiliate, shareholder or a municipality other than in the ordinary course of business for fair value, and cannot amend any existing agreement with an affiliate, shareholder of the LDC or a municipality that increases the financial obligations or liability of the LDC.

Pursuant to section 159.1(6) of the Electricity Act, the above consequences apply despite the articles of incorporation, the by-laws of the corporation, any shareholder agreement or resolution or direction of shareholders, any other instrument or agreement, and the OBCA or any other act or law.

While, strictly speaking, the OBCA continues to apply to a distributor who fails to pass the confirming resolution, the operations and financing of the corporation are severely affected by the above restrictions.



OGILVY
RENAULT

3. RIGHTS OF A FOR-PROFIT LDC VS. A ZERO-RETURN LDC

The following is an overview of the rights and governance structure of an OBCA corporation, with a focus on the comparison between the particular rights of an LDC where a confirming resolution is passed (referred to, for convenience, as a "For-Profit LDC") and the rights of an LDC where a confirming resolution is not passed (referred to, for convenience, as a "Zero-Return LDC"). It is important to note that while the Zero-Return LDC is often described colloquially as a "not-for-profit" company, it is **not** a not-for-profit corporation in the legal sense in that it continues to be governed by the OBCA rather than the statute which governs most not-for-profit corporations.

3.1 Rights of a Person

While a business corporation is an artificial entity, subject to certain restrictions, a corporation has all the same powers and rights as a natural person to carry on business, sign contracts, own property, borrow money, start lawsuits, be at the receiving end of law suits and do just about everything else that an individual can do legally.

The OEB Act imposes some restrictions on the business which an LDC may be engaged in, and such restrictions are equally applicable to the For-Profit LDC and the Zero-Return LDC. For example, an LDC can undertake no electricity-related function other than distribution unless it does so through an affiliate, ensuring that the monopoly and non-monopoly functions are divided. Further, so long as more than 50% of the voting shares of the LDC are owned by one or more municipalities, the LDC cannot engage in any business other than the electricity business or a business which enhances the LDC's electricity business.

Clearly, section 159.1 of the Electricity Act further restricts the Zero-Return LDC's rights. Indeed, the fundamental rights of a corporation to sign contracts, own or dispose of its property and borrow money are severely restricted.

3.2 Constatting Documents

The articles of incorporation is the document which, once filed, creates the corporation. The articles set out the basic structure and features of the corporation and typically state the name of the corporation, the number and classes of shares the corporation is authorized to issue, the numbers of directors the corporation will have and any restrictions on the types of business that the corporation may carry on in addition to those restrictions prescribed by statute.

Section 159.1 affects the authorized capital, in particular the shares, of the Zero-Return LDC. Shares are ownership interests in the corporation which give certain rights to the holders, such as the right to vote on certain matters affecting the corporation, the right to receive dividends and the right to share in its property upon dissolution. Section 159.1 clearly states that no dividends can be declared and that the Zero-Return LDC cannot dispose of substantially all of its assets, for distribution to shareholders or otherwise, despite anything in the articles.

The directors pass the by-laws of the corporation. The first by-law of the corporation will typically set out a framework for the internal governance of the corporation's affairs. For example, it will stipulate how a shareholder can convene a meeting of shareholders and how a director can convene a meeting of directors. It will stipulate how contracts or other instruments are to be signed on behalf of the corporation. It will say when shareholders' and directors' meetings are called and where they are held.



OGILVY
RENAULT

The For-Profit LDC's ability to borrow and enter into contracts is governed by such a by-law passed by its directors. The Zero-Return LDC, however, is severely restricted in its ability to borrow regardless of what the by-laws say in terms of the powers of the LDC to borrow and enter into contracts. As stated above, the Zero-Return LDC cannot increase the amount of debt held by a municipality, it cannot enter into an agreement for goods or services with an affiliate, shareholder or municipality other than in the ordinary course of business and for fair value, and cannot amend an existing agreement with an affiliate, shareholder or municipality to increase the financial obligations of the LDC.

3.3 Management and Governance

Under the OBCA, the directors of the corporation are responsible for managing its business and affairs. Practically speaking, directors usually do not run the day-to-day operations of a corporation; instead, they delegate responsibility for managing the ongoing operations of the corporation to officers designated by them. The director's role in practice is usually restricted to approving or rejecting proposals that originate with management.

Under the OBCA, directors can declare dividends or authorize any distribution of a corporation's property to the shareholders. In addition, under the OBCA, directors can authorize transactions which are out of the ordinary course of business, such as the sale of assets.

General principles of corporate law impose a high standard of care on directors. They must use due diligence in discharging their duties; that is, they must take reasonable steps to inform themselves concerning the affairs of the corporation and must make their own assessment of the proposals presented to them by management. As well, they must always act in the best interests of the corporation, which may not always be consistent with the best interests of the shareholders, or even with the best interests of the customers.

Although the shareholders elect the directors, they cannot directly tell the directors what to do, as managing the corporation is the responsibility of the directors. If the shareholders are not satisfied with the decisions the directors make, they can convene a meeting to remove them or wait until they come up for re-election.

There are two important exceptions to the general rule that the shareholders cannot interfere in the directors' management of the business and affairs of the corporation. The first is that the OBCA permits the shareholder or shareholders of a corporation to execute a document which is called a unanimous shareholder declaration (if there is just one shareholder) or a unanimous shareholders agreement (if there are two or more shareholders). In such a document, which must be executed by all of the shareholders of the corporation, the shareholders can take away all of the powers and duties of the directors and place them with the shareholders directly, and can provide for specifics as to how the corporation is to be managed.

The other important exception to the rule that shareholders cannot interfere in the directors' management of the corporation is that the OBCA says that certain fundamental changes require shareholder approval. These would include things like selling all of the corporation's assets, merging the corporation with another corporation, or amending the corporation's articles of incorporation.

Many of these standard governance mechanisms are impacted by Bill 210, the EPCS Act:

- (a) The Board of Directors of a Zero-Return LDC is prohibited from declaring or paying dividends;
- (b) A Zero-Return LDC is prohibited from selling, leasing or otherwise disposing of all or substantially all the assets, liabilities, rights or obligations of the corporation and from dismissing all or substantially all of its employees;



OGILVY
RENAULT

- (c) Section 159.1(6) of the Electricity Act provides that the Zero-Return LDC operates with the restrictions of the Zero-Return consequences despite the articles of incorporation, by-laws, any shareholder agreement or resolution or direction of shareholders, any other instrument and any other law. Therefore, any provision of any of the Zero-Return LDC's governing documents which conflicts with the Zero-Return consequences will be without effect.

The high standard of care and the duty to act in the best interest of the corporation will continue to apply to the directors of the Zero-Return LDC. However, the behaviour of the Zero-Return LDC's directors will be judged against the backdrop of the additional specific limitations of the Zero-Return consequences on the LDC's activities.

3.4 Finances of the LDC

Broadly speaking, there are three ways in which an OBCA corporation can raise funds: through cash from operations, through borrowing or through the issuance of equity (shares).

In terms of revenue generation, Bill 210, the EPCS Act, places a restriction on both For-Profit and Zero-Return LDCs. Specifically, neither the For-Profit nor Zero-Return LDC can raise rates until at least after May 1, 2006, barring exceptional circumstances which remain within the discretion of the Minister of Energy. An application to the OEB for a rate order may only be made with the written approval of the Minister of Energy, who may only grant approval where the rates proposed are lower than the rates in effect, there is no order under section 78 of the OEB Act in effect, the LDC has incurred extraordinary costs or the Minister of Energy is of the opinion that "other circumstances justify the giving of approval" having regard to the interests of consumers with respect to prices and reliability and quality of electricity service. It remains to be seen what circumstances, if any, will persuade the Minister of Energy to allow an application for a rate increase.

As for borrowing, in general terms, borrowing can be done in one of three ways. First, the corporation can borrow money from its shareholders. Second, the corporation can borrow money from a financial institution such as a bank. Alternatively, a corporation can borrow funds from a broader group of lenders by issuing bonds or debentures or similar instruments of indebtedness pursuant to which the corporation promises to pay a stipulated sum to the holder of the instrument plus interest (referred to herein as "Bonds"). If the corporation issues Bonds to a broad group of people, the corporation will likely be required to comply with the requirements of provincial securities legislation.

Finally, a corporation can raise funds by selling shares in itself. The benefit of doing this is that the corporation does not bring any additional indebtedness onto its balance sheet, and does not incur any additional borrowing costs. The down side of selling common shares, at least to the current common shareholders of the corporation, is that it dilutes their ownership interest in the corporation.

The restrictions imposed on a Zero-Return LDC by Bill 210, the EPCS Act, with respect to financing are numerous and important and will be dealt with in detail in the sections which follow. In summary, the key Zero-Return consequences for the financing of the Zero-Return LDC are the following:

1. A municipal shareholder of a Zero-Return LDC is prohibited from selling any of its interest in the LDC and, therefore, it cannot sell all or a portion of its shares to the private sector to raise funds for itself, which might affect the municipality's ability to financially support the LDC;
2. No dividends can be declared nor can the Zero-Return LDC earn a return on common equity, thus impeding the ability to attract private sector investment in the LDC by way of a new share issuance;
3. The Zero-Return LDC cannot increase the amount of debt held by the municipality;



OGILVY
RENAULT

4. The Zero-Return LDC is not entitled to enter into contracts with the municipal shareholder on uneconomic terms; that is, all agreements for goods and services with the municipality must be for fair value; and
5. The Zero-Return LDC cannot amend any existing agreement with the municipality or other shareholder or affiliate that increases the financial obligations of the LDC.

Items 3 through 5 are clearly intended to prevent municipal shareholders of Zero-Return LDCs from replacing the dividend income taken away by Bill 210, the EPCS Act, with other sources of returns such as interest payments.

3.5 Impact of the Municipal Act, 2001 on LDC Finances

The availability of municipal financing for municipalities to assist in the financing of both the For-Profit LDC and the Zero-Return LDC is affected by any additional limitations placed upon municipalities to issue debt, make investments and provide grants under the Municipal Act. As well, the overall financial health of the municipality can affect its ability to support its LDC in the ways permitted by the Municipal Act and the OEB Act. The new Municipal Act, 2001 came into force on January 1, 2003. This section summarizes the aspects of the Municipal Act, 2001 which could affect the municipal shareholder's financial support of the LDC.

3.5.1 Bonusing

The new Municipal Act contains a provision similar to the old Municipal Act regarding a prohibition on bonusing to commercial enterprises. Specifically, the new Municipal Act provides as follows:

106 (1) Despite any Act, a municipality shall not assist directly or indirectly any manufacturing business or other industrial or commercial enterprise through the granting of bonuses for that purpose.

- (2) Without limiting subsection (1), the municipality shall not grant assistance by,
- (a) giving or lending any property of the municipality, including money;
 - (b) guaranteeing borrowing;
 - (c) leasing or selling any property of the municipality at below fair market value; or
 - (d) giving a total or partial exemption from any levy, charge or fee.

(3) Subsection (1) does not apply to a council exercising its authority under subsection 28(6) or (7) of the Planning Act.

107 (1) Despite any provision of this or any other Act relating to the giving of grants or aid by a municipality, subject to section 106, a municipality may make grants, on such terms as to security and otherwise as the council considers appropriate, to any person, group or body, including a fund, within or outside the boundaries of the municipality for any purpose that council considers to be in the interests of the municipality.

- (2) The power to make a grant includes the power,
- (a) to guarantee a loan or to make a grant by way of loan or to charge interest on the loan;
 - (b) to sell or lease land for nominal consideration or to make a grant of land;
 - (c) to provide for the use by any person of land owned or occupied by the municipality upon such terms as may be fixed by council;
 - (d) to sell, lease or otherwise dispose of at a nominal price, or make a grant of, any personal property of the municipality or to provide for the use of the personal property on such terms as may be fixed by council; and,
 - (e) to make donations of food stuffs and merchandise purchased by the municipality for



**OGILVY
RENAULT**

that purpose.

The impact that the Municipal Act's prohibition on bonusing to commercial enterprises will have on the legal means by which the municipal shareholder can give financial assistance to either the Zero-Return LDC or the For-Profit LDC is uncertain. Some have expressed the view that any financial assistance to either form of LDC would breach the Municipal Act. This issue has never been considered by the courts.

3.5.1.1 Bonusing to the For-Profit LDC

Considering first the For-Profit LDC, one view is that the granting of assistance by lending or otherwise to the LDC, from and after the initial capitalization of the LDC, is prohibited by virtue of the fact that an LDC is a "commercial enterprise". Under the Electricity Act and the OEB Act, distribution is clearly considered to be a commercial service.

A less conservative view is that the giving of financial assistance by way of lending or otherwise to an LDC, even if it is a For-Profit LDC, is permitted because such financial aid does not violate the intent of the unlawful bonusing provisions. Historically, unlawful bonusing has been prohibited for essentially two reasons:

1. to avoid competition amongst municipalities attempting to attract industry to locate within their own limits; and
2. to prevent a municipality from favouring a particular business over another.

It can be argued that the prohibition against unlawful bonusing does not apply to the municipality giving aid to the For-Profit LDC because any commercial activities of the For-Profit LDC are ancillary to its main, public service objective, which is to ensure the delivery of electricity to residents of the municipality.

The Government of Ontario seems to support this view as it has, to date, not challenged any of the loans that municipalities have made to their LDCs, and Bill 210, the EPCS Act, expressly acknowledges the existence of those loans. However, there may be some constituencies who might contemplate a court challenge.

Accordingly, any municipality considering granting a form of financial aid to a For-Profit LDC should seek a legal opinion with respect to the particular action being considered as to whether it will run afoul of the unlawful bonusing provisions.

3.5.1.2 Bonusing to the Zero-Return LDC

With respect to the Zero-Return LDC, there are additional arguments that providing financial assistance to a Zero-Return LDC is permissible. The fact that the Zero-Return LDC has been stripped of many of the characteristics of OBCA corporations, such as the ability to earn a profit and the ability to dispose of substantially all of its assets, would indicate that the Zero-Return LDC may have lost its commercial character. Even if this view is correct, it must be borne in mind that the form of financial assistance granted must not violate the other restrictions on Zero-Return LDCs. In particular, it is clear by virtue of section 159.1(5) of the Electricity Act that the Zero-Return LDC cannot increase the amount of debt owed to the municipality and that the Zero-Return LDC cannot enter into an agreement for goods and services with the municipality other than in the ordinary course of business for fair value.



3.5.2 Finances of the Municipalities

The new Municipal Act does not provide new revenue sources to the municipalities. While there are some refinements in the areas of user fees and financial accountability, there are no significant changes to tax policy. The new Municipal Act does, however, expand the range of financing vehicles available to municipalities. While none of these directly impacts the LDC, they may affect the ability of the municipality to raise the funds it may require for injection into its LDC, to the extent it is determined that an injection of funds is permitted by the Municipal Act.

The new Municipal Act contemplates a mechanism to improve cash flow through a concept known as asset securitization. Previously, municipalities could not sell their receivables. Section 305 of the Municipal Act, 2001 provides that any municipality may sell any prescribed debt payable to the municipality (for instance, parking fees, licensing fees, water and sewage receivables and property tax revenues) to any other person and the person who acquires the debt has the priority of the municipality with respect to the debt. The Minister of Municipal Affairs and Housing may prescribe a debt or classes of debt for the purposes of the section. It remains to be seen how the section will be applied through the regulations. To the extent asset securitization improves the financial health of the municipality, it might affect the financial support which can be provided to the LDC.

Similarly, municipal participation in public/private partnerships through the ownership of shares in a corporation was generally prohibited under the Municipal Act. Section 203 of the new Municipal Act permits the making of regulations which will allow municipalities to hold shares in "prescribed corporations". The scope of permissible investments under this section cannot be determined until the regulations under section 203 have been filed. Again, any positive change to municipal finances might translate to better funding of the LDC.

Under the new Municipal Act, municipalities' right to grant security and incur debt have been expanded. Municipalities are now permitted to incur debt not only by borrowing money but in "any other way", and are permitted to issue "prescribed financial instruments" and to enter into "prescribed financial agreements for or in relation to the debt". The scope of these financial instruments and agreements will be set out in regulations yet to come under section 401 of the new Municipal Act, and therefore any impact on the financial health of municipalities is not clear.

The new Municipal Act also gives expanded powers to municipalities to enter into investment arrangements with other municipalities, public hospitals, universities, colleges or school boards, or additional persons or bodies prescribed in regulations. Section 421 of the new Municipal Act will continue to allow municipalities to lend their securities as long as the loan is fully secured by cash or securities, subject to regulations. Without the regulations being available, it is difficult to assess the real impact of these changes on municipal finances.



4. FINANCIAL CONSIDERATIONS

The objective of Sections 4 through 8 of this report is to analyze the financial issues associated with a municipality's decision to either pass a resolution to operate as a For-Profit LDC or not pass such a resolution and operate as a Zero-Return LDC, pursuant to Bill 210, the EPCS Act.

4.1 Key Financial Implications

The key financial implications of Bill 210, the EPCS Act, on LDCs can be grouped into three categories: operations, capital funding and shareholder return. This report will discuss the criteria used to evaluate key financial implications, provide some background on the regulatory regime and its financial components prior to the introduction of Bill 210, the EPCS Act, discuss general financial impacts of Bill 210, the EPCS Act, on LDCs and lastly, analyze and illustrate these impacts on the operations, capital funding and shareholder return for a For-Profit and Zero-Return LDC, respectively.

4.1.1 Operations

The primary objective of LDCs, municipal shareholders, regulators, consumers and government is to continue to allow an LDC to provide efficient, reliable delivery of electricity to its customers. The supply and distribution of electricity is an essential service.

The ability of an LDC to continue to operate efficiently and reliably depends on its ability to generate sufficient revenue to pay operating, maintenance and administrative costs and taxes. An inability to cover these costs would compromise the quality of the electricity supply and distribution service.

4.1.2 Capital Funding

The LDC's ability to operate efficiently and deliver quality, reliable distribution service also depends on its ability to:

- finance short term liquidity (working capital); and
- finance capital expenditures for the replacement and expansion of the distribution network.

The ability to obtain and service (i.e. pay interest on debt and a return to equity) capital for short term liquidity is critical to the ongoing sustainability of the LDC. The experience of LDCs since the opening of the competitive electricity market in Ontario has been that working capital requirements have proven to be quite onerous compared to pre-market opening requirements.

LDCs must also be able to either fund internally or attract external capital to pay for the replacement of a depreciating distribution system and, if necessary, fund the growth of the system. The ability to access this capital is key to the viability of the LDC.

4.1.3 Shareholder Return

Utility regulators recognize that a balance needs to be found between securing affordable rates and ensuring that shareholders are compensated for their investment in an LDC via a return on equity ("ROE"). This ROE level should reflect the operational and financial risks of the business and provide incentives for future reinvestment.



As a shareholder of a commercial entity, municipal shareholders should have an ability to earn a fair, risk-adjusted return on their investment in LDCs. This rate of return will affect the enterprise value of the LDC.



5. FINANCIAL IMPLICATIONS ANALYZED

Section 5 provides a summary of the rate making methodology for LDCs in Ontario as background to the analysis of the financial impact of Bill 210, the EPCS Act, on LDCs.

5.1 Performance Based Rate Making

Prior to the introduction of Bill 210, the EPCS Act, the OEB had adopted performance based regulation ("PBR") as the rate regulation regime for LDCs in Ontario. First generation PBR had been implemented through the OEB's Electricity Distribution Rate Handbook ("Handbook"), which established what rates LDCs may charge their customers. The Handbook was initially meant to provide the foundation for first generation PBR rate adjustments for the years 2000 to 2003 inclusive, with first generation PBR ending on March 1, 2004.

For the period of first generation PBR, the OEB set rates for LDCs under a "price-cap" mechanism. The Handbook set out the procedure to determine the initial distribution rates which a utility may charge through the establishment of 1999 as the base year to determine the efficient level of operating costs and depreciation for each utility, and the appropriate commercial rate of return on capital invested. Once these initial rates were established, they were to be adjusted annually to reflect inflation, a productivity adjustment of 1.50% and an extraordinary event adjustment factor, which utilities must apply for if they believe they should be able to recover the costs associated with an extraordinary event.

On October 19, 2002, the OEB announced its decision to provide a one year extension to first generation PBR until March 1, 2005. Under the extension, the March 1, 2004 electricity distribution rate adjustments were to be calculated using the current price adjustment mechanism. A second generation PBR plan was expected to commence on March 1, 2005, but the passing of Bill 210, the EPCS Act, has made these dates irrelevant. It is unclear whether or when second generation PBR will commence.

5.2 Theory of Rate Making

To determine the appropriate return on capital for each utility, the OEB had to establish what amount of capital was invested in the utility (i.e. the rate base), what an appropriate capital structure would be (i.e. amounts of debt and equity to finance the rate base) and the appropriate rate of return that both debt and equity investors should receive from that investment (i.e. interest rate for debt and rate of return on equity). The OEB set the following parameters for rate base and rate of return:

- **Rate base:** the rate base for first generation PBR is defined as the 1999 year end fixed asset base (distribution wires and infrastructure) plus a working capital allowance. The working capital allowance is equal to 15% of the annual cost of power and controllable expenses (operations and maintenance, Billing and collection, and administration); and
- **Rate of return:** the deemed capital structure and rate of return are based on the following regulatory assumptions for utilities of varying sizes.



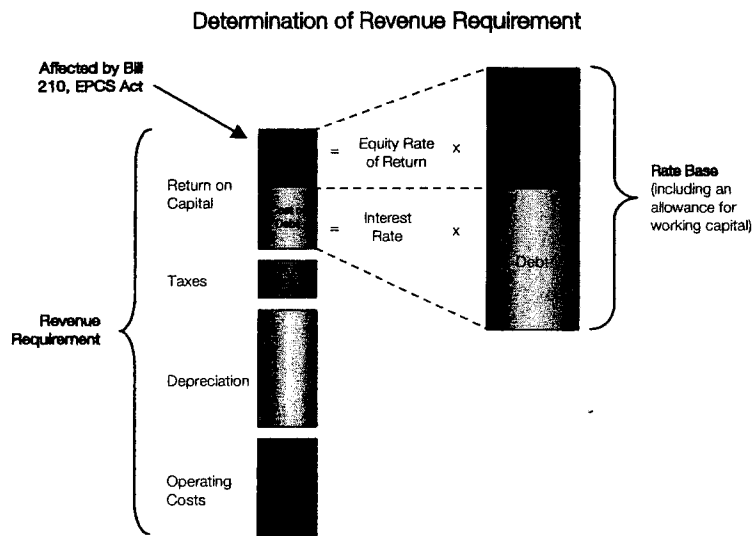
Size of Utility Rate Base	Common Equity Ratio (CER) %	Debt Ratio (1-CER)%	Debt Interest Rate	ROE*
Greater than \$1 Billion	35%	65%	6.80%	9.88%
Between \$250 million and \$1 Billion	40%	60%	6.90%	9.88%
Between \$100 million and \$250 million	45%	55%	7.00%	9.88%
Under \$100 million	50%	50%	7.25%	9.88%

*Maximum allowed ROE before the introduction of Bill 210, the EPCS Act.

Source: OEB Distribution Rate Handbook

Unlike unregulated businesses which generate revenues, incur costs and accept the resultant return on equity, regulated utilities such as LDCs are allowed to receive revenue based on a target return on equity (or net profit). The revenue requirement consists of a return on equity, a recovery of deemed debt interest expense on debt, recovery of taxes, an allowance for depreciation and recovery of operating costs.

Thus, the initial revenue requirement for an LDC was set as follows:



The revenue requirement, once determined, was then allocated to the various customer classes to determine maximum rates that an LDC could charge for customers within that class. These rates consist of two components: a fixed charge and a variable charge dependent on consumption. Effectively, a per customer price cap was established.

Although the Handbook sets out the maximum rates LDCs can charge for first generation PBR, LDCs were not able to charge these rates immediately. As many LDCs historically operated on a non- or low-profit basis, if they had immediately increased their rates to reflect the full equity rate of return and applicable taxes, there would have been the potential for large rate increases. To address concerns of the Province over the potential for large rate increases to customers, outlined in the Minister's Directive of June 7, 2000, the OEB mandated a phase-in of rate increases over the duration of first generation PBR, driven by a phase-in of the return on

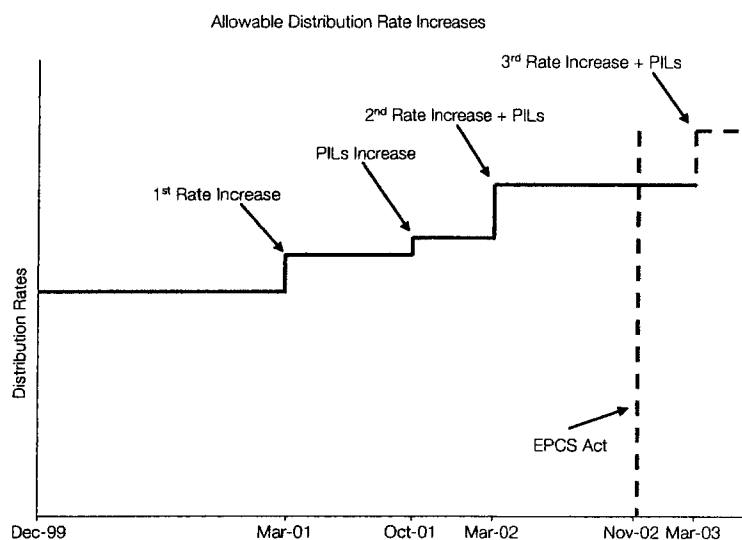


OGILVY
RENAULT

equity portion and applicable taxes portion of the revenue requirement. Increases in distribution rates to move to the full 9.88% equity rate of return and applicable taxes were to be phased-in evenly over the three years of first generation PBR on March 1, 2001, 2002 and 2003.

Note that, rates began to reflect a recovery of payments in lieu of taxes ("PILs") once LDCs became liable for these payments. This occurred on October 1, 2001.

The graph below shows the progression of permitted rate increases from 1999 to the present.



5.3 Implications for LDC Operations

As discussed above, the revenue requirement established for each LDC is based on a rate application using 1999 operating costs (as adjusted for inflation and a productivity index). The key issue facing LDCs is the potential for erosion of the margin between revenues and operating costs over time should operating costs increase above levels recoverable through permitted rates. Some potential reasons for higher costs could be due to new call centres and Billing systems etc. In a growing LDC, this risk is reduced because rates are subject to a price cap rather than a revenue cap so that as the number of customers (and consumption) increases, the revenue of the LDC increases. In theory, operating expenses will increase at a lower growth rate than revenue because some costs are fixed and do not increase with customer growth (otherwise known as economies of scale).

5.4 Capital Funding

In addition to the payment of LDC operating expenses, regulated rates are designed to allow for the financing of working capital, replacement capital and expansion capital for the LDC.

5.4.1 Initial LDC Capitalization

It is important to differentiate between the initial capitalization established upon incorporation of Ontario LDCs and ongoing requirements to add debt and equity to an LDC's balance sheet to fund capital requirements.



OGILVY
RENAULT

On incorporation, the majority of LDCs were financed with debt and equity capital, both of which were held by the municipal shareholder. That is, municipalities took back debt and common shares as consideration for the transfer of LDC assets into an OBCA corporation. The municipally-held debt is typically in the form of a promissory note that tends to be flexible, with limited terms and conditions and financial covenants.

Since incorporation, a number of LDCs have either refinanced all or part of the initial debt with bank or capital markets debt or simply added externally sourced debt to the initial capitalization.

5.4.2 Working Capital

Since Market Opening on May 1, 2002, working capital requirements have proven to be quite onerous for LDCs in Ontario. This is primarily due to the fact that LDCs are in essence collection agents for the entire electricity Bill, including cost of power, transmission charge, etc. The LDCs are charged with the collection of the entire Bill and must remit to the Independent Market Operator ("IMO") all amounts other than the distribution charge. This flow-through mechanism coupled with the requirement to post prudential requirements has resulted in significant working capital requirements.

Generally, the need for working capital will arise from the following:

- timing differences between the requirement to pay the IMO and other suppliers and the collection of revenue e.g. payments to IMO are on a monthly basis while the collection of a portion of revenue can be on a bimonthly basis (obligation to pay before collection occurs);
- financing of various short term deferral accounts reflecting charges that the LDC was unable to collect from customers (increases payment default risk to LDC); and
- posting of prudential requirements and potential margin calls to the IMO.

To date, LDCs have sourced liquidity needs from either internal cash balances, short-term bank financing or a combination of both. The OEB allows the recovery of the carrying cost of working capital, which is deemed to be 15% of controllable expenses and 1999 cost of power. The key issue facing LDCs is the potential mismatch between actual and allowed carrying costs. Another important consideration is the potential for changes in working capital and how these increases will be financed, given that the rate allowance is based on 1999 expense levels and may not reflect growth or expenditure increases incurred since.

5.4.3 Replacement and Expansion Capital

For long-term sustainability of an LDC, the LDC must invest sufficient capital to both replace assets that have reached the end of their useful life and add assets to accommodate system growth. The fact that electricity distribution assets generally cost more in nominal terms today than, for example, 20 years ago makes the cost of simply replacing LDC assets greater than the original cost accounted for on the balance sheet. Consequently, an LDC that spends the same amount of capital as its yearly depreciation expense is in real terms contracting its asset or rate base.

Because 1999 level depreciation expense is allowed to be recovered through distribution rates, a significant portion of replacement capital can be funded through the depreciation charge allowed in revenues. In theory, only the difference between the replacement capital expenditure and the depreciation charge is required to be financed with additional capital. Additional capital is also required to fund system expansion.



Traditionally, the LDC would expect to recover the carrying cost of this incremental capital annually as the rate base is recalculated to account for incremental assets ("rebased"). Under PBR, the rebasing of the LDC's assets occurs less frequently, perhaps every three or four years. Consequently, LDCs are not able to immediately adjust rates to recover the carrying cost of this additional capital financing.

In order to maintain the existing or deemed capitalization of an LDC, capital expenditures incremental to the depreciation charge, should be financed with both debt and equity capital, in roughly the same proportions as the deemed capital structure.

The debt portion of the capital is typically sourced from banks or the debt capital markets. Alternatively, the municipal shareholder could contribute this capital to the utility as consideration for additional indebtedness. As discussed, there are complications associated with the latter option related to whether bonusing is permissible (see Section 3.5.1).

The equity portion of the capital required will generally take the form of earnings which are reinvested in the LDC rather than being paid out as a dividend.

Typically, LDCs have a requirement to invest in expansion capital to either maintain, improve and potentially expand their system. The various sources available for debt and equity capital for this purpose are discussed below.

5.4.4 Bank / Debt Capital Markets Financing

Regulated distribution utilities typically have ready access to bank financing, and to debt capital markets financing depending on the size of the utility. Because regulated rates are designed to recover interest expense and interest is paid in priority to returns to equity holders (thus making the full amount of interest and ROE allowance available to lenders first), a "buffer" is provided for the payment of interest on debt. This buffer is measured by various forms of interest coverage ratios, which are ratios of cash available for servicing interest (numerator) to interest expense (denominator).

Any debt issued in the bank or capital markets will generally be subject to a number of financial covenants including timely payment of interest and principal, satisfaction of financial tests e.g. interest coverage ratios and maximum debt to capitalization ratios, maintenance of a credit rating, etc. Failure to fulfil covenants can lead to default on the part of the LDC borrower, which would trigger a number of lender remedies including mandatory debt repayment and measures permitting the lender to take control of LDC operations.

The following table summarizes typical financial tests utilized for both bank and capital markets investment grade debt:

Financial Tests	Potential Range
EBIT Interest Coverage Ratio	2.0x – 2.5x
Debt To Total Capitalization	70% - 75%

Theoretically, as long as actual leverage and associated cost of debt for an LDC is close to the OEB-deemed capitalization and OEB-deemed debt cost, the LDC should continue to be able to service its obligations. With time, however, there is a risk that net cash flow margins in the LDC could erode or that a deterioration in credit rating quality can increase the interest expense associated with any floating rate debt so that financial benchmarks imposed by external lenders are not met.



5.5 Shareholder Return

Once operating expenses and taxes are paid and working capital facilities and long term debt are serviced by an LDC, shareholders are then compensated with surplus cash flow. The unique situation in Ontario is that municipalities often have an interest in the LDC via both debt and equity that was established upon incorporation. In these circumstances, a municipality's total return from the LDC is comprised of both interest income and equity returns (dividends and any increase in enterprise value of the LDC).

5.6 Impact of Bill 210, the EPCS Act

5.6.1 Distribution Rates

The primary financial impact of Bill 210, the EPCS Act, on LDCs is on revenue and allowed distribution rates.

If a municipality **does** pass a resolution affirming the commercial status of their LDC, Bill 210, the EPCS Act, requires a distribution rate freeze at current levels. The legislation dictates that "*orders made by the OEB that approved or fixed electricity rates and that were in effect on November 11, 2002 will apply to electricity used on or after December 1, 2002, unless replaced or amended*". A For-Profit LDC is required to maintain these rates until at least May 1, 2006.

Currently, most LDCs have implemented two of the three rate increases allowed as part of the phase-in to reach a 9.88% return on common equity and applicable taxes. It is difficult to make a general comment as to what return level each LDC is currently operating at because LDCs have different starting points (i.e. the 1999 return on equity level). Each LDC was allowed to phase-in their return on equity from their starting point, based on their own timetable, to reach the full market-based rate of return ("MBRR") on equity of 9.88% by March 1, 2003. In addition, actual achieved return on equity can also vary from the deemed amount due to varying interest costs, capitalization, tax rates etc. from those initially used in the rate applications (which were based on 1999 data). LDCs, however, should currently be at a level well above 0% ROE.

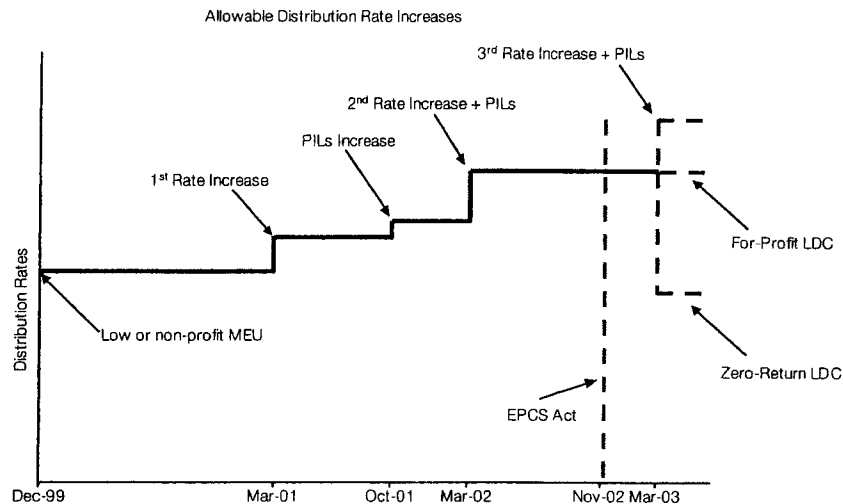
If a municipality does not pass a resolution, under Bill 210, the EPCS Act, an application to set distribution rates shall be deemed to have been made to the OEB on the basis of a 0% ROE. The OEB is required to make an order that incorporates the 0% ROE. In addition, the OEB is not allowed to increase any other components of the revenue requirement or increase any rates in effect at the time. A Zero-Return LDC is required to maintain these rates until at least May 1, 2006.

For a Zero-Return LDC, an OEB order incorporating a 0% return on equity would result in a reduction in the revenue requirement and distribution rates from current levels. In effect, LDCs lose the ability to recover through rates the ROE component and income taxes.



OGILVY
RENAULT

This is illustrated graphically below:



Opportunities to increase distribution rates above levels set by legislation are limited. The legislation allows an application for a new rate order to be made only with the approval of the Minister of Energy who must consider the interests of consumers with respect to prices and the reliability and quality for electricity service. The Minister of Energy may only give an approval if:

- proposed rates are lower than those in effect;
- the LDC has incurred extraordinary costs; or
- the Minister of Energy is of the opinion that other circumstances justify the giving of approval.

There has been no indication as to what regime will be instituted after May 1, 2006 for the setting of the revenue requirement and distribution rates.

Consequently, both the For-Profit and the Zero-Return scenarios introduce a distribution rate cap, for the first at rates in effect in November 2002 and the latter at rates calculated to yield a 0% ROE for the LDC. In effect, growth in customers served and/or consumption is the only way an LDC can grow its distribution revenue without special approval from the Minister of Energy.

5.6.2 Working Capital

There are three key areas of potential increases to working capital requirements resulting from Bill 210, the EPCS Act, including:

- potential timing issues related to the payment of market prices for electricity by the LDC, collection of a fixed price for electricity from many of the LDC's customers and collection of the make-whole payments from the Ontario Electricity Financial Corporation;
- prohibition on disconnecting customers until March 31, 2003, at the earliest, for failure to pay their electricity Bills; and



OGILVY
RENAULT

- funding of one-off costs such as new Billing system changes, Bill simplification, demand side management, metering, etc.

It is difficult to quantify the potential increases in working capital for LDCs on the basis of the regulations to Bill 210, the EPCS Act. However, this is uncertain because working capital requirements have the potential to be increased. For purposes of the analysis which follows however, it is assumed that working capital levels are not affected by the introduction of Bill 210, the EPCS Act.



6. SCENARIO ANALYSIS

In order to analyze and illustrate the financial implications for LDCs under the For-Profit and Zero-Return scenarios, a financial model was created to simulate an LDC with a fixed asset base size of \$100 million and an assumed allowance for working capital, to derive its rate base.

As discussed, the impact of Bill 210, the EPCS Act, will be analyzed in three areas: operational revenues/expenses, capital funding and shareholder return. As an allowance for operating costs and servicing existing capital is recovered through distribution rates regardless of LDC size, the key factor affecting an LDC's ability to withstand the financial impacts of Bill 210, the EPCS Act, is **growth**, which will impact revenues, expenses, working capital, expansion capital and shareholder return. The analysis in Sections 7 and 8 of this report considers three different growth scenarios under both the For-Profit and the Zero-Return scenario cases:

- Zero Growth LDC: an LDC with zero growth in its rate base;
- Low Growth LDC: an LDC with 2% annual growth in its rate base; and
- High Growth LDC: an LDC with 6% annual growth in its rate base.

Contributed capital is loosely defined as assets or capital provided by developers to assist with the cost of expansion of the electricity distribution system, utilized especially in high growth areas. For purposes of this analysis, the expansion capital is assumed to be net of contributed capital, and is required to be financed by the LDC. Obviously, increased amounts of contributed capital collected would reduce the capital expenditure and financing requirements of an LDC. The implication, however, is the exclusion of these assets in the LDC's rate base and reduction of enterprise value over the long term.

The implications of the distribution rate regime beyond 2006 will also be considered through two possible scenarios: i) continuation of Bill 210, the EPCS Act, regime; and ii) a resumption of the pre-Bill 210, the EPCS Act, regime (see Appendix B).

Assumptions used in developing the financial model are listed in Appendix B.

The primary differentiating component used to "stress test" the financial model is growth. However, it should be mentioned that additional assumptions such as operating expenses, interest expense, capital structure, customer growth and return on equity also have the potential to affect the financial results of an LDC. Each LDC has, of course, its own set of unique circumstances and challenges. The analysis in this report is designed to help the reader easily identify the implications of variations to these secondary levels of assumptions and be able to put place them in the context of the analysis.



The table below provides guidance on potential impacts for each assumption.

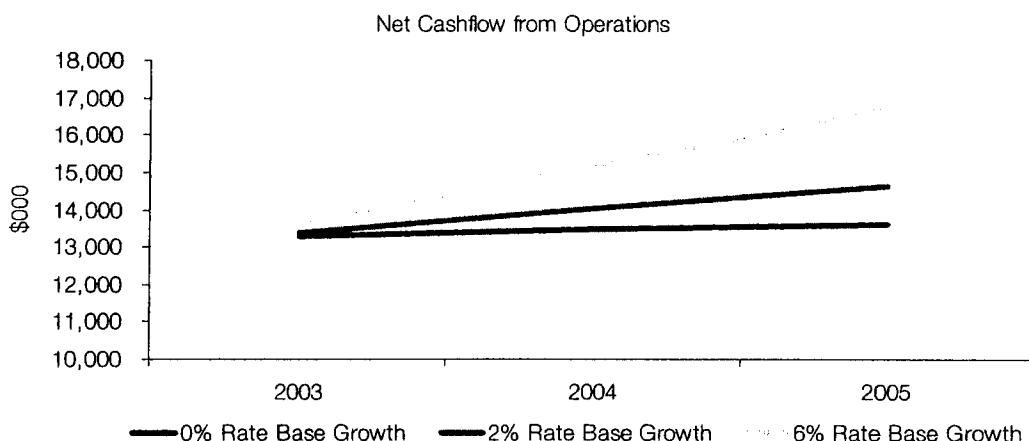
Assumption	Impact
Operating expenses (e.g. labour, administration, maintenance)	Net operating cash flow, free cash flow, EBIT coverage and enterprise value e.g. if operating expenses are higher, then cash flow and coverages are reduced.
Interest expense (e.g. debt costs)	Free cash flow (before and after debt financing), EBIT coverage and enterprise value e.g. if interest expense is higher, then cash flow and coverages are reduced.
Capital structure (e.g. actual debt levels that deviate from the deemed debt level)	Free cash after debt financing, EBIT coverage, debt to total capitalization ratio and enterprise value e.g. if capitalization ratio is higher (i.e. more debt than deemed), then cash flow and coverage are reduced. Capitalization ratios and enterprise value are increased.
Customer growth (e.g. new connections and disconnections)	Revenue and net operating cash flow, free cash flow, EBIT coverage and enterprise value e.g. if customer growth is lower, then cash flow, coverages and enterprise value are reduced.
Assumed return on equity (e.g. 6.59% return on equity)	Revenue and net operating cash flow, free cash flow, EBIT coverage and enterprise value e.g. if actual return on equity recovered through rates is lower than 6.59%, then cash flow, coverages and enterprise value are reduced.

7. FINANCIAL IMPLICATIONS - FOR-PROFIT LDCS

7.1 Operations

As a result of the implementation of Bill 210, the EPCS Act, the For-Profit LDC is required to freeze its distribution rates at existing levels. The resulting ability of the For-Profit LDC to fund day-to-day requirements and maintain operations is shown in the diagram below under each growth scenario.

In each case, net cash flow from operations has been calculated as revenue less operating expenses and taxes.



Net cash flow remains constant in the zero growth scenario because the model assumes that revenues and operating expenses remain constant. Net cash flow would increase/decrease if operating expenses decreased/increased over time. The reason for the gradual increase in net cash flow in the latter two scenarios is that the model assumes revenue growth is equal to rate base growth, while operating expenses only grow at 75% of this rate. Similarly, net cash flow would increase at a slower rate if operating expenses grow at a faster rate, or vice versa if operating expenses grow at a slower rate.

Generally, though, under all three growth scenarios, it is reasonable to expect that the For-Profit LDC can operate on a day-to-day basis as revenues exceed operating expenses and required tax payments.

7.2 Capital Funding

The analysis calculates the free cash flow position of the For-Profit LDC under the low growth and high growth scenarios to determine its ability to fund capital expenditures. The issue of capital funding is not relevant in the zero growth scenario since depreciation and capital expenditures are equal (or expansion capital is zero). Free cash flow is defined as cash available after paying all operating expenses, taxes, interest expense, changes in working capital and capital expenditures.

Firstly, free cash flow is calculated assuming no incremental debt financing of changes in working capital or capital expenditures. Secondly, free cash flow is recalculated assuming the use of external debt financing in proportion to the existing capital structure. This borrowing will increase the cash available for distribution to the

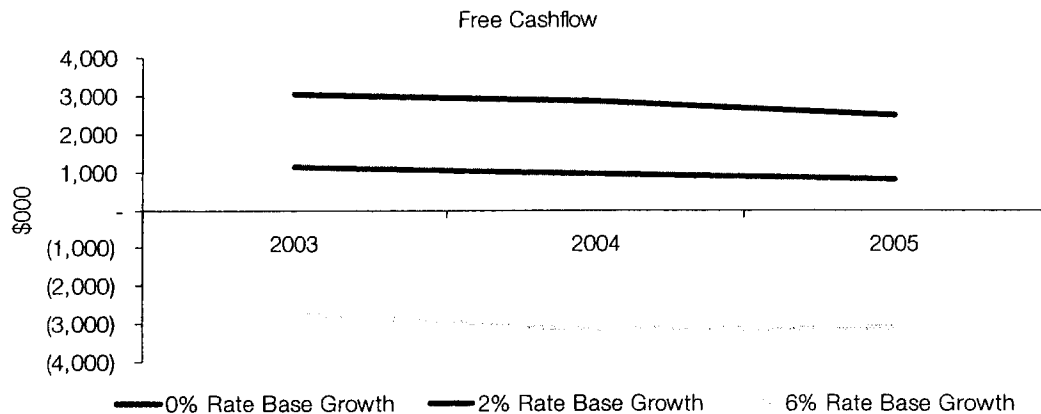


OGILVY
RENAULT

municipal shareholder, provide for the most efficient capital structure and maximize the value of the LDC. Finally, the LDC's ability to borrow such incremental debt from external sources is reviewed.

For the zero growth scenario, since incremental debt is not required to finance expansion capital, free cash flow in both charts below is equal and represents the ROE of the LDC.

7.2.1 No Incremental Debt Financing

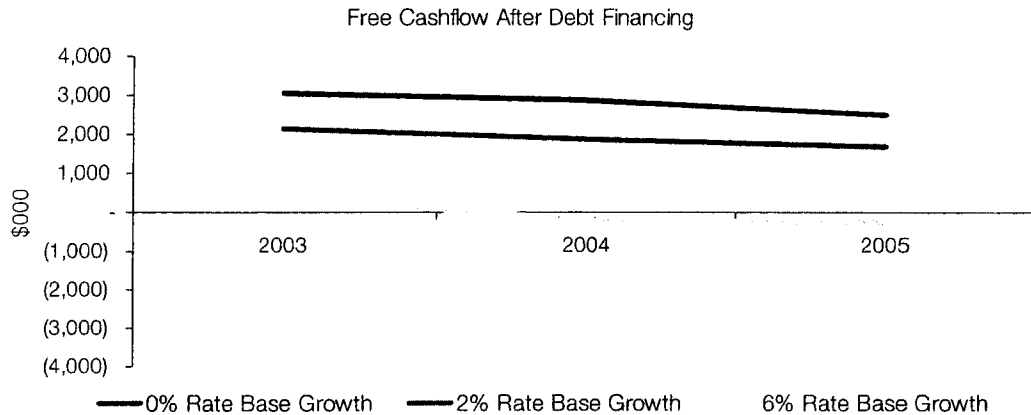


In the low growth scenario, there is sufficient cash flow to support the growth of the LDC over the next few years. The LDC can continue to operate with little or no additional capital, as internally generated cash flow is enough to meet the For-Profit LDC's requirements. However, with no incremental debt used to finance expansion growth, the capital structure of the LDC will begin to deviate from the most efficient mix of debt and equity.

The high growth LDC would be unable to fund capital expenditures out of free cash flow without incremental borrowing or other financial support. This is not a surprising result, as distribution rates are designed assuming external borrowing for capital expenditures.



7.2.2 Incremental Debt Financing



In the low growth scenario, after assuming that external debt capital is sourced to finance a portion of the expansion capital, the future cash flow profile improves. However, in the high growth scenario there is insufficient cash flow generated internally to reinvest the **equity** portion of the expansion capital starting in 2004. Between now and 2006, shareholder infusion may be required for high growth LDCs. This equity capital required to be infused by the shareholder in the 6 % growth scenario will likely raise concerns about bonusing (see Section 3.5.1).

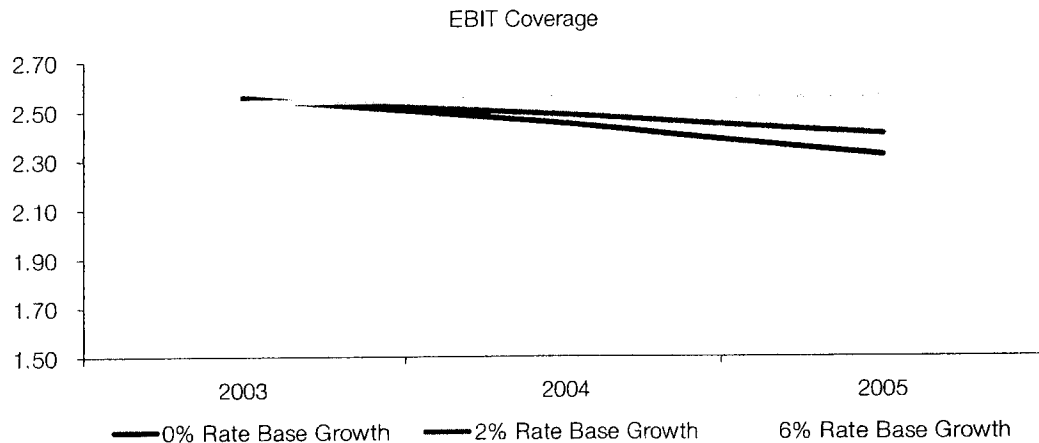
As illustrated in both charts, the high growth scenario has the greatest potential for cash flow shortfalls due to the cash requirements to fund expansion capital. Should the rate freeze and growth in rate base continue beyond 2006, a high growth LDC will continue to face cash flow issues and require funding by its shareholders, which might raise concerns about bonusing (see Section 3.5.1).

7.2.3 Sourcing of External Debt

The ability to source external debt is subject to criteria imposed by the third party lenders. The main criteria to enable the For-Profit LDC to borrow additional debt will be the interest coverage provided to the lenders, which is measured through various financial ratios, and the ability of lenders to recover their principal. Section 5.4.4 outlined some financial covenants utilized in both the bank and capital markets.

The resulting EBIT to interest ratios for the For-Profit LDC are shown in the graph below. The financial ratios assume that the LDC borrows additional debt to fund the expansion capital in order to maintain a capitalization ratio in line with the OEB-deemed capitalization ratio. The assumed cost of this debt is 7.0% (as deemed by the OEB).





In the high growth scenario, the coverage profile suggests that the LDC would have ongoing access to external debt financing provided that the shareholder continues to fund the equity portion of capital expenditures. The deterioration of coverage in the low growth scenario would become a concern if there was not some anticipation of a change in rate regulation e.g. a return to full equity MBRR after 2006.

7.2.4 Existing Municipal Debt

In the situation where the municipal shareholder has existing debt which the LDC is currently servicing, in order for external lenders to provide additional financing to the LDC in the current environment, it is very likely that at a minimum, subordination of municipally held debt will be required from lenders. Such subordination would allow an external debt provider to have first priority to cash flows.

If external debt is not available, there are a number of alternatives the municipal shareholder has to enhance the **credit capacity** of the LDC and increase the potential of the LDC to access the external debt market and improve cash flow. These alternatives include: interest forgiveness, interest rate reduction, an equity for debt swap or provision of a municipal guarantee. These alternatives are described in further detail in Section 8.2.4. Under a For-Profit scenario, the municipal shareholder may or may not encounter bonusing issues (see Section 3.5.1) if it provides financial support to the LDC through these options.

Due to the legal complications and uncertainties that arise when municipal shareholders provide financial support to the For-Profit LDC, it is critical that access to the external funding market be maintained.

7.3 Shareholder Return

A For-Profit LDC is allowed to make equity distributions to its shareholders. The potential equity returns generated by the For-Profit LDC until May 1, 2006 are restricted by the rate freeze in place and as a result, would not be as high as they would have been in the absence of Bill 210, the EPCS Act. As the equity value of the LDC to the shareholder is determined by the present value of expected return, enterprise values under Bill 210, the EPCS Act, have been substantially reduced. The extent of the value reduction, however, is dependent on the regulatory regime and profit level assumed after May 2006.



OGILVY
RENAULT

The following table outlines the value reductions to the shareholder as a percentage of enterprise value of the LDC prior to the implementation of Bill 210, the EPCS Act, for each LDC growth scenario, under the two rate scenarios assumed post May 2006.

The enterprise value of an LDC is calculated as follows.

$$\text{Enterprise Value} = \text{Total Debt} + \text{Equity Value}$$

Where:

Total Debt is debt owed to the municipality only and external parties; and

Equity Value is the present value of the all future cash distributions to equity holders.

Reduction in Total Enterprise Value

	0% Growth	2% Growth	6% Growth
Indefinite Continuation of Current Rates	19%	26%	> 100%
Reversion to Regime Allowing Full Return on Equity	5%	5%	9%

In all cases, the equity in the LDC is earning suboptimal returns for either a finite period of time or indefinitely while it is assumed that the municipal shareholders should be earning a 9.88% return on equity (also referred to as the applicable discount rate).

Scenarios which assume continuation of current rates post 2006 show a greater value reduction than those where reversion to full equity rates of return post 2006 occurs. It is under the high growth scenario with a continuation of current rates that value is most severely reduced. The reason for this is that, under a high growth scenario, the municipality will be forced to inject capital to provide the equity portion of expansion capital even though the equity capital is earning suboptimal regulatory returns.

7.4 Conclusion

In summary, the For-Profit LDC should be able to continue to pay for its operating expenses and taxes in all growth scenarios.

With respect to capital funding, the low growth LDC should be able to fund capital expenditures without borrowing; it may encounter problems with lenders if it wants to borrow enough to optimize cash flow and maintain its capital structure. The high growth LDC would not be able to fund capital expenditures without borrowing but should have access to external debt markets provided that the municipal shareholder infuses additional equity capital, as required.

If the municipal shareholder holds existing LDC debt, there are measures which can be taken to enhance the LDC's ability to access the external debt market.

Enterprise value of the For-Profit LDC has been reduced by the passing of Bill 210, the EPCS Act, and is highly dependent on the regulatory regime applicable after 2006. Most significantly, in the 6% growth scenario assuming a constant capital structure (debt and equity split), there is a need for shareholders to infuse equity capital into the LDC.

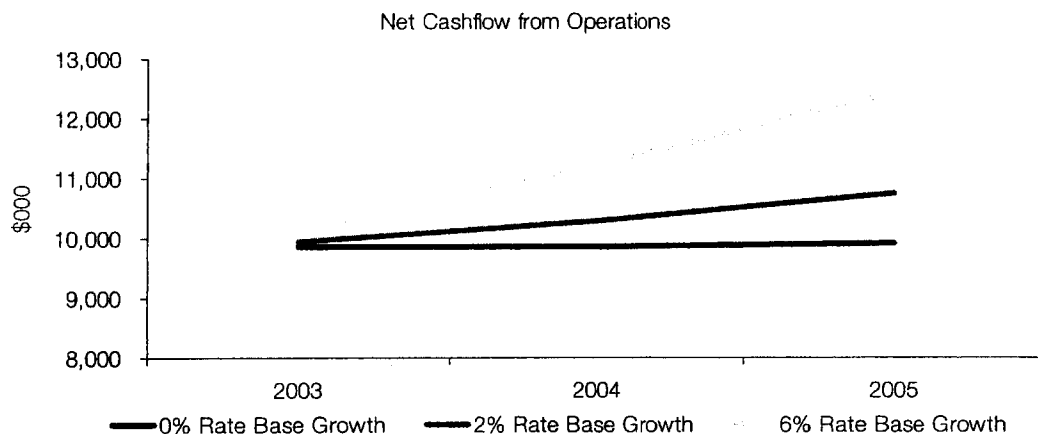


OGILVY
RENAULT

8. FINANCIAL IMPLICATIONS - ZERO-RETURN LDCS

8.1 Operations

As a result of the implementation of Bill 210, the EPCS Act, the Zero-Return LDC is required to freeze its distribution rates at levels that incorporate a 0% ROE. For the Zero-Return LDC, a reduction in return on common equity to 0% would result in a significant reduction in the revenue requirement to reflect this reduced return and a reduction in PILs recovery. The resulting ability of the Zero-Return LDC to fund day-to-day requirements and maintain operations is shown in the diagram below under each growth scenario.



Under all three growth scenarios, it is reasonable to expect that the Zero-Return LDC can operate on a day-to-day basis as revenues exceed operating expenses and required tax payments. However, the margin between revenues and operating expenses is substantially narrower than in the For-Profit case. Maintenance of this margin by careful operating cost control measures is more critical in the Zero-Return scenario.

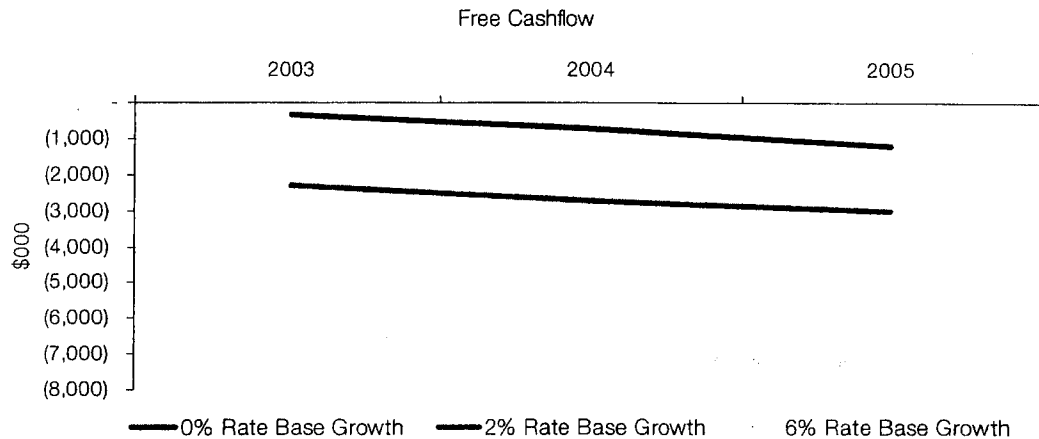
8.2 Capital Funding

8.2.1 No Incremental Debt Financing

The chart below illustrates the free cash flow position prior to any additional debt financing of the Zero-Return LDC under each scenario.



OGILVY
RENAULT

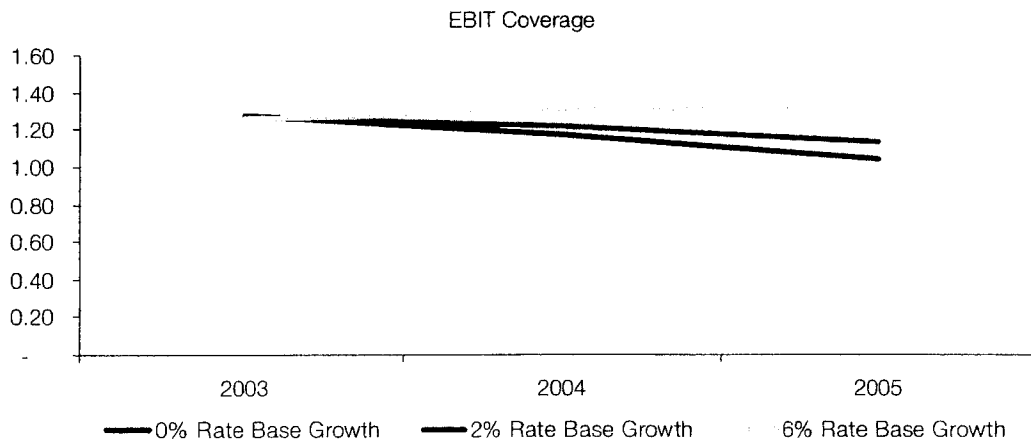


As can be seen from the diagram above, cash flow shortfalls are experienced under all three growth scenarios. Thus, in order for the Zero-Profit LDC to continue to operate it will require external capital. The zero growth scenario results in negative cash flow, even though it is assumed that replacement capital is equal to depreciation, as the deemed tax recovery does not exactly match the actual taxes paid. Deemed taxes are the amount of taxes payable by LDCs and allowed to be recovered through rates. This is due to the mismatch between the deemed tax recovery calculation (using accounting depreciation) and the actual tax calculation (using capital cost allowance). The high growth scenario results in the largest cash shortfall due to the requirements to fund expansion capital expenditures.

8.2.2 Sourcing of External Debt

As discussed, the ability to source external debt is subject to criteria imposed by the third party lenders.

The resulting EBIT to interest ratios for the Zero-Return LDC under each of the scenarios are shown in the graph below. The financial ratios assume that the LDC is able to borrow additional debt to fund the expansion capital in order to maintain a capitalization ratio in line with the OEB-deemed capitalization ratio.



OGILVY
RENAULT

The financial ratios indicate that, firstly, given the levels indicated and secondly, given their decreasing profile, it would be virtually impossible for the Zero-Return LDC to obtain external financing to meet its funding requirements. Thus, the capital to finance all expansion growth of the LDC would have to be provided by the municipality, which might raise concerns about bonusing (see Section 3.5.1).

8.2.3 Implications for Existing External Debt

In addition to difficulties in sourcing incremental debt, it is likely that any existing external indebtedness would be in default under current financial covenants due to breaches in the financial tests or the inability to fully pay interest or principal. The external lenders would most likely demand repayment of the principal. In this situation the municipality would have a number of options:

- repay the external debt lenders;
- guarantee the external debt;
- subordinate any municipally-held debt, if applicable; or
- swap municipally-held debt for equity (principal forgiveness), if applicable.

Each of these options would require the municipality to financially support the LDC either through immediate cash payments (repayment of external debt), ongoing cash payments (supporting ongoing external debt payments of interest and principal), or forfeiting future cash receipts (interest and principal payments on municipally-held debt). External lenders would have to approve the implementation of these options otherwise they are entitled to a repayment of their debt principal.

8.2.4 Financial Support from Municipal Shareholder

The last financing option available to a Zero-Return LDC is to rely on the municipal shareholder to provide financial support. The key requirement for a Zero-Return LDC is access to cash to finance expansion capital and changes in working capital. Available alternatives to municipalities are:

- Interest forgiveness on municipal debt, if applicable; and
- Injection of additional capital by the municipal shareholder.

Assuming that the municipality holds the initial debt established on incorporation, the total annual interest expense paid by the LDC to the municipality would be approximately \$4.4 million. In the 0% and the 2% growth scenarios, forgiveness of the interest payment would provide sufficient cash to support the required growth. However, this is not the case for the 6% growth scenario where forgiveness of interest is insufficient. The municipality would then need to inject additional capital into the LDC.

Since increasing the existing level of municipal debt is not allowed pursuant to Bill 210, the EPCS Act, all new cash provided by the municipality will be in the form of equity capital. Bonusing may not be such a significant hurdle in the Zero-Return model due to the loss of commercial focus of the LDC (see Section 3.5.1).

Should the Zero-Return LDC be allowed to move to distribution rates that incorporate a full 9.88% ROE beginning May 2006, the LDC may become a financially sustainable operation once again able to support its own ongoing obligations without the assistance of the municipality. On the other hand, should the Zero-Return LDC continue indefinitely, there would not be any relief in the future and the municipality would face the prospect of having to continue to financially support the LDC indefinitely.



8.3 Shareholder Return

A Zero-Return LDC is not allowed to make equity distributions (dividends) to its shareholders. Due to the 0% ROE requirement and the associated revenue reduction for the LDC, the total reduction in equity value is substantially greater than in the For-Profit scenario. Similarly, the extent of the value reduction in the Zero-Return LDC is dependent on the regulatory regime and profit level assumed after 2006.

The following table outlines the value reductions to the shareholder as a percentage of enterprise value of the LDC prior to the implementation of Bill 210, the EPCS Act, for each LDC growth scenario under the two rate scenarios assumed post May 2006. Although not entirely improbable, the reversion back to a full MBRR in 2006 for a Zero-Return LDC will imply a significant increase in rates and therefore is not a likely scenario.

Reduction in Total Enterprise Value

	0% Growth	2% Growth	6% Growth
Indefinite Continuation of 0% ROE	58%	78%	>100%
Reversion to Regime Allowing Full Return on Equity	16%	16%	29%

In all cases, the equity in the LDC is earning suboptimal returns (i.e. 0% ROE) at least until May 1, 2006, while it is assumed that the municipal shareholders should be earning a 9.88% ROE (also referred to as the applicable discount rate).

In all cases, the model illustrates that the shareholder is required to inject capital into the Zero-Return LDC to maintain operations and fund necessary expansion, even though the equity capital is earning suboptimal returns. As is the case for the For-Profit LDC, scenarios which assume continuation of current rates post 2006 show a greater value reduction than those where reversion to full rates of return post 2006 occurs. It is under the high growth scenario with a continuation of current rates (incorporating a 0% return on equity) that value is most severely reduced, once again, since shareholder(s) are required to invest greater amounts of capital which yield a zero rate of return.

8.4 Conclusion

The Zero-Return LDC should be able to continue to pay for its operating expenses and taxes in all growth scenarios, but margins are smaller than for a For-Profit LDC.

After taking into consideration interest expense on initial capitalization and (if applicable) incremental capital expenditures, the Zero-Return LDC would have negative free cash flow in all cases and it would be virtually impossible to source external financing for capital expenditures. Thus, cash injection is a requirement under the low growth and high growth scenarios in order to fund capital expansion obligations of the LDC (assuming replacement capital is funded by the depreciation expense recovered in rates). Additional cash could potentially be sourced from the forgiveness of interest expense on existing municipally held debt. Depending on the specific situation of each LDC, this may or may not be sufficient to finance the required capital expenditures going forward.

If the LDC has external debt in place, it is likely that the existing debt would be in default and would require concessions/support from the municipal shareholder.



Enterprise value for the Zero-Return LDC would be even more severely reduced than the For-Profit LDC in all growth scenarios.



9. DECISION IMPLEMENTATION

If the result of the municipal shareholder's analysis is a determination that the LDC's status as a For-Profit LDC should be maintained, the following information is important:

1. The certificate which certifies that a confirming resolution has been passed must be received by the Minister of Energy by March 8, 2003. The certificate should be precisely in the form posted on the Minister of Energy's website at www.energy.gov.on.ca.
2. Where the LDC is owned by more than one municipality, each municipality may pass the resolution. However, to be effective, the resolution need only be passed by the municipality or municipalities which together own, directly or indirectly, a majority of the voting shares of the LDC.
3. The following are guidelines for what should be included in the confirming resolution:
 - A statement that Bill 210, the EPCS Act, received Royal Assent on December 9, 2002;
 - A statement that Bill 210, the EPCS Act, amongst other things, amended the Electricity Act by adding section 159.1;
 - A statement that section 159.1 of the Electricity Act provides that a municipality which has an interest in an LDC, as defined in subsection 159.1(3), may within 90 days after section 159.1 comes into force, pass a resolution providing that the municipality affirms that the LDC should continue to be incorporated as provided in subsection 142(1) of the Electricity Act;
 - A statement that section 159.1 of the Electricity Act provides that if the Minister of Energy does not receive a certificate certifying the passing of the resolution to continue to be incorporated as provided in subsection 142(1) of the Electricity Act within 90 days of section 159.1 coming into force, the consequences as laid out in subsections 159.1(5), (6) and (7) of the Electricity Act will follow;
 - A statement that the municipal shareholder has resolved that the LDC should continue to be incorporated as provided in subsection 142(1) of the Electricity Act;
 - A statement that the municipal shareholder has resolved to direct an appropriate representative to file with the Minister of Energy a certificate as contemplated in subsection 159.1(4) of the Electricity Act certifying the passing of the resolution to continue to be incorporated as provided in subsection 142(1) of the Electricity Act; and
 - Any other points of detail or conclusions of council on the topic which council wishes to include.



APPENDIX A - SECTIONS 159.1 AND 159.2 OF THE ELECTRICITY ACT

Resolution

159.1 (1) A municipality which has an interest described in subsection (3) in respect of a corporation that was incorporated as provided in subsection 142 (1) and that is licensed under the Ontario Energy Board Act, 1998 to distribute electricity may, within 90 days after this section comes into force, pass a resolution providing that the municipality affirms that the corporation should continue to be incorporated as provided in subsection 142 (1).

Where more than one municipality

(2) Where an interest described in paragraphs 1 or 2 of subsection (3) is held by more than one municipality, or where two or more municipalities together have the rights described in paragraph 3 of subsection (3), each of those municipalities may pass the resolution described in subsection (1).

Interests in corporation

(3) The following are the interests in a corporation for the purposes of subsection (1):

1. Direct or indirect beneficial ownership or voting control of all or a majority of the voting shares of the corporation.
2. Direct or indirect beneficial ownership of all or a majority of the voting shares of a corporation that owns all or a majority of the voting shares of the corporation.
3. Any other form of corporate organization that gives the municipality rights or entitlements similar to those of a person who owns all or a majority of the voting securities in a corporation incorporated under the Business Corporations Act.

When subsections (5) and (7) apply

(4) Subsections (5) and (7) apply if, within 90 days after this section comes into force, the Minister does not receive a certificate or certificates certifying the passing of the resolution in the form provided for in the regulations from the clerk or other appropriate official of the municipality or municipalities that alone or together,

- (a) directly or indirectly beneficially own a majority of the voting shares of a corporation described in subsection (1);
- (b) directly or indirectly beneficially own a majority of the voting shares of a corporation that owns all or a majority of the voting shares of a corporation described in subsection (1); or
- (c) with respect to a corporation mentioned in subsection (1), have the rights or entitlements similar to those of a person who owns all or a majority of the voting securities of a corporation incorporated under the Business Corporations Act.

Consequences of failure to pass resolution

(5) If the Minister does not receive the certificate or certificates within the time set out in subsection (4), the following apply:



1. The board of directors of the corporation described in subsection (1) shall not declare, and the corporation shall not pay, dividends for the benefit of any person.
2. The corporation described in subsection (1) shall not sell, lease or otherwise dispose of all or substantially all of its assets, liabilities, rights or obligations, and shall not dismiss all or substantially all of its employees.
3. A shareholder of the corporation described in subsection (1) shall not sell, convey, transfer, assign or otherwise dispose of any of its interest in the corporation except as provided in section 159.2.
4. The corporation described in subsection (1) shall not increase the amount of an obligation to a shareholder that is a municipality provided for in a debt obligation within the meaning of the Business Corporations Act, either by creating a new debt obligation or amending an existing debt obligation, and where such a debt obligation was created or amended after November 25, 2002, the increased amount of obligation shall be deemed not to exist.
5. If the corporation mentioned in subsection (1) increases the amount of an obligation to a shareholder other than a municipality that is provided for in a debt obligation within the meaning of the Business Corporations Act or in a contractual obligation, either by creating a new debt obligation or contractual obligation or amending an existing debt obligation or contractual obligation, that shareholder shall not increase the amount of its obligations to a municipality, and where such an obligation was created or amended after November 25, 2002, the increased amount of obligation shall be deemed not to exist.
6. A corporation described in subsection (1) shall not enter into an agreement for goods or services with an affiliate, a shareholder of the corporation or a municipality other than in the ordinary course of business for fair value of the goods or services provided under that agreement and where such an agreement was entered into after November 25, 2002, the agreement is void.
7. A corporation described in subsection (1) shall not amend or cause to be amended any existing agreement for goods or services with an affiliate, a shareholder of the corporation or a municipality that increases the financial obligations or liability of the corporation and where such an amendment was made after November 25, 2002, the amendment is void.

Non-application of articles, etc.

- (6) Subsection (5) applies despite,
- (a) the articles of incorporation of any corporation;
 - (b) the by-laws of any corporation;
 - (c) any shareholder agreement or resolution or direction of shareholders;
 - (d) any other instrument or agreement; and
 - (e) the Business Corporations Act and any other Act or law.



**OGILVY
RENAULT**

EDA Report Final.Doc
Printed 24/01/03:

Additional consequences of failure to pass resolution

(7) If the Minister does not receive the appropriate certificate or certificates within the time set out in subsection (4), an application shall be deemed to have been made to the Board under section 78 of the Ontario Energy Board Act, 1998 to replace each order made by the Board under section 78 of that Act with respect to the corporation.

Authority for deemed application

(8) Section 79.6 of the Ontario Energy Board Act, 1998 does not apply to an application that is deemed to be made under subsection (7).

Contents of application

(9) An application described in subsection (7) shall be deemed to be based on a projected revenue requirement that incorporates a 0 per cent return on common equity.

Board must make order

(10) The Board shall, upon giving notice to the corporation, make an order that incorporates a 0 per cent return on common equity despite section 78 or 79 of the Ontario Energy Board Act, 1998 and in making the order shall not increase any of the other components of the revenue requirement or increase any rates set out in any order that is in effect at the time that the deemed application is made.

No hearing

(11) The Board shall make the order described in subsection (10) without holding a hearing.

Effectiveness of order

(12) An order described in subsection (10) shall be deemed to have come into force 90 days after this section came into force.

Regulations

(13) The Minister may make regulations governing the form and content of the certificate for the purposes of subsection (4).

Compensation for certain shareholders

159.2 (1) A shareholder of a corporation to which an order described in subsection 159.1 (10) applies or of a corporation that beneficially owns, directly or indirectly, all or a majority of the voting shares of a corporation to which an order described in subsection 159.1(10) applies is entitled to be paid by the municipality or, if voting shares in the corporation are beneficially owned, directly or indirectly by more than one municipality, by the municipalities, the fair value of all or part of its voting securities in the corporation of which it is a shareholder, determined as of the close of business on November 8, 2002, if the shareholder is not,

(a) a municipality; or

(b) a corporation of which a municipality beneficially owns, directly or indirectly, all or a majority of the voting shares.

Demand for payment of fair value



OGILVY
RENAULT

(2) A shareholder who is entitled to be paid under subsection (1) and who wishes to exercise his or her entitlement shall deliver to the municipality or municipalities, within 30 days from the making of the order described in subsection 159.1 (10), a written notice containing,

- (a) the shareholder's name and mailing address;
- (b) the number and class of securities in respect of which the shareholder is claiming payment;
- (c) a demand for payment of the fair value of the voting securities; and
- (d) the name of a valuator designated by the shareholder from a list of valutors set by the Minister.

Valuation by mutual agreement

(3) The shareholder and the municipality or municipalities, as the case may be, may enter into any agreement or arrangement to determine the fair value of the shareholder's voting securities, the timing and method of the payment to the shareholder of the fair value, the transfer of the voting securities to the municipality or municipalities, as the case may be, or any other related matter.

Same

(4) Where the shareholder and the municipality or municipalities, as the case may be, enter into an agreement or arrangement described in subsection (3), subsections (5) to (13) do not apply or shall cease to apply, as the case may be.

Valuator chosen by municipality

(5) Where the shareholder and the municipality or municipalities, as the case may be, do not enter into a written agreement or arrangement described in subsection (3), the municipality or municipalities shall, within 45 days of receiving the notice under subsection (2), designate a valuator from a list of valutors set by the Minister that is not the valuator designated by the shareholder.

Designation of valuator

- (6) The following rules apply to the designation of a valuator:
1. If the shareholder or the municipality or municipalities have not designated a valuator or if paragraph 2 applies, the Lieutenant Governor in Council shall designate a valuator for the shareholder or municipality or municipalities from the list of valutors set by the Minister.
 2. A valuator is not eligible to be chosen by the shareholder or the municipality or municipalities, as the case may be, if the valuator has provided any service to either the shareholder or the municipality or municipalities in the prior 12-month period.
 3. If more than one municipality beneficially owns, directly or indirectly, voting shares in the corporation, all the municipalities must agree on the valuator, and if they cannot agree on the valuator, the valuator shall be designated as under paragraph 1.
 4. The reasonable remuneration and expenses of the valuator shall be paid by the party who designated the valuator, or for whom the valuator was designated.



Report

(7) Within 90 days from the day that the second valuator is designated, each valuator shall deliver to the municipality or municipalities and to the shareholder a report,

(a) determining the amount of the payment to which, in the opinion of the valuator, the shareholder is entitled under subsection (1); and

(b) setting out, in detail, the basis upon which the valuator determined the amount.

SPPA

(8) The Statutory Powers Procedure Act does not apply to the determination of an amount by a valuator under this section.

Criteria

(9) The Minister may establish criteria to be applied by valutors in determining amounts under subsection (7).

Not regulations

(10) Criteria established by the Minister under subsection (9) are not regulations for the purposes of the Regulations Act.

Payment of fair value

(11) The municipality or municipalities shall pay a shareholder who is entitled to be paid under subsection (1) the arithmetic mean of the two amounts determined by the valutors within six months after both reports of the valutors have been delivered.

Where more than one municipality

(12) If more than one municipality beneficially owns, directly or indirectly, voting securities in the corporation whose voting securities are being valued, the amounts that they are liable to pay shall be determined and the deemed transfer under subsection (13) shall be made on a proportional basis in accordance with the extent of their ownership in the corporation.

Claims nullified

(13) Where payment has been tendered under subsection (11),

(a) the voting securities shall be deemed to be transferred to the municipality or municipalities; and

(b) the shareholder shall be deemed to be fully compensated for its voting securities in the corporation, and shall have no claim or cause of action for any further compensation or payment in relation to anything done in accordance with this section or section 159.1.



APPENDIX B – MODEL ASSUMPTIONS

The base assumptions used in the report are an LDC with the following characteristics:

- Opening fixed asset base of \$100 million;
 - Rate base is the sum of the fixed assets plus an allowance for working capital (calculated as 15% of cost of power and controllable expenses);
 - Deemed capital structure of 55% debt and 45% equity;
 - Deemed debt cost of 7.00% p.a.;
 - Opening capitalization equal to the deemed capital structure of 55% debt and 45% equity;
 - Revenue during the rate freeze period (until May 1, 2006) increases or decreases with rate base growth or decline respectively at a rate equal to change in the rate base;
 - The two regulatory scenarios assumed post May 1, 2006 are:
 - Continuation of current ROE assumption – 0% for Zero-Return LDC and 6.59% for For-Profit LDC
 - Increase to full 9.88% ROE for both Zero-Return LDC and For-Profit LDC
- In all cases, it is assumed that a rebasing of revenue requirement is allowed from May 1, 2006. That is, the OEB is assumed to take into account the operating costs, depreciation expense and rate base current at that time when determining the allowable revenue requirement and distribution rates. It is assumed that annual rebasing occurs thereafter.
- Opening operating, maintenance and administration expenses equal to 9% of rate base. As the rate base increases/decreases, these expenses will increase/decrease at a rate of 75% of rate base growth;
 - The growth scenarios used in the analysis (0%, 2% and 6% growth rates) are net of any contributed capital received by the LDC i.e. 0%, 2% and 6% are the amounts of growth funded by the LDC itself.
 - All growth capital expenditure requirements are funded proportionately with debt and equity in line with the deemed capital structure of 55% debt and 45% equity;
 - Actual debt interest cost of 7.00% p.a. used for existing and new debt;
 - Annual asset depreciation of 6% of rate base;
 - Average CCA rate of 4%;
 - The LDC will continue to be liable for PILs;
 - Total customers of 40,000;
 - Total consumption of 1,000,000,000 kWh; and
 - Equity discount rate of 9.88%.



OGILVY
RENAULT

***Greater Sudbury Utilities Inc./
Services Publics Du Grand Sudbury Inc.***

500 Regent Street / rue Regent, PO Box 250 / CP 250, Sudbury, ON P3E 4P1
Telephone (705) 675-7536 Fax (705) 675-0539

2003-01-29

Mr. Mark Mieto
Chief Administrative Officer
City of Greater Sudbury
Tom Davies Square
P.O. Box 5000, Station "A"
Sudbury, Ontario
P3A 5P3

Dear Mr. Mieto:

The Board of Directors of Greater Sudbury Hydro Inc., at its "In Camera" concurrent meeting of January 27, 2003, passed the following resolution:

"THAT the Board recommend to the Corporation's Shareholder, that Greater Sudbury Utilities Inc. subsidiary, Greater Sudbury Hydro Inc. continue as a "For-Profit" Corporation as required by Bill 210, The Electricity Pricing, Conservation and Supply Act, 2002."

The above recommendation follows a valuation review whereby a "For-Profit" Corporation far exceeds that of a "Not-for-Profit" Corporation. Supporting documentation is outlined in attached Memorandum to the Board of Directors of Greater Sudbury Hydro Inc. dated 2003-01-27.

For your information, also attached is a "confidential" report on the "Legal and Financial Analysis of "For-Profit and Zero-Return LDCs" dated January 24, 2003. This was commissioned by the Electricity Distributors Association to identify the legal and financial issues imbedded in the For-Profit and Zero-Return models.

As you are aware, Bill 210 requires that the Council of the City of Greater Sudbury confirm the decision of operating the distribution utility on a "For Profit" basis prior to March 10, 2003.

Sincerely yours,



Doug Reeves, P. Eng.
President/CEO & Secretary

:tt
Attach.

c: Doug Wuksinic, General Manager – Corporate Services

Correspondence and Information

CORRESPONDENCE - INFORMATION ONLY

NO ITEMS FOR THIS AGENDA