# Implementation of a Sustainable Financing Structure For Solid Waste Management in Ontario

## Discussion Paper #6

## Practical Implementation Experience

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# 1. Introduction and Background

This Discussion Paper focuses on practical implementation experience collected through telephone interviews with municipalities across Canada, and a few in the US who have implemented sustainable financing systems for waste management.

Some of the practical experience is best illustrated by looking at how the various financing systems changed over time, as problems were encountered and work-arounds were identified.

This research posed two challenges:

- Very few Ontario municipalities have moved from tax based to off-tax based financing of their waste management system, therefore most of the experience documented in this paper is from Western Canada or the US, where off-tax base financing of waste management is more common than in Ontario. The approach and culture is different in different parts of Canada and the US, therefore, some of the background and even practical implementation experience may not be applicable to Ontario municipalities.
- Many of the waste management systems studied made the changes we are interested in for this project many years ago, in the early 1990's. The people involved have retired, and the institutional memory of how challenges were resolved is simply not documented. Current staff were hired after the changes were made, and do not know the background.

Lessons learned through the research are presented in a summary table format in Table 1.1 under the following headings:

- Reason for moving to the household charges;
- Principles regarding the structure of the household charges;
- Public consultation, reviews and surveys;
- Fee increases and fee structure changes over time;
- Phasing of move from tax bill to full household fees;
- Identified impacts of financing change;
- Tags, can subscriptions and utility bills;
- Program launch;
- Utility structure and full cost accounting;
- Staff and other resources;
- Pricing and revenue challenges;
- Illegal dumping;
- Mixed use buildings, rental properties;
- Impacts on costs and
- Cross subsidization.

The details are presented in later sections.

## Table 1.1: Summary of Practical Implementation Experience

| | Issue | Location | Background |
|---|---|---|---|
| **#1** | **Reason For Moving to Household Charges** | Seattle, Washington, US | 1981 – variable can subscription at multiples of 32 gallon cans<br>1987 – waste disposal costs increased 82% because of local landfill closures and long haul of garbage<br>1989 – New solid waste plan, 60% diversion by 1998 and mandated new rate structure to promote recycling<br>1988 – curbside recycling introduced: costs incorporated in garbage rates<br>1989 – yard waste collection introduced at additional flat rate fee<br>1989 – RPA cost and diversion model indicated city should switch to curbside recycling and introduce smaller garbage can size to provide economic incentive for recycling<br>1989 – changed from backyard pickup to curbside recycling. 19 gallon Mini-can introduced<br>1992 – 12 gallon Micro-can introduced<br>2000 – variable rate for yard waste to promote grasscycling and backyard composting. See Table 3.4<br>Today – 5 garbage can size options available, See Table 3.4 |
| | | CRD (Capital Regional District) British Columbia, 1990 | Commitment to no landfill expansion for 25 years. Tipping fee increases used to finance recycling system.<br>Increased from $10.50/tonne in 1988 to $75/tonne in 1993 |
| | | 1991 - Nanaimo, BC | Households contracted individually with contractors for waste collection or self hauled garbage to local landfill<br>Suspicion that residents burned their waste or buried garbage lead to decision to bring in compulsory service |
| | | 1992 – Victoria, BC | Moved to flat fee plus PAYT to reduce waste requiring disposal (landfill crisis was looming) |
| | | 1994 – Edmonton, Alberta | 30-year Waste Management Plan identified cost accounting analysis |
| | | 1994 to 1997 - City of Vancouver, BC | 1994 – Greater Vancouver Regional District Solid Waste Management Plan required all municipalities to adopt zero base (total user fee) waste financing system which promoted waste reduction by 2000<br>1997 – City of Vancouver Council approved Utility for 1998. |
| **#2** | **Principles Regarding Structure of Household Charges** | 1991 – Nanaimo, BC | Full user pay with strong waste reduction incentive |
| | | 1997 – City of Vancouver, BC | 1997 - Full program costs to be recovered by utility through fees (Council Resolution)<br>January 2004 – move to variable can subscription to:<br>° Provide an economic incentive for residents to reduce, reuse, recycle |

| | | | |
|---|---|---|---|
| | | | ° Eliminate subsidization from the general revenue<br>° Equity – pay for what you generate – residents are in control |
| **#3** | **Public Consultation, Reviews and Surveys** | Nanaimo, BC - 1996 after 5 years | Nanaimo BC Service Level Review 1996 – program review and changes after 5 years. Residents ask for more flexibility in service and lower costs<br>Estimated switching to bi-weekly garbage (weekly in summer) and bi-weekly recycling could reduce costs 25% to 40%. Change not adopted |
| | | St Albert, Alberta, 1999 | Environmental issues survey (1992)<br>Environmental master plan(1993)<br>Summer pilot programs (1994 and 1995)<br>Information/survey brochure (March 1996)<br>1999 - Resident survey feedback three years after can subscription system in place. See section 3.4 |
| | | Edmonton Financing Review 2006 | 2006 – Public Involvement Plan on financing changes after 12 years of new financing program. Provided public with four options – one to remove IC&I subsidy. Decided to stay with status quo (see section 3.4) |
| **#4** | **Fee Increases and Fee Structure Changes Over Time** | 1996 to 2005 in Nanaimo, BC | Weekly garbage and bi-weekly recycling for urban residents cost $76 in 1996 and $149 by 2007<br>Bi-weekly garbage and recycling for rural residents cost $65 in 1996 and $140 by 2007 |
| | | CRD, BC 1996 to 2005 | Very little change. Flat fee increased from $147 to $150<br>Weekly garbage and bi-weekly recycling |
| | | St Albert, Alberta, 1996 to 2008 | Introduced more flexibility over time, frequent changes 1996 to 2006<br>See Table 3.1 |
| | | City of Vancouver, BC October 2001, January 2004 | October 2001 Moved to a base service fee for property set out location and a per can fee for each can of garbage. Council approved fully automated garbage plus yard trimmings collection, fully implemented in 2006 |
| | | City of Stratford, 1997 to 2004 | 1997 – introduced full user pay for each bag of garbage. Charged $0.50 for bags self hauled to landfill and $1.20 for curbside pickup. Self hauled garbage increased dramatically.<br>2001-2004 – changed fee structure so that self hauled and curbside rates almost the same. Self hauled reduced substantially. See Figure 3.1 |
| **#5** | **Phasing of move from tax bill to full household fees** | City of St Albert, Alberta survey 1992 to 1996 | January 1994 – disposal removed from tax bill to $3/month utility bill<br>1996 – collection costs removed from property tax bill to utility bill at another $3/month (total $6/month)<br>July 1996 – variable can program announced |
| | | City of Edmonton, Alberta 1995 to 2006 | July 1995 – started with $60/SFH and $35/MFH per year processing and disposal fee, reducing tax base support from 80% to 50%. Taxes continued to fund collection, recyclables and litter |
| **$6** | **Identified Impacts of** | 1991 – Nanaimo, BC | Compulsory waste collection and recycling service costs 30% less than private service |

| | | | |
|---|---|---|---|
| | **Financing Change** | | |
| | | CRD January 1992 | Move from property taxes to flat fee and partial PAYT resulted in 18% decrease in waste to landfill |
| | | City of Edmonton 1994 to 2006 | Moved from 80% tax based in 1994 to 22% in 2006. $8 million still remains on the tax base.<br>Public Involvement Plan in 2006 – system to remain unchanged.<br>2008 – decision to move fully off the tax base into a utility in January, 2009 |
| **#7** | **Tags, Can Subscriptions and Utility Bills** | St Albert, Alberta, 1996 | One change to can subscription size allowed per year at no extra cost<br>Automatically defaulted to 2-can rate for non-respondants<br>Two-week grace period at end of year to use unused tags<br>Four exta tags per year at no charge<br>Tags distributed 3 times per year by meter readers and other hired employees (not by postal system). Reduced to 2 times per year to save costs<br>Waste utility billing system - Was able to piggyback on existing water bill<br>When tenant calls to have water turned on, staff get them to sign up for garbage at the same time |
| | | Victoria, BC 1996 | Very few stickers sold (12,000) or roughly 1 sticker per household per year after move from 2-can to 1-can system |
| | | Ottawa, Ontario 2006 | $78.90 per household flat fee for garbage added as line item to tax bill (2006).<br>No complaints from residents |
| **#8** | **Program Launch** | St Albert, Alberta | Launch methods included information brochure, telephone hotline, subscription collection, press releases, billboards, door hangers, other advertising (e.g. dance troupe)<br>Launch costs: $95,000 total or $6.80/household. See details Section 3.3 |
| **#9** | **Utility Structure and Full Cost Accounting** | Seattle, Washington, US | Recycling Potential Assessment Model (RPA) developed to forecast waste flow and costs of different diversion scenarios<br>Full cost accounting methods used to separate all waste management administration and operating costs from other city operating costs |
| | | Victoria, BC | Carried out full cost accounting analysis in 2006. Identified $14,000 shortfall |
| **#10** | **Staff and other resources** | Seattle, Washington (pop 563,000) | Two full time staff with strong economic backgrounds were hired to design and implement variable rate can structure.<br>Today, one full time staff person overseas the rate development process |
| | | St Albert, Alberta | Providing more service level options has increased administrative burden substantially. Multiples of the one can or two bag service options requires significant tracking and delivery of different numbers of stickers to each household twice per year |
| **#11** | **Pricing and revenue challenges** | Victoria, BC | Expected to sell 150,000 stickers (in addition to flat fee of $90). Only sold 12,000 and had a revenue shortfall of $300,000. Since 1992 has slowly increased flat fee to provide stable revenue source |
| | | Vancouver, BC | 2007 – with new automated system, City estimated that picking up extra bags with |

| | | | |
|---|---|---|---|
| | | | stickers manually will triple price per unit. Extra stickers priced at $2 to encourage households to pick correct can size |
| | | Seattle, Washington, US | "Inverted" pricing structure to charge more than actual costs for larger cans. This caused most households to move to smallest can possible, resulting in revenue shortfall in 1990. City monitors revenues every quarter and makes adjustments required. |
| | | St Albert, Alberta | Revenue shortfall in first year because of large number of subscribers to smallest can/bag size. Subscription rates had to be changed to be fully self financing. Pricing rate reflects actual costs (not inverted, like Seattle).<br>Minimal demand for extra tags, therefore minimal revenue from this source. |
| **#12** | **Illegal dumping** | St Albert, Alberta | 3-4 incidents reported by the commercial sector. Businesses told to lock their dumpsters. This was sufficient to deter the behaviour |
| | | Orillia, Ontario | Illegally dumped material is sorted and the owner is charged for clean-up costs |
| | | Seattle, Washington | Experienced illegal dumping after rate increases. City passed illegal dumping ordinance and has monitoring and enforcement staff |
| | | Stratford, Ontario | Experience less than 15 cases per year. About 60 residents charged the cost to collect and sort through untagged bags. |
| | | Bellville, Ontario | Forty (40) incidents in first year of PAYT. Charge $40 fine if owner identified. |
| **#13** | **Mixed Use Buildings, Rental Properties** | St Albert, Alberta | Multi-use buildings arrange their own garbage and recycling pickup with private sector haulers |
| | | Barrie, Ont | Problem tracking "legal" rental units in each building. Set up a tracking database from property assessment. Figured out number of bags allowed per stop on collection day |
| | | Sudbury, Ont | Multi-family buildings with commercial do not fall under high density residential and must arrange private collection |
| **#14** | **Impacts on Costs** | Seattle, Washington | Lower amounts of garbage increased route productivity and reduced stop times |
| | | Victoria, BC | 18% reduction in waste to landfill |
| **#15** | **Cross Subsidization** | Edmonton, Alberta | 2006 review – residents felt $8 million business cross subsidy should stay as businesses sell and manufacture the waste that residents throw out or recycle |

# 2. Communities Used for Practical Implementation Research

Most Ontario municipal waste management systems are financed partially or fully on the municipal tax base. It is more common in Western Canada to find municipal waste management operations set up as separate cost centres that apply sustainable financing fee structures as the main source of funding for residential waste management and diversion programs. When looking for implementation experience (the main project research was carried out between December 2006 and February, 2007), the most valuable and interesting experience had been gained by communities outside Ontario.

Table 2.1 presents the municipal waste management systems which were the focus of the research, as these had implemented sustainable financing models of interest to this project. Many of the systems were established in the early and mid 1990's by staff that have moved on to other responsibilities or have retired. For this reason, a first attempt to survey municipal staff, to better understand how the system was implemented and lessons learned, did not produce much useful information. When asked about system implementation and problems in the survey carried out between December 2006 and February 2007, the common response was "way before my time" or something similar. The survey information required further augmentation with information from reports and documents (often outdated) detailing system implementation experiences. In many cases, the experience was not documented.

**Table 2.1: Financing System Characteristics of Featured Communities**

| Municipality | System Highlights | Year of Implementation |
|---|---|---|
| **Canada** | | |
| City of Victoria, British Columbia (population 74,000) | - separate cost centre<br>- flat household fee<br>- PAYT | 1992 |
| City of Vancouver, British Columbia (population 661,000) | - separate cost centre<br>- flat household fee (moved to variable can subscription in 2006)<br>- PAYT | 1998 |
| Regional District of Nanaimo, British Columbia (population 127,000) | - separate cost centre<br>- flat household fee<br>- PAYT | 1991 |
| St. Albert, Alberta (population 53,100) | - separate cost centre<br>- variable household fee<br>- PAYT | 1996 |
| City of Edmonton, Alberta (population 666,000) | - waste management department within the City<br>- flat household fee and property taxes<br>- PAYT | 1995 |
| **United States** | | |
| City of Seattle, Washington (population 563,000) | - part of a public utility<br>- flat household fee<br>- PAYT | 1997 |

# 3. Implementation of Financing Structure and Changes Over Time

## 3.1 Regional District of Nanaimo, British Columbia

Prior to 1991, householders within the Regional District of Nanaimo were required to contract individually with haulers or to self-haul waste to the local landfill. The Region did not provide waste or recycling collection services. Staff suspected that some residents burned or buried their garbage prior to the compulsory garbage collection service.

In 1991, the Regional District of Nanaimo decided to bring in compulsory garbage and recycling service for all single family households to ensure that garbage was properly disposed. The Region also wanted to design the service to be fully user pay and have a strong waste reduction incentive consistent with the provincial plan and direction. Today, all financing of curbside garbage and recycling collection services is paid through user fees.

From 1991 to 1996, urban residents received weekly garbage and bi-weekly recycling services and rural residents received bi-weekly garbage and recycling services. Although customers were generally satisfied with the program, the Region received many requests for alterations to the program including

- reduce costs;
- add more materials to the blue box;
- increase reduction incentives and
- be more flexible.

In response to these concerns, a program review led to a reduction in rates for 1996, changes to collection services, and the addition of five recyclable materials to the Blue Box program. The Region estimated that switching to bi-weekly garbage collection (weekly during the summer) with the bi-weekly recycling could reduce costs 25-40%. This option was not adopted.

In 1996, the Region of Nanaimo's waste management program provided weekly garbage and bi-weekly recycling service to urban residents for $76 per year and bi-weekly garbage and recycling collection service to rural residents for $65 per year. The basic subscription permitted residents to place one can per week of garbage at the curb for collection. Additional cans or bags require a $2 tag.

Today's program is very similar to program adjusted in 1996, with a few changes. Residents are permitted a maximum of two extra containers of garbage per week. Extra cans or bags require $2 garbage tags. In 2002, the RDN became the first jurisdiction on Vancouver Island to adopt Zero Waste as their long term waste reduction goal.

The flat fees charged to residents have increased over time. In 2007, urban residents receiving weekly garbage and bi-weekly recycling collection services were charged $108.00 per year and rural residents receiving bi-weekly garbage and recycling collection services were charged $117.50. Embedded in this price is the recycling service cost of $31.75 annually.

Since 1991, the Region has offered twice a year collection days for large items. Much of the material set out consisted of small renovator's waste and garbage which not legitimately part of large items waste stream. The Region was finding that only 2-5% of households were participating in the large item collection. The collection contractor was loosing money on the contract and demanded a 300% price increase. The RDN decided to cancel the program.

## 3.2 City of Victoria, British Columbia

Prior to the introduction of flat fees and PAYT, waste management costs in the City of Victoria were covered through property taxes. This situation changed in 1990 when the Capital Regional District realized that it had very little landfill capacity remaining at its Hartland landfill. In order to obtain public approval for a landfill expansion proposal, the CRD committed to an extensive program to divert waste. The CRD also had to assure the public that there would be no pressure to expand or relocate again for at least 25 years.

The Capital Regional District (CRD) first implemented its Blue Box curbside recycling program in March 1989 servicing the four core municipalities of Oak Bay, Saanich, Victoria and Esquimalt. The CRD used funds from tipping fees to pay for the Blue Box collection and processing services, and continues to do so today. When recycling was implemented, tipping fees increased significantly to pay for the recycling program. The tipping fee was raised from $10.50 per tonne in 1988 to $75 per tonne in 1993.

In January 1992, a flat fee system and partial user pay system was introduced in the City of Victoria in order to reduce waste requiring disposal. With the introduction of the PAYT program, the City of Victoria and the three other core municipalities experienced an 18% decrease in the volume of waste sent to landfill from 1991 to 1992. The original program permitted residents to place two cans of garbage at the curb without requiring extra tags. In 1996, the City reduced the number of “free” cans/bags to one.

In 1996, residents of the City of Victoria paid a flat annual fee of $147 per household for bi-weekly curbside recycling and weekly garbage collection services. This covered one bag per week and extra bags cost $3.00 each ($1.50 covers collection & disposal cost for the additional bag/container, the remaining $1.50 goes into general revenues). The City sold very few addition stickers, about 12,000 stickers per year (~1 sticker/hhld/year).

Today, the system remains virtually the same with a minimal increase in costs. Residents now pay $150 per household per year and tags now cost $3.50 each. The City of Victoria announced that it would raise its flat fee by $6/hhld in 2008 to $156/hhld/yr to defray additional costs associated with recently announced increases in tipping fees at the CRD’s Hartland landfill, increases in fuel costs and wages and the recently discovered revenue shortfall.

The City of Victoria remains one of the few cities in Canada that still collects garbage from back yards. Workers use a fiberglass buggy (200 litres) to collect the garbage from the back yard and take it to the curb where it is collected using an automated system. The City tried to eliminate the back yard collection service about 12 years ago, but faced such an uproar from residents that the idea was dropped. The change would have reduced the costs by $20/hhld/yr. Despite the resistance from residences, City staff recognize that they will need to change the collection approach to curbside collection only in order to accommodate organics collection, which is expected to be implemented over the next couple of years. Recyclables are only collected at the curb.

## 3.3 City of St. Albert, Alberta

Prior to the launch of the variable PAYT program, 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 environmental issues survey conducted among residents in 1992 revealed that 64% of respondents believed that a pay-as-you-throw (PAYT) 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. Additional concerns raised by residents included:

- decreasing landfill space;
- current tax based system inequitable - taxes were uniformly charged to each household regardless of the amount of waste generated per household;

- some residents contracted out waste disposal in addition to paying for it on the property tax bill;
- the need for increased waste diversion from landfill and
- the need to meet the Federal target of 50% diversion by the year 2000.

The City responded by putting the mechanisms in place to move towards a PAYT program.

In January 1994, residential waste disposal expenditures in the City of St. Albert were transferred from the tax base to the utility bill as a flat fee of $3.00 per month. Two years later, in 1996 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/month per household - this fee included the cost for recycling, waste collection, transportation and landfill and tipping fees.

In July 1996, the City of St. Albert introduced the country's first variable rate container system. Residents were given the option of subscribing to a bag/tag program or a variable rate container program. The launch of the program included development of information brochures, a telephone hotline, subscription collection, press releases, billboards, door hangers and other types of advertising (e.g., dance troupe).

The program cost $95,000 to implement, consisting of:

- design and administration, $15,000;
- inquiries, $7,500;
- processing of subscriptions, $7,500;
- hotline staffing, $7,000 and
- advertisement, consultation and start-up, $60,000.

The implementation cost per household was $6.80. Once established, the additional administration costs to operate the program were minimal. The program's billing system was able to piggy back on to the existing water billing system.

The program permitted residents to choose a variable container subscription system or a bag tag subscription system. In 1996, residents could choose from the following options:

- 1 can or 2 bags for about $4.50;
- 2 cans or 4 bags for about $9.00;
- 3 cans or 6 bags for about $13.50.

Initially the program used a simple system whereby residents that subscribed to a two bag or one can system required no tags. Residents that subscribed to a four or six bag service would receive 52 specially coloured stickers that denoted whether they were entitled to place four or six bags of garbage at the curb on a weekly basis (only one tag had to be attached to one of the bags each week). Residents subscribing to a 2 can or 3 can service were sent coloured labels that they attached to the can identifying the level of service to which they had subscribed.

Residents were entitled to change their container size once in a calendar year without penalty. Non-respondents automatically defaulted to the 2 can rate. Residents are given a two week grace period in the new year to use tags from the previous year. Residents receive an extra four tags per year for the additional waste that may be generated around the Christmas and Easter holiday seasons.

In addition, St. Albert introduced a Green Cart Program for curbside collection of yard waste from April to October. The bi-weekly service is provided at no charge. However, residents can choose to rent carts from the contractors and must arrange rentals directly with the waste contractor. The Green Cart program was introduced at the same time as the subscription system (1996).

A post-survey conducted in 1999 identified the following issues among community members:

- 63% thought the 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 and
- 12% thought the program was a “money grabber”.

The 1999 survey also pointed to the need for an enhanced communication program to help residents become more proactive in waste diversion and reduction and to celebrate successes. Previously, communication materials tended to focus on the rules of the PAYT system only. City staff responded with a revised system in May 2000. The key elements of the new program included:

- Introduction of a one bag subscription level;
- Oversized bags could be set out with two tags;
- Allowable bag size increased to 30” x 34”;
- Flexibility in weekly set out rate for “bag” subscribers and
- Revised communication strategy.

In 2000, a number of system changes were introduced including distributing individual tags for every bag of garbage three times a year. The new tag system was required to accommodate the new expanded level of service. The tags are hand delivered by meter readers and other hired employees (they are not distributed through the postal system). Recently, the distribution schedule was reduced to twice a year to reduce administrative costs.

In addition, in 2000, residents started to pay a monthly recycling and composting management fee to pay for the operation of recycling depots and composting depots.

The City has experienced frequent rate changes over time as shown in Table 3.1.

**Table 3.1: Rate Changes in St Albert, Alberta 1996 to 2008**

| Bag/Tag program | Variable Container | Monthly Rate ($ Cdn) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1996 | 1998 | 2000 | 2003 | 2006 | 2007 | 2008 |
| 1 bag set out every two weeks | Not applicable | Not available | Not available | Not available | Not available | $1.60 | $1.75 | $1.90 |
| 1 bag set out per week (52 tags) | Not applicable | Not available | Not available | $2.70 | $2.75 | $3.20 | $3.50 | $3.80 |
| 2 bags (104 tags) | 1 can or 32 gallon toter set out per week | $3.00 | $4.50 | $5.40 | $5.50 | $6.40 | $7.00 | $7.60 |
| 3 bags set out per week (156 tags) | Not applicable | Not available | Not available | Not available | Not available | $9.60 | $10.50 | $11.40 |
| 4 bags (208 tags) | 2 cans or 64 gallon toter set out per week | $6.00 | $9.00 | $10.80 | $11.00 | $12.80 | $14.00 | $15.20 |
| 6 bags (312 tags) | 3 cans or 96 gallon toter set out per week | $9.00 | $13.50 | $16.20 | $16.50 | $19.20 | $21.00 | $22.80 |
| Recycling & composting management fee | | | | $1.85 | $3.25 | $3.65 | $3.65 | $3.65 |
| Bag-tag program | | $1.50 | $1.50 | $1.50 per tag | $1.50 per tag | $1.60 per tag | $1.75 per tag | $1.90 per tag |

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.

## 3.4 City of Edmonton, Alberta

In 1994, City Council approved a 30-year Waste Management Strategic Plan after extensive public input and after years spent unsuccessfully trying to find a willing regional host (municipality) for a waste management facility. A cost accounting analysis was identified in the Waste Management Strategic Plan. The long-term waste management plan enabled the City to "better control cost increases, meet residents' needs and expectations, and implement an environmentally sustainable approach to waste management".

In July 1995, a flat utility fee was adopted to cover part of waste management costs. The City began to charge residents for waste management services through taxes and annual user fees of $60 per single family household and $39 per multi-family household. This reduced the amount required from the tax base from approximately 80% to 50%. The fees pay for processing and disposal programs such as composting and landfill. Taxes pay for collection of waste, recyclables and litter.

Over time, the flat fee has gradually replaced the tax base as the main financing source for waste management activities. Over the past decade, the portion of waste management costs covered by fees has increased when necessary to fund new processing and disposal programs such as recycling and composting identified in the strategic plan. At the same time there has been a move to eliminate the business subsidy which impacted residential rates in 2007. See Table 3.2 for details.

**Table 3.2: Financing of Edmonton Waste Management System, 1995 to 2007**

| | 1995 | 2000 | 2006 | 2007 |
|---|---|---|---|---|
| **Single Family** | | | | |
| **Flat Fee** | $60 (50%) | $96 (69%) | $159 (78%) | $182 (74%) |
| **Property Tax** | $60 (50%) | $50 (31%) | $45 (22%) | $65 (26%) |
| **Total** | $120 | $146 | $204 | $247 |

In 2005/2006, the City carried out a review and public consultation program which evaluated four funding options:

1. **Maintain the current system** — continue to pay for waste management service through flat fees and municipal taxes from residences and businesses.
2. **The current system but without funding from municipal taxes from businesses**. Currently, about $8 million of the total cost of waste services is funded by municipal taxes from businesses. This option would shift this $8 million to the residential property tax.
3. **Flat fees only**. A flat fee would be charged to every household. No municipal taxes would fund waste management services. The flat fee — one rate for single family households and a separate rate for multi-family households— would be charged through monthly utility bills (as is now done).
4. **Flat fees with tags**. A base level of service would be provided, such as 2 bags or cans of garbage and 2 bags of recyclables per household. Additional bags or cans would require special tags that would need to be purchased.

The Administration identified additional issues to consider and provided the following comments through the public consultation process:

- The City will consider subsidies for low income households for Option 3 and Option 4.
- Option 4 is expected to result in lower garbage volumes. However, there will be additional costs associated with reduced operational efficiencies, public education, administration of the tag program, litter clean-up and enforcement of Bylaws. These additional costs need to be factored in to the costs.
- Convenience: How easy is the option for residents to understand, use and comply with on an ongoing basis?
- Equity for business sector: Should the business sector, which receives limited waste services from the City, contribute to the funding of waste services through taxes?

The Administration provided annual estimated costs for each option for a typical single family residence and for a multi-family residence.

**Table 3.3: Options for Financing City of Edmonton Waste Management System Assessed Through Public Involvement Plan, 2006**

| | 1. Current system | 2. Current system, without funding from business taxes | 3. Flat fees | 4. Flat fees with tags |
|---|---|---|---|---|
| Single family Tax [1] | $47 | $79 | $0 | $0 |
| Single family Fees | $159 | $159 | $234 | $219 |
| Single family Tags (25 per year) | $0 | $0 | $0 | $38 |
| **Total Single Family Household[1]** | **$206** | **$238** | **$234** | **$257** |
| Multi-family Tax [2] | $ 17 | $28 | $0 | $0 |
| Multi-family Fees | $103 | $103 | $152 | $143 |
| Multi-family Tags[3] | $0 | $0 | $0 | $0 |
| **Total Multi-family Household[2]** | **$120** | **$131** | **$152** | **$143** |
| **Total Taxes from Businesses** | **$8.1 million** | **No** | **No** | **No** |

(1) Based on $188,500 assessment value
(2) Based on $55,000 assessment value
(3) Multi-Family properties will not be subject to the tag program

After the review in 2006 the Administration recommended that the current system of financing waste management services from taxes and monthly user fees not change since the majority of input received through the Public Involvement Plan did not support a change.

Despite the recommendation for status quo, City Council decided that a fully sustainable financing system needed to be revisited and in December 2007 at the City Council Budget meeting, the following motion was passed:

> "That Administration prepare a report for Transportation and Public Works Committee outlining the following:
>
> a. Steps required to form a waste management utility.
> b. Impacts that a waste management utility would have on the operating and capital budgets.
> c. Whether or not non-residential waste management would be included as part of the utility.
> d. Other issues that may require discussion, especially how the capital costs would be dealt with."[1]

In March 2008, City Council approved the formation of a solid waste management utility effective January 1, 2009. Under the utility, residents will pay for all waste services through the monthly utility fee and all monies collected from the property tax will be eliminated. The City Council did not approve a Pay-As-You-Throw program element to the new system.

[1] City of Edmonton Waste Management Utility Report. March 26, 2008. Report to Council

## 3.5 City of Vancouver, British Columbia

In the early 1990s Metro Vancouver completed its Solid Waste Management Plan which recommended that all municipalities adopt a zero base (total user fee) waste financing system by 2000. On May 3, 1994, Council agreed to support the Greater Vancouver Solid Waste Management Plan, which includes implementing user pay for solid waste programs.

On 7th October, 1997, the City of Vancouver's Council approved implementation of the Solid Waste Utility on 1st January, 1998. By establishing the utility, the City stipulated that full program costs would be recovered through fees. In fact, all 22 municipalities in the Greater Vancouver Regional District committed to establishing a "zero based" utility system by 2000. The purpose of this decision was to eliminate the use of municipal taxes to cover waste management costs and to adopt unit pricing to provide an economic incentive to reduce waste.

On 18th October, 2001 Council adopted a new pricing structure for City of Vancouver garbage collection service that included a base service fee per property set out location and a per can fee for each can of garbage service in use or allocated. On 29th January, 2004, Council approved implementation of fully automated garbage and yard trimmings collection beginning in October, 2005 with full implementation by June, 2006.

The reasons outlined for the variable subscription system were three fold:

- provide an economic incentive for residents to reduce, reuse, and recycle;
- eliminates subsidization from the general revenue and
- equity -- pay for what you generate -- residents are in control.

The City of Vancouver variable can subscription system is described in Discussion Papers #3 and #4.

## 3.6 City of Seattle, Washington

The City of Seattle has one of the oldest variable rate PAYT programs in North America which has been in operation since 1981. The City of Seattle's variable rate garbage program has evolved over time to meet the needs and demands of residents. When the variable garbage rates were introduced in 1981, households had the option of subscribing to the 32 gallon can or two or more 32 gallon cans. Garbage crews collected garbage from backyards.

In 1987, the City faced a landfill crisis when the last two municipally-owned landfills closed in 1983 and 1986. The City started to haul its garbage to an outside landfill resulting in an 82% increase in customer waste disposal rates. In 1989, Seattle adopted its new solid waste plan which mandated the City to work towards 60% waste reduction and diversion by 1998 and to establish a rate structure to promote recycling.

The City developed the Recycling Potential Assessment Model (RPA) which enabled it to forecast future waste generation, assess the potential for recycling the waste, identify options for managing the recycled waste and calculate cost estimates for various recycling and disposal options. The model relied on the financial and tonnage information which was considered the foundation of the model. Due to the nature of the utility, all waste management administration and operating costs had been separated out from other city operating costs using full cost accounting methods.

The RPA model indicated that the City should switch to curbside collection of waste and introduce a smaller can size to provide an added economic incentive to recycle. Consequently, in 1989, the program was changed from backyard pickup to curbside pickup and a 19 gallon can (Mini Can) was added to its PAYT program. In 1992, the 12 gallon Micro Can was introduced. Today, residents can choose from five

different cart sizes and have the option of subscribing to curbside collection or backyard collection (for larger carts). Subscription rates are shown in Table 3.4.

The RPA model showed that of all the recycling and disposal combinations evaluated, the scenario that resulted in 60% recycling with the remaining 40% disposed was the least costly of all the combinations.

Additional bags of garbage can be set out if they have a $5.60 tag (2007). Untagged bags are billed through the city automatic billing system which bills back to the customer directly.

Curbside recycling was introduced in the City of Seattle in 1988 and curbside yard waste collection began in 1989. The subscription rate system includes the cost of providing the recycling program; however, households must subscribe to curbside yard waste service. The City provides a biweekly subscription-based curbside yard waste collection. Prior to 2000, a flat rate applied to curbside collection of yard waste. In January 2000, a variable rate was introduced for curbside yard waste collection in order to promote grasscycling and backyard composting.

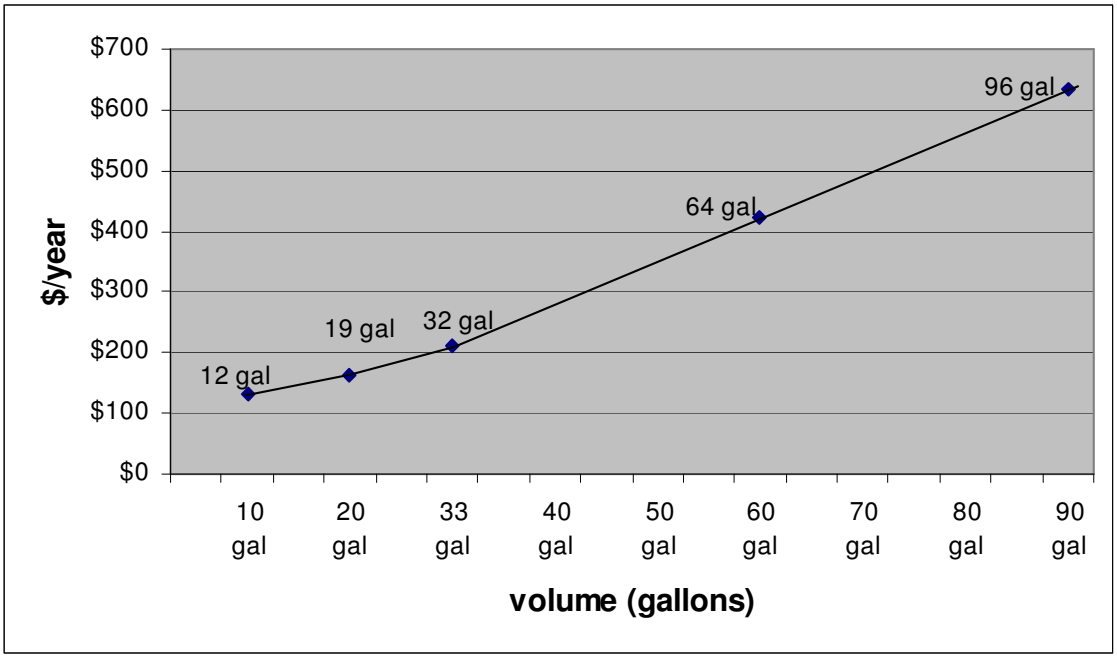
**Table 3.4: Curbside Subscription Rates - City of Seattle, 1994 to 2007**

| | 1994 | 1999 | 2006 | 2007 |
|---|---|---|---|---|
| **Service Level** | **Curbside Rates ($US monthly)** | **Curbside Rates ($US monthly)** | **Curbside Rates ($US monthly)** | **Curbside Rates ($US monthly)** |
| micro can 12 gallon | $10.05 | $10.05 | $10.20 | $10.35 |
| mini can 19 gallon | $12.35 | $12.35 | $12.55 | $12.70 |
| one 32 gallon can | $16.19 | $16.10 | $16.35 | $16.55 |
| two 32 gallon cans or 64 gallon cart | $32.20 | $32.20 | $32.70 | $33.10 |
| Three 32-gallon cans or 96 gallon cart | $48.30 | $48.30 | $49.05 | $49.65 |
| each additional 32 gallon can | $16.10 | $16.10 | $16.35 | $23.15 |
| Bag Tags | $5.00 | $5.00 | $5.00 | $5.60 |
| Yard Waste Four 32-gallon cans | $4.25 | $4.25 | $4.30 | $5.00 |
| Additional 32 gallon can yard waste | $1.50 | $1.50 | $1.50 | $1.50 |

Seattle has adopted a linear variable rate structure for garbage, whereby rates increase above the cost of service as the size of container (or level of service) increases; therefore, the rate for a second (or third) can is twice (three times) that of a single can by city policy, although the cost of picking up that second (third) can is less than this amount. This policy has been in place since the 1989 and has never been changed. Figure 3.1 shows the linear rate for 2007. Although the rates for the micro and mini cans are not linear, it is speculated by staff that they are subsidized, but it is unclear through communications with staff during the project research the extent to which they are subsidized.

These rates provide important price signals to customers to recycle, reduce waste and minimize their can size. This approach encourages customers to reduce their can size (or level of service) in order to reduce their subscription cost, which could be accomplished by diverting their waste through the City's recycling and composting programs. This also sent the message that garbage disposal has a high monetary and social cost.

**Figure 3.1: Seattle's Linear Rate Structure**




The City of Seattle has used the linear rate setting approach since the late 1980's. Prior to the change in policy, the City priced its garbage cans at the "cost of service", which resulted in about 38% of residents selecting 2 cans or greater garbage service and 62% selecting one can garbage service. With the introduction of the linear rate setting approach, residential customers quickly switched to smaller can service with 93% subscribing to a one can, mini-can or micro-can level of service by early 1992 and only 7% subscribing to the two can or greater level of service. Further discussion is provided in Section 4.3.

## 3.7 City of Stratford, Ontario

The City of Stratford, introduced full user pay in 1997 to all residents, charging $1.20 per bag at the curb but only $0.50 per bag at the landfill. The City 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).

City staff felt that the differential fee policy discouraged further waste reduction and diversion and worked to close the "loopholes". Efforts to eliminate the disparity have resulted in comparable user fees at the curb and at the local landfill. Since its fiscal year 2001, the City has gradually increased the price of the bag at the curb from $1.20 to its present $1.75. The landfill fee has also increased from $0.50 per bag to its present $1.65 per bag. The result has been a noticeable decrease in the number of self-hauls to the landfill. Figure 3.2 shows the change in residential self-haulers using Stratford's landfill and the corresponding changes in user fees at the landfill.

**Figure 3.2: Number of Self-Haulers Using Stratford's Landfill, 1997 to 2004**

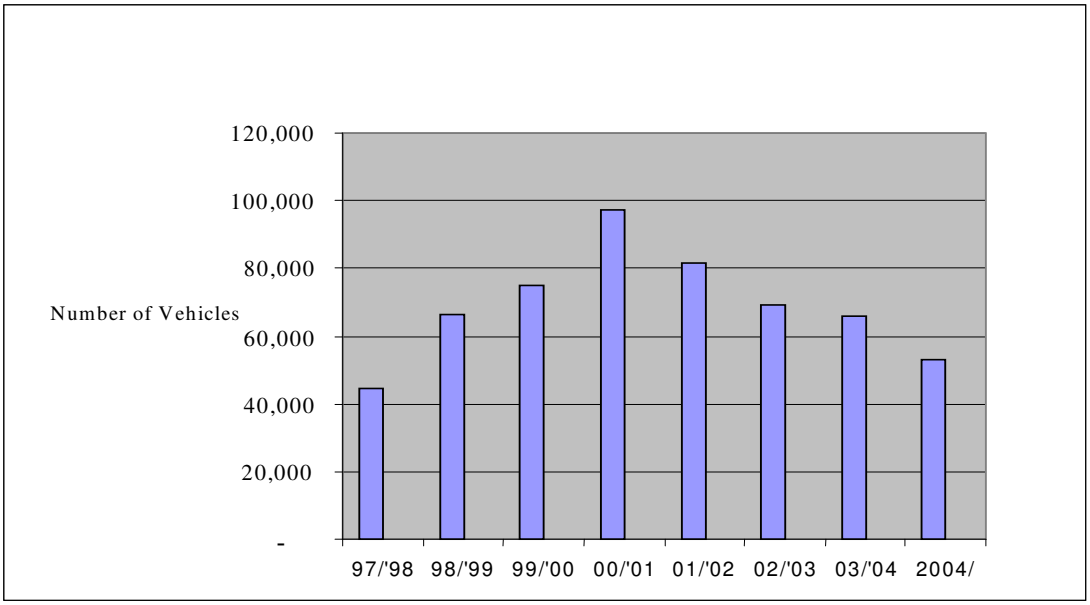



Table 3.6 shows how the number of self haul trips decreased over time as the fees were equalized.

**Table 3.6: Self Haul Trips to Stratford Landfill Compared to Differential Curbside and Self Haul Charges, 1997 to 2004**

| Fiscal Year | 97/'98 | 98/'99 | 99/'00 | 00/'01 | 01/'02 | 02/'03 | 03/'04 | 2004/ |
|---|---|---|---|---|---|---|---|---|
| Total vehicles | 44,774 | 66,299 | 74,791 | 97,165 | 81,730 | 69,476 | 66,165 | 53,012 |
| $/bag at landfill | $ 0.50 | $ 0.50 | $ 0.50 | $ 0.50 | $ 1.00 | $ 1.40 | $ 1.40 | $ 1.65 |
| $/bag at curb | $ 1.20 | $ 1.20 | $ 1.20 | $ 1.20 | $ 1.20 | $ 1.50 | $ 1.50 | $ 1.75 |

# 4. Overcoming Challenges and Lessons Learned

The following section shares the experiences gained by those communities featured in Section 3 as well as information obtained from various documents, such as the AMRC's User Pay Implementation Guide (2005), also funded by Stewardship Ontario.

## 4.1 Full Cost Accounting

### City of Seattle, Washington

The City first introduced the principles of full cost accounting in 1987 to analyze the costs and benefits of its waste management system and to evaluate different recycling scenarios. The City has used full cost accounting since this time to decide whether to expand existing programs or to add new programs to its waste management system.

Full cost accounting has played a major role in the design and use of the City's Recycling Potential Assessment Model (RPA) which enabled it to forecast future waste generation, assess the potential for recycling the waste, identify options for managing the recycled waste and develop cost estimates for various recycling and disposal options.

### City of Victoria, British Columbia

The City did not apply the principles of full cost accounting prior to implementing its flat fee and user pay programs. In 2006, city staff implemented full cost accounting to cost out all services separately in order to get true costs for each residential waste management service. When first applied, staff determined that the City had experienced $96,000 revenue shortfall (out of a $2 million budget). A subsequent review of the process has revealed that the shortfall is much lower than originally thought and, in fact, is only $14,000 (municipal-related waste collection costs – e.g. parks, municipal buildings, community centres - that were originally tied to residential waste management program costs have been reallocated). Staff report that this full cost accounting exercise has been very beneficial and will be adopted as part of the waste management department's accounting system.

### Regional District of Nanaimo, British Columbia

The full cost accounting method used by the region is very simple, not sophisticated. Staff look at what it costs to manage the material from the curbside program and compare the costs to the revenues received. The Region collects very accurate data in terms of revenue from materials. Since it must abide by a net zero budget policy, City staff set user fees to recover the cost and make sure each program pays for itself.

The costs and revenues associated with setting the residential flat fee are strictly associated with providing that service only. Costs associated with landfill remediation and closure, operation of transfer stations, capital and infrastructure costs are paid through the tipping fee and are kept separate from the residential program costs and fees. With an overall $2.8 million annual budget, just under $700,000 is collected through residential user fees.

The flat fees must cover those administrative functions associated with managing the residential program, which is formula based (about $130,000). The collection contract requires the contractor to cover P&E and inquiries. The Region will set a small amount aside for contingency measures but has no rule of thumb for determining the amount to set aside. In the past, the Region has used its contingency funds during the first year of a new contract, to "soften the blow" of new contract costs in the first year.

The RDN will be looking at changing the full cost accounting system as part of its continuous improvement program. Staff plan to investigate more sophisticated full cost accounting methods and assess the cost/benefits associated with implementing the system.

## 4.2 Pricing and Revenue Challenges

### City of Victoria, British Columbia

In the first year of the one can system, the City of Victoria charged a flat fee of $90, expecting to sell 150,000 stickers at $2.50 each and thereby generating $375,000 to cover additional costs. It soon discovered that most residents needed only one can per week for their waste and did not need to purchase additional stickers. The City sold less than 15,000 stickers resulting in a loss of anticipated revenue of over $300,000. The City used funds from general revenues to cover the loss. Since 1992, the city has incrementally increased the flat fee (from $90 to $132) in order to recoup the loss in revenue and close the gap.

### City of Vancouver, British Columbia

**Implementation Advice – Predicting the Subscription Rates To Different Cart Sizes**

Staff established preliminary prices that were presented to residents a year and a half in advance of program implementation. Staff were very sensitive to the relationship between pricing structure and cart selection. Providing the estimated pricing structure ahead of time provided the following benefits to the city:

- It reduced the risk of inaccurately predicting price and cart quantity while continuing to provide PAYT options. As the pricing structure switched from 100% fixed costs to 100% variable costs, city staff recognized the challenges in predicting the cart size selection and revenue. Therefore, the pricing plays an important role in size selection.
- In addition to reducing the risk of inaccurately predicting price, this structure also reduced the likelihood of having a significant inventory problem. The implementation team asked program users to select a cart size in early 2005, prior to the delivery of garbage carts beginning in July. Residents were able to make informed decisions based on knowledge of the amount of waste they typically generate and cart rates.

With the automated cart system fully implemented, the City commissioned a study to investigate different fee setting approaches used in other North American communities to drive further waste reduction and diversion. The study was completed in February, 2009.

City staff have determined that the cost of manually collecting additional bags of garbage rises significantly with an automated system as it requires the driver to get out of the truck. Staff expect that manual collection will more than triple the time taken to service a property. Therefore, for the sake of program efficiency, staff priced the stickers required for extra bags to reflect the higher costs of manual servicing. It was hoped that pricing the stickers to reflect the true cost of collection will encourage users to select the correct cart size for their needs, as opposed to selecting the cheapest cart and relying on stickers. Heavy use of stickers will increase service costs as well as increase the risk of injury to workers. In order to reflect these observations, the City raised the price of garbage stickers from $1.50 to $2.00. In 2006, the City experienced an 81% decline in the number of stickers sold compared with the previous year's sales (see Table 4.1).

**Table 4.1 : Change in Number of Garbage Stickers Sold in City of Vancouver, 2004-2007**

| | 2004 | 2005 | 2006 | 2007* |
|---|---|---|---|---|
| Cost of Stickers | $1.50 | $1.50 | $2.00 | $2.00 |
| $ Sticker Sales | $142,042 | $145,039 | $36,038 | $25,505 |
| # Stickers Sold | 94,695 | 96,693 | 18,019 | 12,753 |
| # change from previous year | | 2% | -81% | -29% |

*Note: The City of Vancouver experienced labour disruption from July 20 to October 14, 2007 resulting in the discontinuation of City collection of residential garbage, recycling and yard trimmings during this time.

## City of Seattle, Washington

The City considered pricing all cans to reflect the cost of service but this would require the first can to cost more than each additional can. Instead, the City chose to adopt a linear rate structure whereby rates increased above the cost of service as the size of container (or level of service) increased. This approach encouraged customers to reduce their can size (or level of service) in order to reduce their subscription cost, which could be accomplished by diverting their waste through the City's recycling and composting programs. This also sent the message that garbage disposal has a high monetary and social cost.

The approach has been very successful in driving customers towards reduced subscription services. In fact, when the City adopted the linear pricing rate structure, it did not anticipate the dramatic shift from a two can subscription to a one can subscription service, resulting in a revenue shortfall in 1990. To minimize these risks, the City monitors its finances every quarter and if it is not recovering enough revenue to cover expenses, it chooses between making cutbacks or increasing subscription rates.

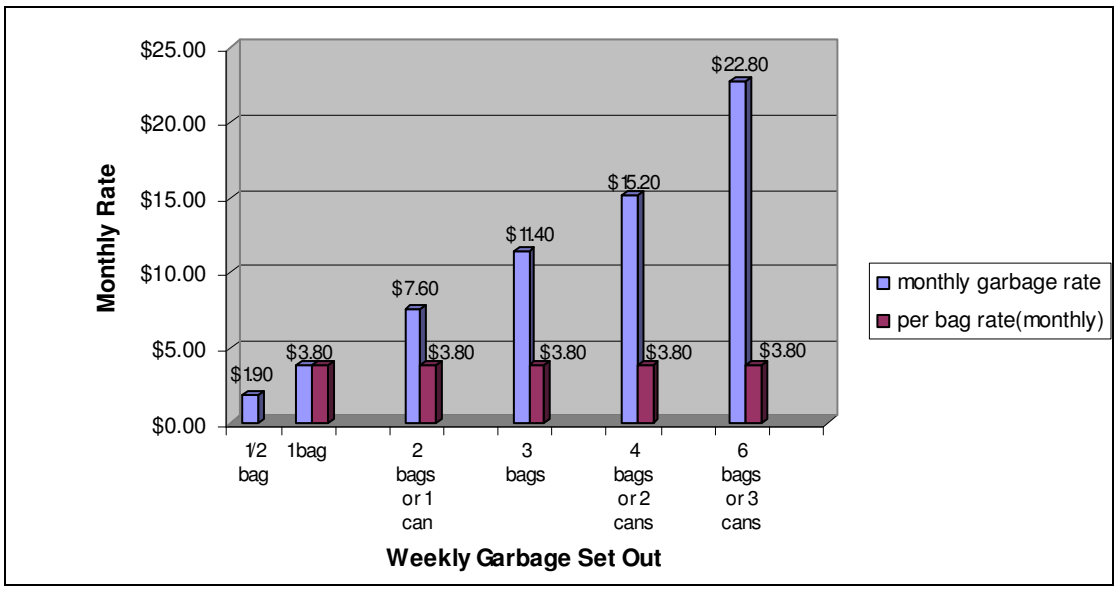
## City of St. Albert, Alberta

The City experienced 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 at $3.00/month. The fees were not adequate at this subscription level to support the City's waste management operating costs therefore St. Albert had to adjust subscription levels to ensure that revenue was adequate to offset all operating costs.

There were few requests for additional tags with the average resident purchasing one tag in the first six months of the PAYT program implementation and only 1.5 tags per year thereafter. Those residents purchasing the tags were buying them in groups of 4 or 5 at a time which meant that about two-thirds of the population did not purchase any extra tags at any time during the year.

The City of St. Albert has adopted a linear fee setting approach. The cost of the service level increases in a linear fashion (e.g. the cost of a 2 bag subscription system is double the cost of a 1 bag subscription level, and the cost of a 4 bag subscription level is double the cost of a 2 bag subscription level). St. Albert has consistently set the price of each bag at the same rate regardless of the subscription level; therefore a resident pays the same price per bag for collection if subscribing to a 1 bag subscription level or a 6 bag subscription level (see Figure 4.1).

**Figure 4.1: St. Albert's Monthly Subscription Rate – 2008**



## 4.3 Service Requirements

### Regional District of Nanaimo, British Columbia

Over time, residents have requested smaller containers at reduced rates; however, the difference in cost has turned out to be nominal for the Region to provide alternative service.

### City of St. Albert, Alberta

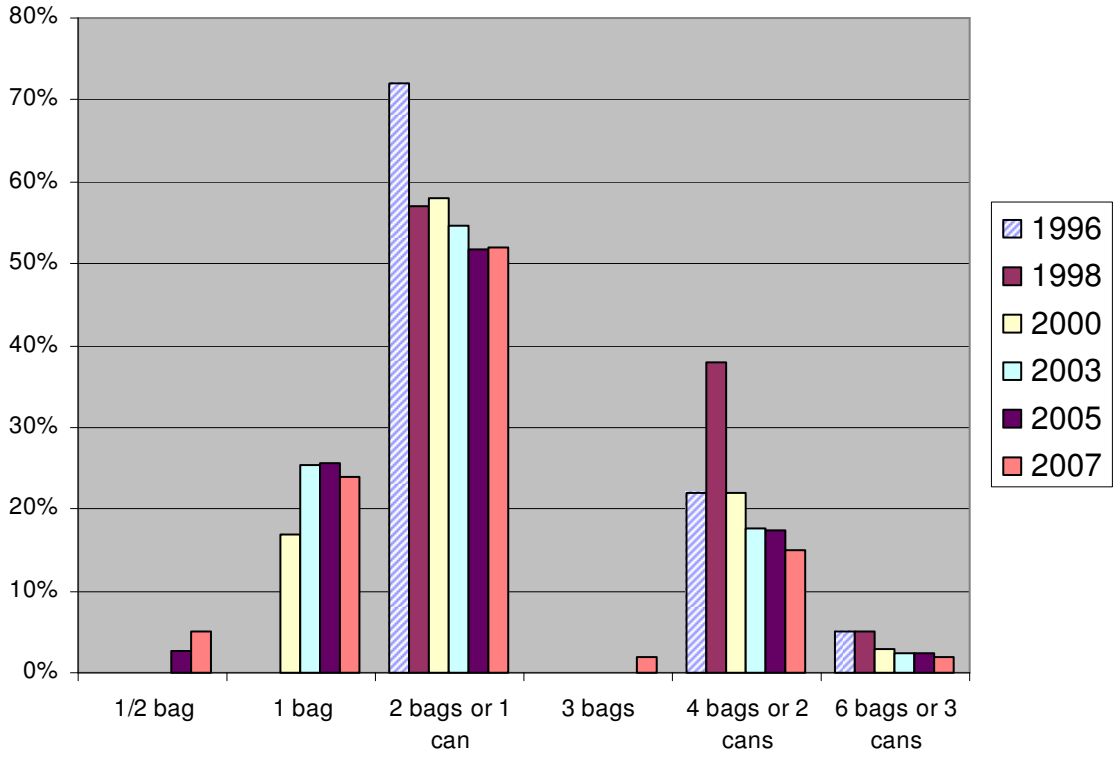
St. Albert's PAYT program has become an administratively cumbersome because of the large number of subscription options available. With all the different options available to customers, staff have complained that half of the time spent signing up a customer to the service involves describing the different options. Furthermore, the variety of options has meant that the City has needed to revise its once simple administrative and tracking system to a much more complicated system which requires hand delivery of individual stickers to customers twice a year, in order to accommodate new accounts and prevent illegal use of unused tags (customers moving and passing along unused tags to their neighbours).

Although the City has offered more service levels over time, the increased service levels have resulted in nominal behaviour change, and no measurable waste reduction. The demand for a smaller service level has increased somewhat, and demand for the largest service level has decreased to only 2% of total households. Demand for a smaller subscription services has shifted only slightly away from a larger subscription services as shown in Table 4.2 and Figure 4.2. Demand is low for the extra service levels introduced over time (e.g. only 2% of households subscribe to the 3-bag service level).

**Table 4.2: Percentage Demand for Pay as you Throw Service Levels (1996-2007)**

| | 1996 | 1998 | 2000 | 2003 | 2005 | 2007 |
|---|---|---|---|---|---|---|
| 1 bag set out every two weeks | | | | | 3% | 5% |
| 1 bag set out every week | | | 17% | 25% | 26% | 24% |
| 2 bags or 1 can | 73% | 57% | 58% | 55% | 52% | 52% |
| 3 bags | | | | | | 2% |
| 4 bags or 2 cans | 22% | 38% | 22% | 18% | 17% | 15% |
| 6 bags or 3 cans | 5% | 5% | 3% | 2% | 2% | 2% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% |

**Figure 4.2: Demand for Different Service Levels in St Albert, Alberta. 1996 to 2007**



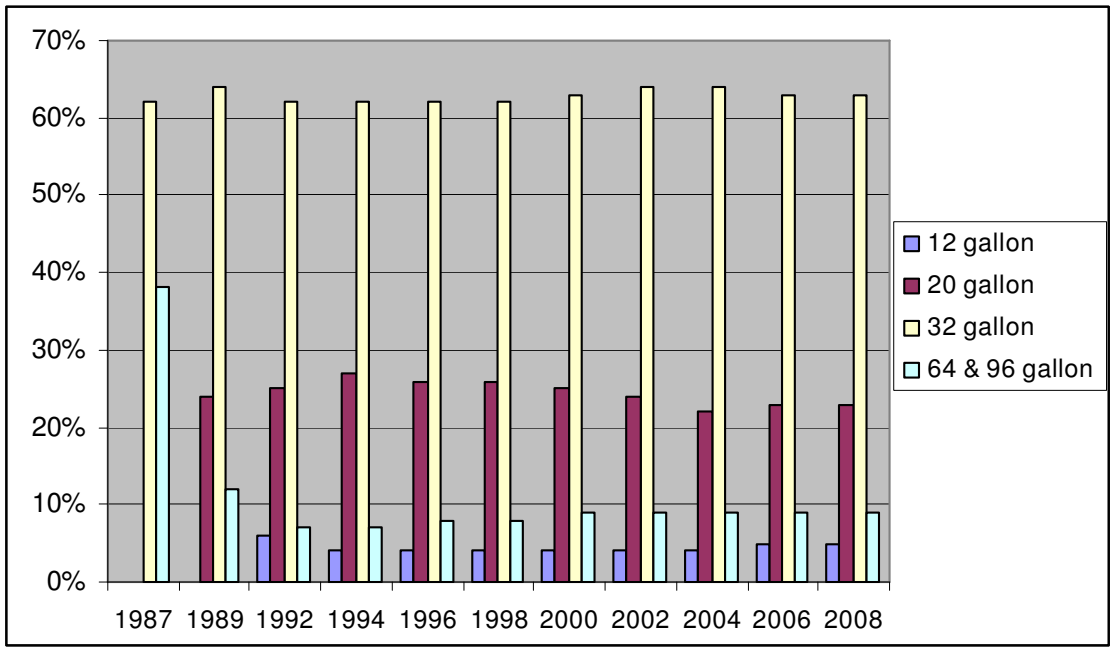

## City of Seattle, Washington

With the introduction of the linear rate setting approach, residential customers quickly switched to smaller can service with 93% subscribing to a one can, mini-can or micro-can level of service by early 1992 and only 7% subscribing to the two can or greater level of service. With each new sized cart added to the program, more residents switched to smaller container sizes. Subscription levels have remained fairly stable since 1992 as shown in Table 4.3 and Figure 4.3.

**Table 4.3: Garbage Subscription Service Demand in Seattle**

| | | 12 gallon | 20 gallon | 32 gallon | 64&95 gallon |
|---|---|---|---|---|---|
| **Cost-of-Service** | 1987 | | | 62% | 38% |
| **Linear** | 1989 | | 24% | 64% | 12% |
| | 1992 | 6% | 25% | 62% | 7% |
| | 1994 | 4% | 27% | 62% | 7% |
| | 1996 | 4% | 26% | 62% | 8% |
| | 1998 | 4% | 26% | 62% | 8% |
| | 2000 | 4% | 25% | 63% | 9% |
| | 2002 | 4% | 24% | 64% | 9% |
| | 2004 | 4% | 22% | 64% | 9% |
| | 2006 | 5% | 23% | 63% | 9% |
| | 2008 | 5% | 23% | 63% | 9% |

**Figure 4.3: Subscription Service Demand in Seattle**




## 4.4 The Challenges of Introducing System Changes

### City of Edmonton, Alberta

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.

In 2005/2006, the City looked at several alternative funding options including increased flat fees and user pay and eliminating business subsidies. Based on public feedback, the alternative funding options were rejected. Some of the key comments from the public included:

- People and families on fixed or reduced incomes can not bear any tax increase or artificial tax increase by way of fees to replace $8 million from business;
- Businesses contribute directly to all residential garbage in many ways, thus they have a responsibility also (3 comments);
- If there is too much garbage - perhaps the place to start addressing the problem is with manufacturer and product packaging - as well as product packaging at markets (meats) at meat counters in particular;
- But what about packaging? Business should share responsibility (2 comments);
- The bulk of the garbage generated at my residence comes from products I buy at businesses. Our present council should look closer at satisfying the residents who elected them rather than satisfying a few of their corporate friends. Any system other than the current will greatly increase the cost of administration.

Responses specific to user pay included the following:

- Tags would result in additional costs, administering the selling and lost tags. Other people's bags would show up on my lawn;
- Tag-a-bag would be terrible. There would be dumping of excess garbage (4 comments);
- Not unless the police are bored. Make sure the neighbours do not fix what is not broken. Figure out a way to make fuel out of garbage;
- Tag a bag has a number of limitations or reasons not to choose it - Increased administrative costs to manage waste services - potential for many neighbourhood disputes and no mention has been made of how untagged bags left at another person's residence would be solved, and
- If a charge for each bag is implemented the city streets, yards and parks will become a garbage dump.

### City of Vancouver, British Columbia

City staff took the necessary time up front to properly test and gain feedback on the concept of an automated variable rate container program. Pilot programs were conducted for garbage collection and yard waste collection using carts. For example, from October 2002 to January 2003, City staff conducted an automated collection yard waste pilot program in several neighbourhoods. Approximately 2,600 houses were provided with one 360 litre cart for the trial period and asked to set out their yard trimmings using the cart on their regular collection days. The City collected yard trimmings carts for the four month trial period testing semi-automated and fully automated equipment from several different manufacturers.

At the end of the trial, a survey was mailed to residents to provide feedback. Some of the key findings from the residents that responded to the survey:

- 76% prefer to use carts and have automated collection of yard trimmings
- 16% had a few difficulties finding a place to store or set out the cart
- 58% were willing to pay more for automated yard trimmings collection
- 43% were willing to pay more for automated garbage collection

The City conducted a series of focus groups to gain further insights from participants of the automated collection program. One of the focus groups involved randomly selected pilot program participants and the other focus group involved randomly selected Vancouver households who did not participate in the pilot program.

Participants were shown a variety of materials regarding automated solid waste collection including a description of the proposed automated collection program and video clips of automated collection. Both groups were shown four different sized carts and were also shown the same "conceptual" pricing for automated service and the current pricing for the average garbage container and yard trimming service.

The focus group findings were as follows:

- There appears to be a more positive than negative reception to the notion of a $10 average fee increase for automated garbage and yard trimming pickup.
- Communication needs to address a fundamental misunderstanding: Residents do not have to pay for the new carts themselves. (Some do wonder about the logistics of the order and delivery process however.)
- Residents easily understood part of the strategy: worker injury reduction is a valid rationale.
- The technology itself leads to some resident concerns that there may be layoffs. This perception will need to be mitigated.
- If however, the strategy is to promote and encourage garbage reduction then the current "Conceptual Pricing Model" has potential to be abused and perhaps, undermine the laudable efforts already undertaken by the city.

- City Council will likely need to weigh the potential unintended consequences of the Conceptual Pricing strategy with the strategic considerations for the service in the first place.
- While an "average" fee increase appears palpable it disguises the many options and potentially harmful behaviour that a regressive price model may promote. An alternative pricing strategy or variant may need to be considered.
- Finally, the focus groups purpose was to uncover the range of reactions. If council needs definitive answers to the actual price mix then a formal price sensitivity study with a randomly selected, statistically valid sample should be undertaken

City staff used the focus group findings to design the program and communication campaign to address the concerns identified.

## 4.5 Illegal Dumping

### City of St. Albert, Alberta

Although there were 3-4 incidents of illegal dumping reported by the commercial sector, overall it was not an issue. Commercial businesses that experienced such problems were instructed to put locks on dumpsters; this seemed to be sufficient to deter subsequent illegal dumping.

### City of Orillia, Ontario

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.

### City of Seattle, Washington

Seattle experienced increases in illegal dumping when rates were increased significantly in 1989. The city passed an illegal dumping ordinance and maintains monitoring and enforcement staff.

### City of Stratford, Ontario

Staff have experienced few illegal dumping cases, less than 15 per year. Since 1997, approximately 60 residents have been charged the cost to collect the untagged bags and sort through them.

### City of Belleville, Ontario

Belleville experienced forty incidences of illegal dumping in the first year of its PAYT program. The City effectively minimized illegal dumping by issuing fines. If the owner of the bag is identified, there is a charge of $40 per bag.

## 4.7 Mixed Use Buildings and Rental Properties

### City of St. Albert, Alberta

**Mixed use buildings** – All mixed use buildings must arrange their own pick up for garbage and recycling. Any building that has multiple users on a single water meter must use private collection services.

**Rental properties** – The city lets the tenant and the landlord work out the payment system. It is often left to the tenant to choose the subscription level. In cases where the City has had problems with tenants then staff will refuse to have them on the bill and will direct the bills to the owner. Since the garbage subscription service is on the same bill as the water, the City has very few problems getting tenants to subscribe for the service. The city will leave two notices with the new tenant and if they don't apply for service then the city will shut off the water service. When the tenant calls to have the water turned on, then staff get them to sign up for garbage collection at the same time.

Since the City of St. Albert is not a college or university town, it does not have to deal with problems associated with a transient student population.

### City of Barrie, Ontario

**Rental properties** – Barrie experienced a problem of tracking 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.

### City of Sudbury, Ontario

**Mixed Use Buildings** – Multi-family buildings with commercial businesses in the building (must be zoned part residential part commercial beyond a one to one ratio) do not fall under high density residential and are required to use the private sector for garbage collection services.

## 4.7 Advice on Making Financing System Changes

### City of St. Albert, Alberta

- Provide a leniency period for the first two months of program. All refuse was collected but a door hanger "notice" was left behind;
- Set rates based on the lowest anticipated average, so that if subscription levels are lower than anticipated, the necessary revenues will be collected;
- Review subscription responses of other communities before determining how the residents in your community will respond to a new subscription service and
- Keep the system simple – keep to the basics (e.g. some City staff would like to see the program changed to allow one bag per week then buy tags at local retailers).

### City of Seattle, Washington

- The PAYT program did not increase collection operations; in fact, as can sizes decreased, route productivity increased (stop times were reduced);
- The City has augmented its subscription program combined with a mandatory recycling by-law and fine program (see Discussion Paper #5 regarding the multi-family program) has significantly increased recycling rates;
- 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, and
- 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.

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- 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.
- A significant increase in the amount of residential waste taken to the landfill, where tags were less than half the price of a curbside tag to dispose. The problem was resolved through re-pricing landfill and curbside tags to similar rates over a 4-year transition period.

## 4.8. Lessons Learned That Are Applicable to Ontario Municipalities

A number of lessons can be gleaned from the information provided above:

- Many of the communities experienced major waste management system changes that required or initiated the redesign of their waste management financing structure leading to adoption of flat fees and PAYT programs.
- Often the flat fees were introduced at the same time as a PAYT program with the intention of reducing the amount of waste going to landfill and increasing diversion rates.
- Most of the communities are required to achieve net zero waste management budgets which requires the application of full cost accounting methods in order to better understand true operational costs and revenues associated with providing waste management services.
- Most communities operate their waste management departments or entities as separate cost centres from other city departments or programs.
- Most communities have implemented uncomplicated PAYT programs and have made nominal changes to these programs over time.
- Most communities have removed all waste management costs from property taxes or are in the process of doing so.
- As the full PAYT programs mature, there is pressure to offer smaller containers or reduced service at reduced rates.
- Most highlighted communities have had problems estimating the sales of tags in the first year of a PAYT program, often resulting in revenue shortfalls.
- Multi-use buildings tend to be considered commercial properties and are required to seek garbage collection services from private service providers.