

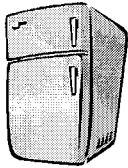


Impacts on Leaf and Yard Waste

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:

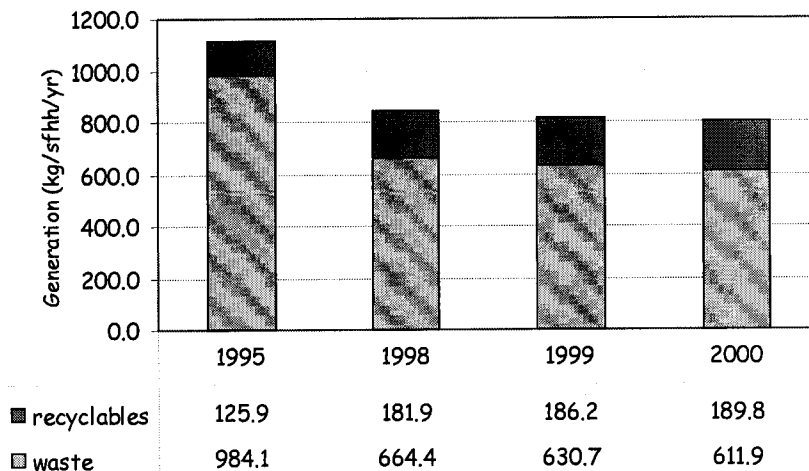
Population: 51,716 (2,000)

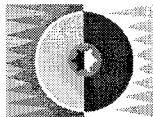
Households served: 15,388 (2000)

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	-32%	+45%	Data unavailable	+21%
		1999	-36%	+48%		+23%
		2000	-38%	+51%		+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.



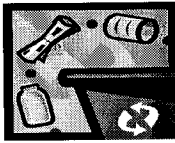
Impacts on Waste to Landfill

Year	SFHs	Tonnes	% Change from base year (1995) in kg/sfhh
1995	13,100	12,892	
1996	Data unavailable		
1997	Data unavailable		
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

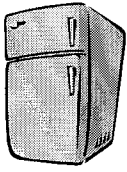
Year	SFHs (subscribers)	Tonnes	% Change from base year (1995) in kg/SFH
1995 (base year)	13,100	1649	
1996	Data unavailable		
1997			
1998	14,507	2639	+45%
1999	14,947	2783	+48%
2000	15,388	2920	+51%

- 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 Manger 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.

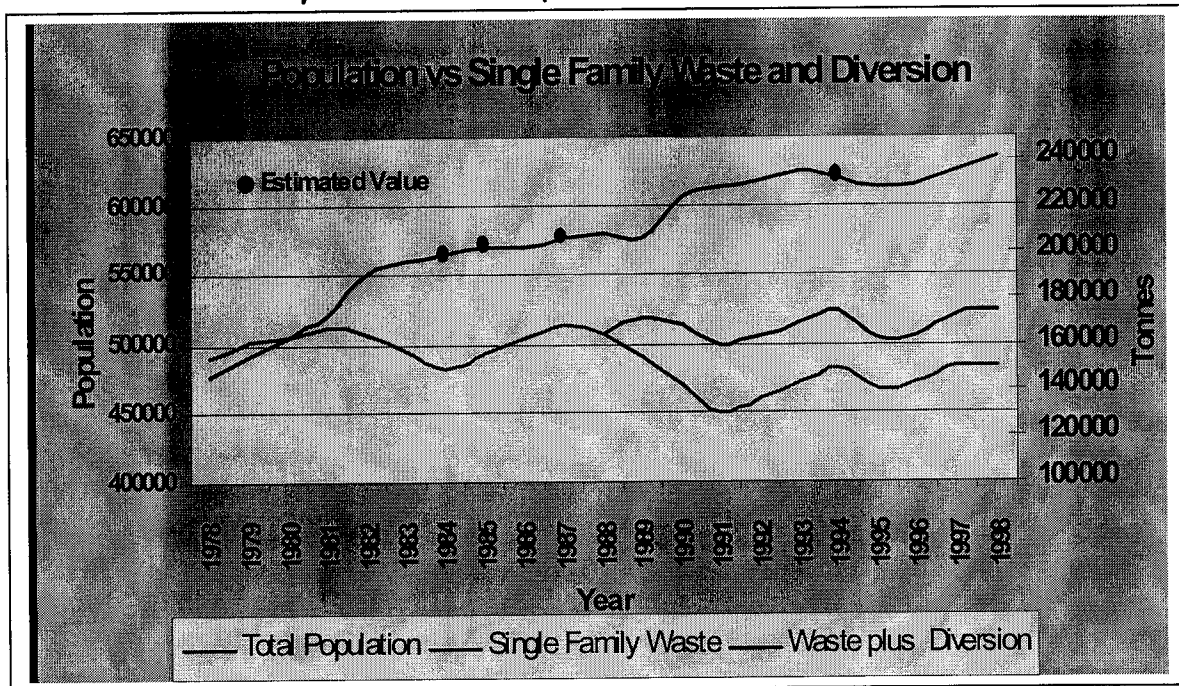
Demographics:

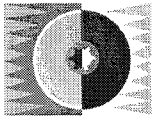
Population: 650,000

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:

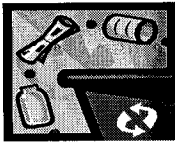
- In July 1995, a flat utility fee was adopted to cover part of waste costs. In 2000, waste management expenditures were covered 57% by the utility fee, 36 % by the tax base and 7% by tipping fees and the sale of recyclables. The average cost per single family household (SFH) was \$138 in 2000.
- Property 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:

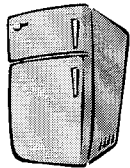
Year	Population	Tonnes	Kg/capita	% Change from base year (1994) in kg/capita
1994 (base year)	620,693	25,177	41	
1995	614,871	20,794	34	-17%
1996	616,369	20,120	33	-20%
1997	625,454	22,353	36	-12%
1998	636,000	24,270	38	-6%

- 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:

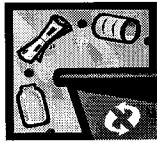
- In January 1992, a partial user pay system was introduced in the Capital Regional District (CRD)'s four core municipalities: Oak Bay, Esquimalt, Victoria and Saanich.
- Households can set out one can (maximum 100 litres) per week, and stickers for extra cans or bags can be purchased for between \$1.50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

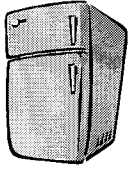
- Recyclables are collected biweekly.
- The municipality currently collects curbside: ONP, OCC, mixed paper, glass, tin and plastic #1.
- The Blue Box program was introduced in 1989 and the following materials were collected: newspapers, glass and tin. Mixed paper was added to curbside collection in 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 been 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*.

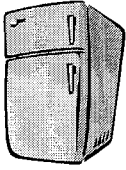


Impacts on Leaf and Yard Waste

- 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.

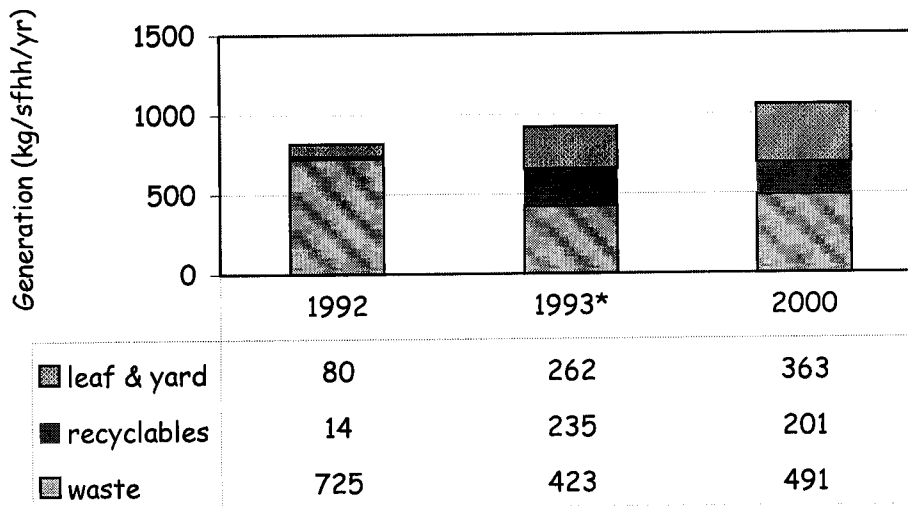
Demographics:

Population: 169,759

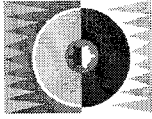
Households: 51,914

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:

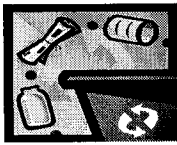
- Metered bag program introduced in November 1993. Residents can choose from two sizes of bags that may be purchased at grocery stores and mini-marts. Bags are sold in packages of five: Each 30 gallon bag is \$0.50 and each 15 gallon bag is \$0.25. There is no bag limit.
- The maximum weight per 30 gallon 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%

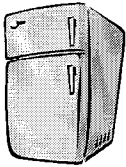
- Curbside collection for leaves is provided in fall through a street sweeping collection program.
- There are 3 drop-off locations that operate 3 days a week from April to November at no charge.
- There are material bans at landfill. Disposing of leaf and yard materials in the waste stream is prohibited 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:

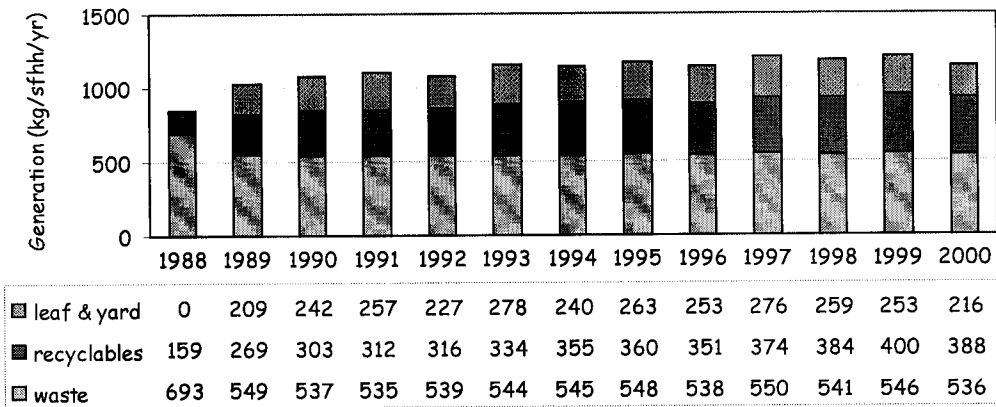
Population: 534,700 (1996)

- 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.



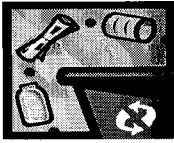
Impacts on Waste to Landfill

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.

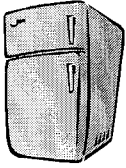


Impacts on Leaf and Yard Waste

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)

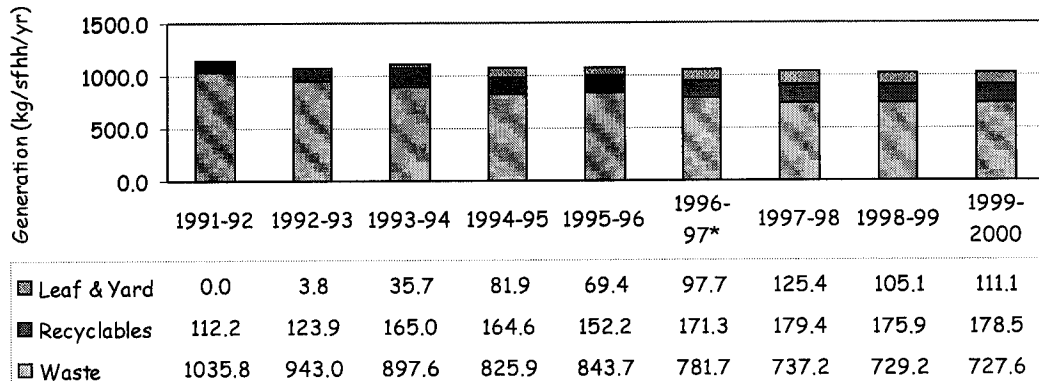
- Households served in 99-2000 - 136,200

City of Austin, Waste Diversion at a Glance

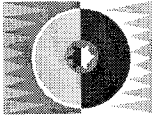
System	Date Started	Years with Data	% change in waste landfilled (kg/sfhh/yr)	% change in recycling rate (kg/sfhh/yr)	% change in leaf & yard collection (kg/sfhh/yr)	% diversion (without BYC)
Compared with baseline year 91-92						
Variable Container Service	Phased in 1992 - 1995, with variable rate 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 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

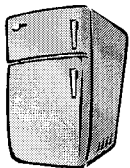


Impacts on Leaf and Yard Waste

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.

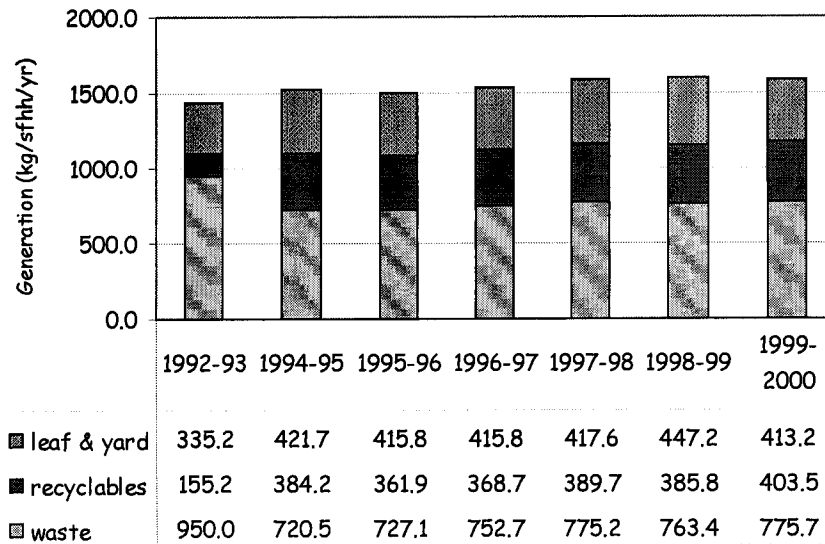
Demographics

Population: 850,000 (1999)

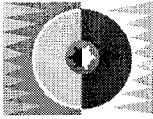
System	Date Started	Years with Data	% change in waste landfilled (kg/sfhh/yr)	% change in recycling (kg/sfhh/yr)	% change in leaf & yard waste collection (kg/sfhh/yr)	% Diversion (without BYC)
			Base year 1992-93			
Volume based variable rate	July 1993	1992-93				+34%
		1994-95	-24%	+148%	+26%	+53%
		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 mfd's 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.



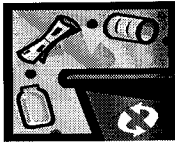
Impacts on Waste to Landfill

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.

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- 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 Joes 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.



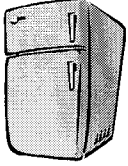
Impacts on Leaf and Yard Waste

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.

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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:

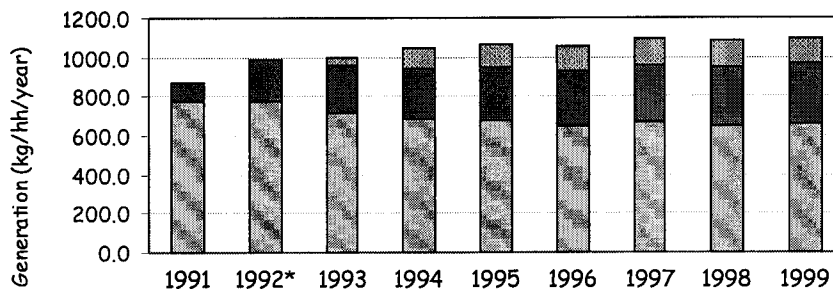
Population: 505,000
Households: 187,268 (2000)

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.

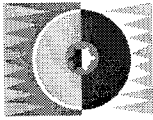
Portland, Oregon - Impacts of User Pay



■ leaf & yard	46.4	104.5	121.4	126.8	139.5	137.7	132.7		
■ recyclables	102.7	219.5	236.8	254.5	271.8	272.3	285.5	301.4	305.5
■ waste	771.4	771.4	718.2	685.9	673.6	652.3	670.9	647.3	657.7

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

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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).

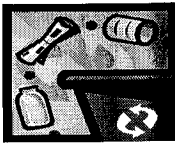
¹ Rates also exist for multiple can/rollout service, containerized service, recycling or yard waste collection only, on-call collection and clean up containers. Charges are also applied for non-curb pickup and distances beyond 75 feet of the curb.



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 Data provided as lb. waste per unit served	0.771	0%
1993		0.718	-7%
1994		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 Data provided as lb. recyclables per unit served	0.103	
1992		0.220	114%
1993		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.

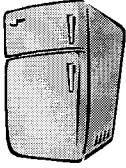
- Since the introduction of PAYT, the City has expanded its recycling program on an annual basis: scrap paper (i.e. junk mail, OBB, kraft paper) added in 1993, Milk cartons aseptic containers, and aerosol cans added in 1994 and plastic bottles and phone books added in 1995.
- Since 1996, Portland businesses 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	Data provided as lb. Leaf and yard waste per unit served	0.104	+125%
1995		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

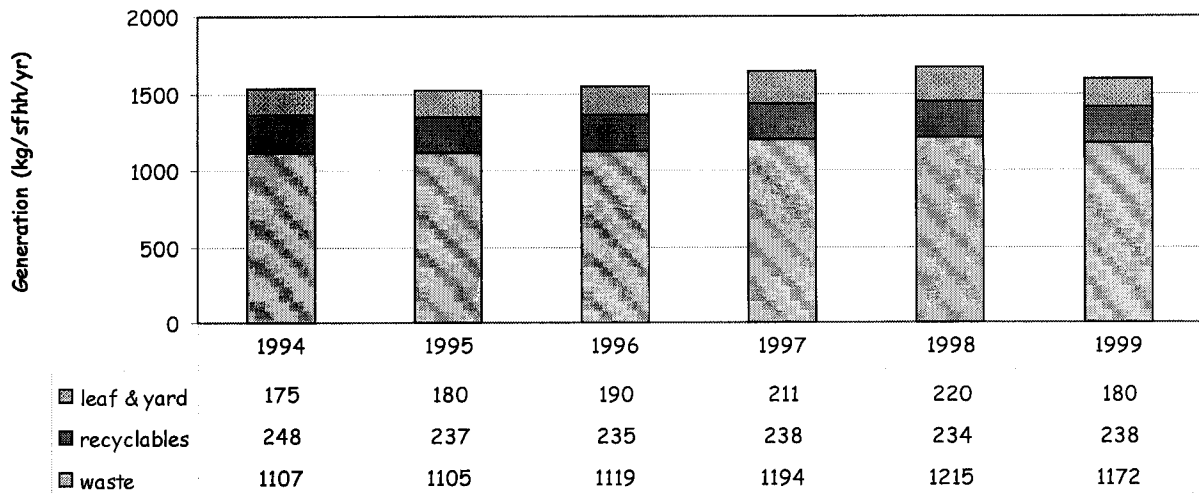
Relevance to Toronto: Large urban example of a flat fee with a volume based variable rate system.

Demographics:

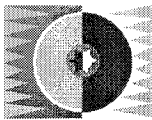
Population: 358,785 (1996)

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

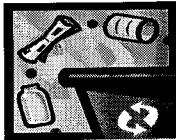
- Minneapolis introduced the variable rate fee in January 1995. Residents choose between a 94 gallon cart at \$4/month or a 20 gallon cart at \$2/month. Prices have not changed since program implementation.
- Residents may place up to two extra bags of garbage curbside each week; however, households 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

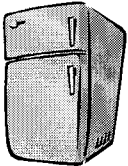
¹ City of Minneapolis, Public Works. 2000. Historical Highlights. <http://www.ci.minneapolis.mn.us/citywork/public-works/solid-waste/history.html>. Accessed 2001 February 28.

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

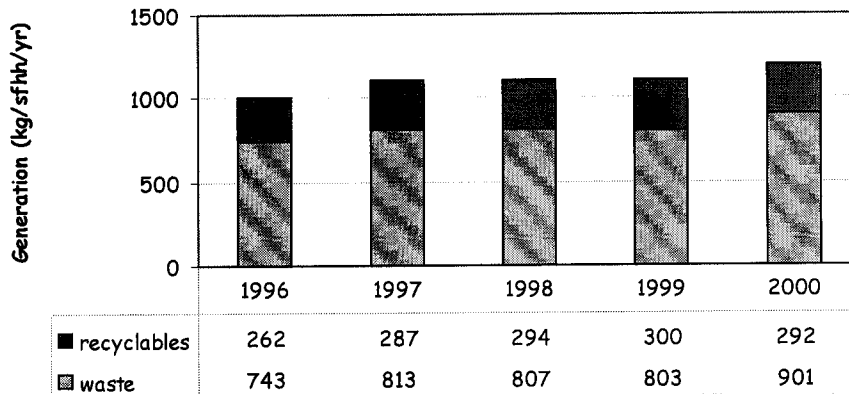
SHF: 36,500 (SFD to fourplex)

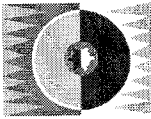
City of Aurora, Waste Diversion at a Glance

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				+26%
		1997	+9%	+10%	Data unavailable	+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

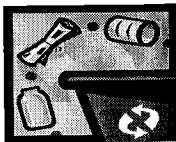
Year*	SFHs	Tonnes	% Change from base year (1996) in kg/sfhh
1996	32080	23829	
1997	32934	26759	9%
1998	34217	27624	9%
1999	35500	28497	8%
2000	36500	32878	21%

*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

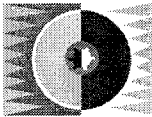
Relevance to Toronto: Unusual situation of city crews in direct competition with private sector haulers.

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.

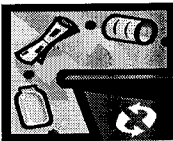


Impacts on Waste to Landfill

- 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.



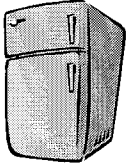
Leaf and Yard Waste

- 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

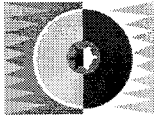
- Large appliance stickers can be purchased for \$10 each.
- Bulky waste stickers cost \$5 each.
- Bulky wastes are collected curbside on the same day as regular refuse collection.
- Stickers are sold at fire stations, City Treasurer's Office, supermarkets and neighbourhood stores.

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 (serviced 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.)

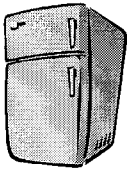
⁴ City of Los Angeles. Fees for extra capacity collection of trash and yard trimmings. www.lacity.org/san/sanfees.htm. Accessed 2001 February 21.

- 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 or 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.