

The City of Milford Connecticut A SMART Waste Management Plan



**Issued by
Green Waste Solutions
For the Connecticut Department of Environmental Protection**

**The Milford Connecticut
Feasibility and Implementation Strategies for Unit Based Pricing**

City of Milford SMART' Unit Based Pricing Project

1. Introduction

1.1 Summary of Project

A SMART (Save Money and Reduce Trash) residential waste reduction program means incentivizing residents to reduce and recycle by charging per unit for trash disposal. A community is SMART, if the residents can answer 'YES' to the question - Do residents save money the more trash they recycle? Currently the City of Milford residents are not able to save money by recycling more. The SMART strategy empowers residents to take control of the amount they spend on trash. Generally speaking SMART communities treat waste like a utility. Approximately 7,000 cities and towns in the U.S, along with many more worldwide, have implemented basic economic principles to address solid waste. When citizens have to pay by the unit they become more aware of the waste being produced, which triggers a long term sustainable behavioral change. SMART communities create a proportional unit based pricing structure that includes all costs associated with waste and recycling. For waste residents pay as they go, while unlimited recycling is available to all households with no additional cost.

It is the objective of a SMART waste management program to create a successful, sustainable, user-friendly, cost effective residential recycling program while working within the current collection infrastructure. We define **successful** as a "significant measurable increase in recycling", **sustainable** as a "recycling rate that continues on its own without a great deal of re-education effort", **user-friendly** as "easy to understand and participate", and **cost effective** in that "overall costs are less than alternative recycling programs".

The mission of this study is to:

1. Determine the feasibility of implementing a SMART Unit Based Pricing (UBP) solid waste management program. Compare a SMART UBP program with the current voluntary Town recycling program, as well as with a mandatory curbside Town managed recycling program.
2. Determine a cost effective approach (or series of approaches) which best provide sustainable waste reduction, increased recycling volume, and significant cost reductions.
3. Provide the Town with options for implementing UBP that work within the existing collection framework and MSW infrastructure in order to limit expenditures and changes.
4. Provide rate structure design options that create a steady revenue stream to fund all or part of the solid waste and recycling collection costs

Key characteristics of a SMART waste management strategy:

Environment—a significant positive environmental impact occurs as a direct result of waste reduction, increased recycling and composting, and reusing or repairing items when possible. UBP helps decrease the cities' Carbon Footprint by reducing overall Green House Gas emissions between 3 and 5%. As recycled materials are manufactured into new products, environmental degradation caused by extracting raw materials from the earth is reduced.

Equity — Residents generating smaller amounts of trash because of better waste management or household size do not subsidize the costs of residents that generate larger quantities of trash.

Economics — Similar to a public utility, individual costs are based on each customer's usage of the service. The opportunity for cost control is now available to residents by improved waste management.

Education — UBP also encourages consumers to understand local recycling guidelines by prompting them to read, listen, and learn enough to make changes that provide monetary rewards. Inaction costs them more.

Education about the new program through various media should begin as early as possible to aid in transitioning.

Types of media include public meetings, public service announcements, articles published in the local newspapers, and mailings or flyers to each customer.

Enforcement — An effective plan includes funding and a plan for enforcement of all provisions in the program, including illegal dumping.

1.2 Methodology

The information and suggestions proposed in Milford's SMART Guidebook were determined using the EPA's 6 step planning process:

1. Gather community solid waste and population characteristics.
2. Identify and compile existing municipal solid waste program costs.
3. Identify and compile MSW program revenue sources.
4. Develop alternative rate structures.
5. Project MSW revenues based on alternative rate structures.
6. Evaluate the sustainability of the alternative rate structures based on revenue requirements.

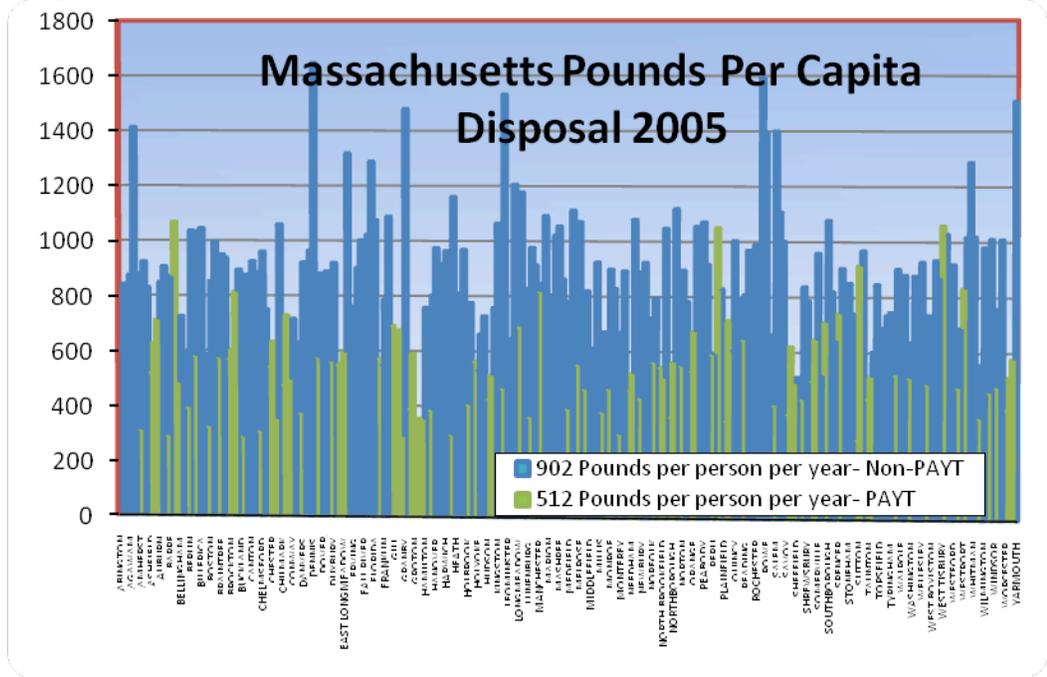
2. Rate Structure and Program Options

2.1 Per Capita Disposal Measurement

The methodology for determining expected disposal reductions from the implementation of a SMART Unit Based Pricing (UBP) waste management program is per capita disposal. Per capita disposal is the total tons disposed divided by the number of individuals participating in the program, then divided by 2000 (pounds per ton). Using per capita residential disposal as the benchmark number allows for an apples to apples comparison, which can be examined state to state or even internationally. The EPA hierarchy for waste minimization prioritizes reduction, reuse, and recycling as the first three options. Measuring only diversion or only recycling can be misleading. Comparing recycling numbers from region to region is like comparing Milfords and apples. Per capita disposal is a fair and simple measurement approach. For the purpose of this guidebook, waste disposal for the Town refers to the total residential tonnage brought to the Transfer Station.

The per capita residential disposal information from the Massachusetts Department of the Environment (including 89 communities that have strict unit based pricing for trash) indicates an average of 512 lbs per person per year disposal in UBP communities. A further review of disposal tonnages from a variety of unit based residential programs across the country indicates similar per capita numbers between 400 and 600 pounds per person per year. The Massachusetts case study is commonly used by the EPA as a baseline for expected results in UBP programs.

Image 1. Massachusetts per Capita Disposal



The average resident in a UBP community within the state of Massachusetts disposes of 44% less waste than residents in communities without a unit based structure for garbage. Source MA DEP 2005.

2.2 Unit Based Pricing

In this section the Rate Structure Systems are presented in terms of benefits/advantages and risks/disadvantages. The use of a table format allows for clearer understanding and easier comparison among systems.

Image 2. Implementation of a Unit Based Pricing Program

Benefits/Advantages	Risks/Disadvantages
Customers gain a true understanding of the cost of MSW.	Some confusion during start up of program is likely to occur.
Customers have the ability to reduce their own cost of waste collection and disposal through improved waste management.	Perceived fear about the possible proliferation of more fees for other Town services in addition to property tax.

2.3 Rate Structure Systems

Within the unit based pricing programs, three specific rate structure systems are currently in use in similar communities: proportional; two tiered (proportional); and variable. A SMART waste management strategy builds all the costs associated with trash, recycling, and management into the pricing structure.

Proportional Rate - Proportional systems create the most direct relationship between trash volume and price. Residents are charged the same amount of money for each unit of trash they set out for collection. A proportional rate can be achieved either through a special Town trash bag or a container, depending on the desired method of collection.

Trash bags are a very effective unit base. Customers pay a fee by purchasing “official” distinctively marked, standard-sized trash bags. Bags can be purchased from municipal offices or retail stores. Only official bags are collected. Trash services require bags to be purchased for all disposal of trash. Thus a fee is paid at the time of service through the cost of the bag. Fairness is assured. Revenues can be uncertain until the program is established and its history can be used to project future costs and revenues. Funding for the entire program is dependent on bag sales. The cost of the program is reduced because billing and opting out is eliminated. However this program carries the highest financial risk. Success actually reduces revenue and program costs may not be met. It is important to price the bags correctly from the start. Leaving a financial cushion is important, especially during the first year.

Image 3. Proportional Rate Bag System

Benefits/Advantages	Risks/Disadvantages
Easiest system to understand and comply with because the bag causes the volume and weight limits to be more apparent.	Revenue uncertainty and cash flow when program first begins.
The size of the official bag will clarify the volume limit. The strength of the bag will clarify the weight limit by bursting when the weight limit is grossly exceeded.	The more the community decreases the waste the less revenue is generated from bags sales.
Customers purchase only bags, which are needed for disposal anyway.	
Increased flexibility by offering more than one bag size. A smaller size bag could be offered to customers who generate small amounts of rubbish.	
Any future changes to unit weight or volume can be easily implemented by changing the size of the bag(s).	
Fastest and most efficient means of collection. Official bags are easily identified and conform to size and weight limits.	
Official bags are more difficult to counterfeit than stickers or tags.	
Illegal waste containers are more easily identified.	
Details of the entire MSW program could be printed on each bag, or bag packaging for customers to easily reference.	

A proportional program can also be achieved with a container system. Containers would be priced based on the unit cost (per gallon). Each gallon would be priced proportional to the next, therefore, a 64 gallon container would be double the cost of a 32 gallon container. Container systems are billed to the households monthly or quarterly based on chosen container size. A container system requires an accounting and fee collection function and can be difficult to administer in areas of high household turnover. The container system also requires an inventory of multiple container sizes in order to meet changing residential needs. Revenue stream can be risky and difficult to manage because of non-pay households.

Image 4. Proportional Rate Container System

Benefits/Advantages	Risks/Disadvantages
Likely to maximize reduction of waste, so not to purchase additional overflow bag	Potentially higher costs for collection because overflow bags would require manual collection
Automated and semi automated collection	Communities must offer residents a choice of subscription levels, provide them with containers in varying sizes, and bill accordingly. System requires billing and inventory
Potential for decreased labor and workers compensation	These systems might be more expensive to implement and administer
Collection system is clean and organized on the curbside	Revenue Stream can be slightly risky due to non-pay households

Two-Tiered Proportional - Two-tiered systems help communities achieve revenue stability. Residents receive a base level of service, for which they pay a flat fee. The 'first-tier' fee can be assessed through the tax base or through a base monthly fee. The base charge can be used to cover specific costs of the solid waste program (e.g. personnel, transportation, executive oversight etc.) Residents then pay a 'second-tier' based on the amount of waste they put out for collection. The second-tier is unit based and generally covers disposal costs. The two-tiered program is also widely used through out the United States. The base fee assures funding of all fixed costs.

Image 5. Two-Tiered Proportional

Benefits/Advantages	Risks/Disadvantages
Revenue will cover fixed costs.	The requirement of paying an additional fee for second (or multi) tier may be difficult to understand.
Revenue stability is ensured. Program funding is not entirely dependent on bag sales. Success of program does not under fund program.	Collection of fees may require administration expense.
Waste reduction, reuse and recycling are encouraged. Residents use the goal of reducing trash to one bag to avoid buying additional bags, thus reducing waste.	
Can be implemented more quickly and inexpensively than other types	
Allows for maximum flexibility to implement changes	

Variable Rate. Variable rate pricing means charging different amounts per unit of garbage, in different container sizes. Several container sizes are offered generally from 10 to 96 gallons. The community bills residents based on their container size or subscription level. The program is flexible because the community can charge a higher than subscription level price for additional containers if their goal is to create a strong incentive to decrease waste.

Image 6. Variable Rate System

Benefits/Advantages	Risks/Disadvantages
Automated and semi automated collection	More complicated.
Rate is based on the amount of rubbish generated by each customer.	Too many variables in a program cause it to be more difficult to implement and operate.
Potential for decreased labor and workers compensation	Potentially higher costs because collection is slower
Authorities can charge a price for additional containers that is higher or lower than subscription level depending on the community	Communities must offer residents a choice of subscription levels, provide them with containers in varying sizes, and bill accordingly.
Collection system is clean and organized on the curbside	These systems are be more expensive to implement and administer

3. The Climate and Waste Connection

The Earth's surface temperature has risen by about 1 degree Fahrenheit in the past century, with an accelerated rate of warming during the past two decades. Current evidence strongly suggests that it is likely that human activities have contributed to this warming. Human activities have altered the chemical composition of the atmosphere by increasing emissions of greenhouse gases (GHG) - primarily carbon dioxide, methane, and nitrous oxide.

Every stage of a product's life cycle—extraction, manufacturing, distribution, use, and disposal—indirectly or directly contributes to the concentration of GHGs in the atmosphere and potentially affects the global climate. For instance, product manufacturing releases GHGs both directly, from the manufacturing process, and indirectly, from the energy produced to run the plant. Extraction and distribution require gasoline-powered vehicles that release CO₂. Discarded products typically end up in a landfill, which releases methane as products decompose.

Waste prevention and recycling—jointly referred to as waste reduction—offer significant potential for decreasing GHG emissions. *Source <http://www.epa.gov/wastewise/climate/change.htm>* A formal analysis of a data set including 305 municipalities from the state of Massachusetts indicates that a per capita reduction of (.17) MTCE is expected in SMART UBP residential waste reduction programs. *Source ICF International... June 2008.* This factor represents the latest available methodology for estimating the potential effect of implementing a SMART waste management strategy on climate change. This Guidebook will use this factor to determine potential waste reduction benefits.

City of Milford Overview

4.1 Existing Waste Collection System

The City of Milford offers municipal service for trash collection. Trash is picked up by 27 City employees in 6 routes. There was 41,217 tons of trash collected in 07/08 calendar year. The commercial businesses and residential trash tonnages are not separated. For the purpose of this guidebook the ratio of 70% residential and 30% commercial will be used. This number should be accurate enough for this evaluation. It is estimated that approximately 28,851 tons is associated with residential and multi-family waste and 12,365 tons are from commercial generators. This SMART guidebook will only address reducing the residential tonnage number. In fiscal year 07/08 the annual residential per capita disposal for the City of Milford was 1180. This number falls in line with peer communities in Connecticut and Long Island with similar income demographics and current recycling rates.

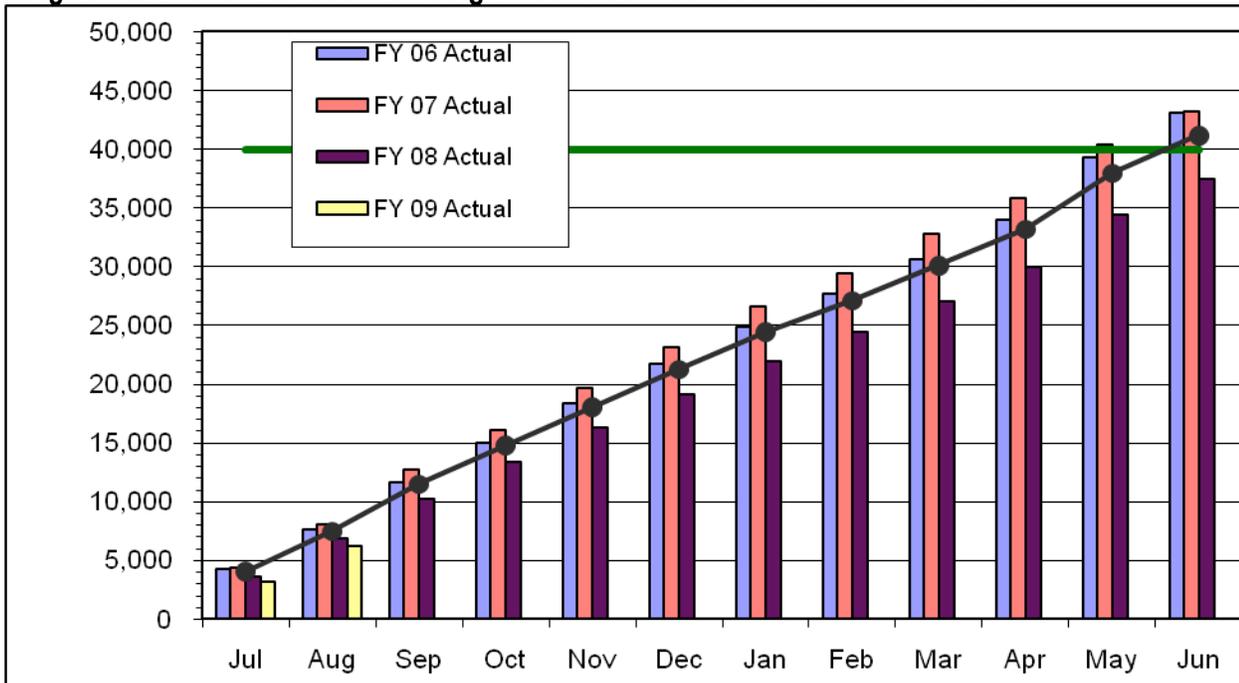
The residents of Milford may also use the Transfer Station to drop off trash and bulky items. Bulky items are free to residents. The town also offers free pick up of bulky items. . There is no cost for unlimited use of the Transfer Station and there is no sticker required for residential users.

The City is responsible for collection of single family waste (3 households and under) which is brought to the Transfer Station. The cost of the trash tipping is covered in the tax base. The trash that is collected at the Transfer Station is currently brought to the Bridgeport WTE facility where the tip cost is currently estimated tip at \$80.00 per

ton and includes an annual price escalator. For the purpose of this guidebook a tip fee of \$85.00 per ton is used as an average estimate for the next 5 years.

There are 27 union employees that are responsible for the collection of waste at approximately 18,000 single family households in Milford. The 3,000 multifamily units are considered commercial. The average household income is 61,167 and about 80% of residences are owner occupied. 3.8 % of residents are at poverty level.

Image 7. Historical Cumulative Tonnage Chart for Residential and Commercial waste



4.2 Existing Recycling Collection System

Recycling in the City is handled by the employees of Milford. The City requires weekly recycling. The recycling is collected with 6 union employees from all single family households. The total recycling tonnage was 2,729. The recycling tonnages and breakdown are from fiscal year 06/07 DEP report, so this number may vary slightly. The residential breakdown indicates over 1,137 tons of leaves and yard waste which is equal to almost 4%. The town does not provide pick up of yard waste.

The City of Milford currently recycles 800 tons through the residential dual stream curbside program this equals approximately a 3% commodities curbside recycling rate. Milford also collects 833 tons of scrap metals which brings the overall residential recycling rate to nearly 9%. The City earned \$64,000 in additional revenue from collection of metals. The City's current recycling contract is through the Connecticut Resource Recovery Authority. This contract will expire 2010. The Connecticut Resource Recovery Authority currently has plans for single stream recycling by 1010 and options with other recycling facilities are being considered. The City currently collects commodity recyclable materials, including plastic #1 and #2, paper, newspaper, magazines, chipboard and cardboard, metal, aluminum, and glass. There are opportunities for the collection of additional items and this should be considered with any new contract.

Image 8. Historical Recycling Tonnage chart

Recycling Rates

Waste Total / tons	28,851
Commodity Recycling / tons	1,633
Metal / tons	
Yard Waste / tons	1,137
Total Generation	31,621
Recycling Commodity Percent	0.051643
Yard Waste percent	0.035957
Total Recycling / tons	2770
Total percent	0.0876

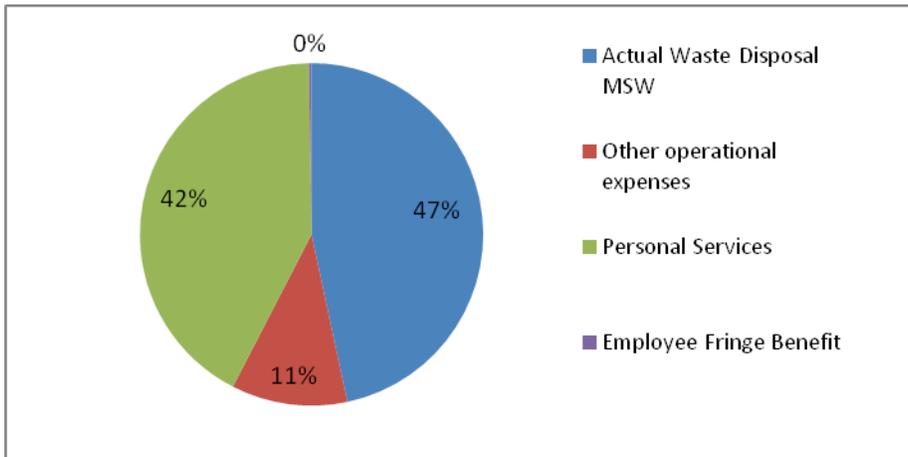
4.3 Overall Solid Waste Budget

There are a total of 21,137 households including 3,000 condominiums/multifamily units serviced by curbside collection in the City of Milford. Based on the projected 09 budget the approximate total cost to the residents of Milford for the disposal area of Public Works is 2,180,000. This includes MSW tip fees, put or pay, and disposal of misc. items. The average annual cost to each household is \$103 for tipping of trash and related items. The 08/09 Solid Waste Budget is 4,674,000 or an average of \$211 per household. Disposal or tip fees represent about 50% of the City budget.

In past budgets the tip fee has also included at 'put or pay' penalty, with the new Connecticut Resource Recovery Authority contract there is no municipality specific 'put or pay' only a regional commitment. The estimated tip cost with CPI increases is estimated at \$85.00 per ton over the next 5 years.

Currently the City of Milford is not paying a tip fee for recyclable materials nor are they receiving a rebate or profit share for materials. The Connecticut Resource Recovery Authority does give a percentage of recycling profits to the two Garbage Museums located within the state. The Connecticut Resource Recovery Authority plans to begin a profit split with the towns of \$10 to \$15 per ton for commodity materials. It would be in the best interest for the City of Milford to negotiate a more extensive rebate or profit share in the next contract.

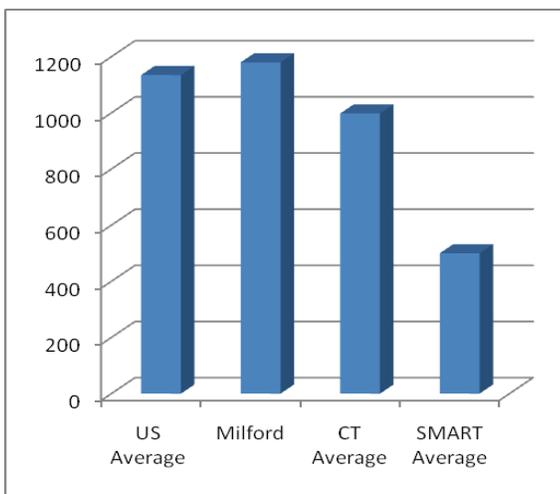
Image 9. Overview of Residential Waste Costs



4.4 Waste Minimization Goals for the City of Milford and the State of Connecticut

The City of Milford has no short-term goal for fiscal year 2008/09 of increasing. However they have an active environmental group who has been working to educate the residents. An educational campaign by the Connecticut Resource Recovery Authority is aiming for a 15% increase in area recycling this year. The longer-term goal of 51% diversion by the year 2020 was set by the State of Connecticut in the 2006 in the Solid Waste Management Plan. This diversion includes yard waste.

Image 10. State and National rates compared with SMART communities



5. SMART Unit Based Pricing (UBP) Program Projections and Design

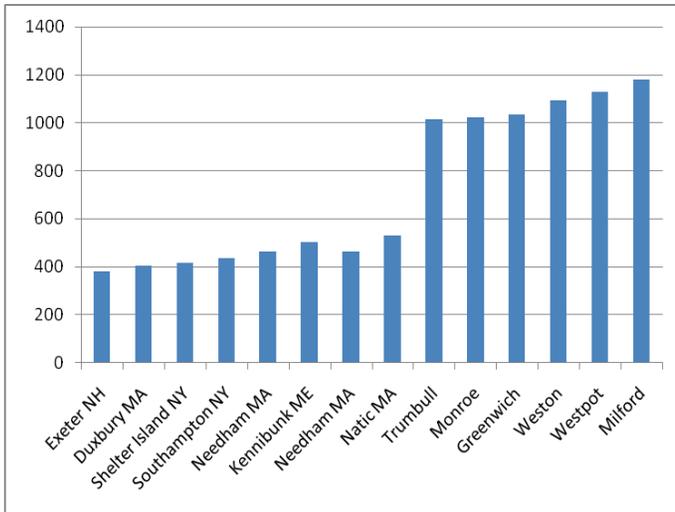
5.1 Projected per capita disposal change

The City of Milford 07/08 residential waste tonnage, including bulk items is 28,851, which equals 1180 pounds of trash per capita. Unit Based Pricing (UBP) could decrease the disposal to approximately 500lbs per person per year. Based on the population numbers a decrease in disposal of 680 lbs per person per year would yield a total

reduction of 16,626 tons annually for Milford. This is a decrease of 57% per year in the estimated residential waste stream, or approximately 40% in the total waste stream including residential and commercial.

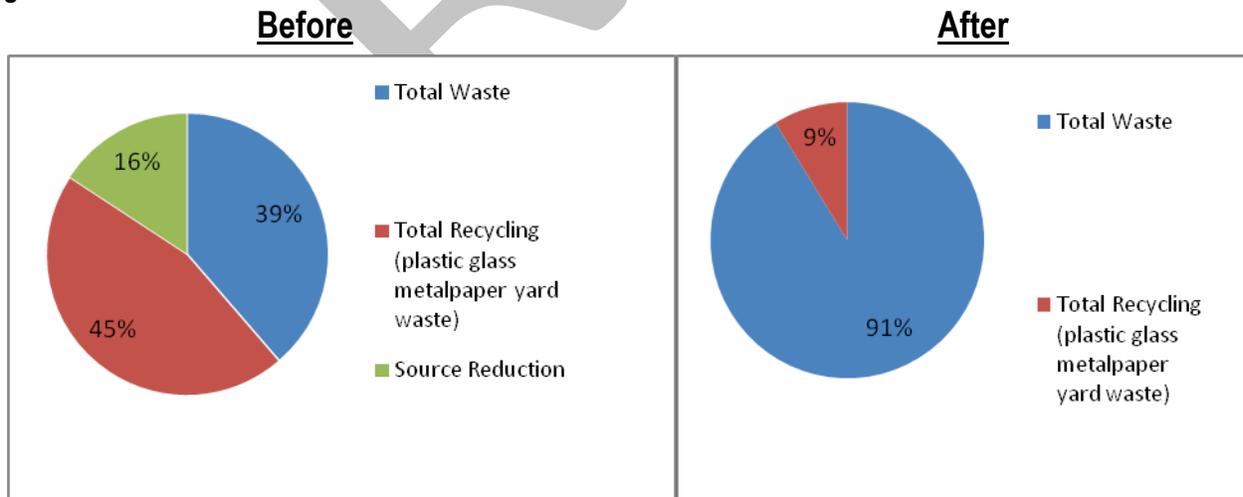
The following chart is a look at other communities with similar populations; all with curbside programs or PAYT programs. This chart also reflects the type of recycling program offered. This comparison demonstrates the waste reduction that Milford may achieve through unit based pricing. The Towns on the left all have (UBP) unit based pricing with weekly recycling. The Towns on the right just offer weekly recycling.

Image 11. Projected City of Milford per Capita Waste compared with peer communities



The following before and after charts demonstrate the potential change in the residential waste stream, after the implementation of a SMART UBP waste plan.

Image 12. Waste Stream Before and After SMART



Trash represents 91% of Milford's total 2008 residential stream (before UBP) but reduces to only 39% after the implementation of a SMART program. An estimated decrease of 57% in waste brought to the transfer station

would equal approximately \$1,300,000.in avoided disposal costs annually for the City. This is a decrease in the estimated 08/09 overall Solid Waste budget of over 25%%.

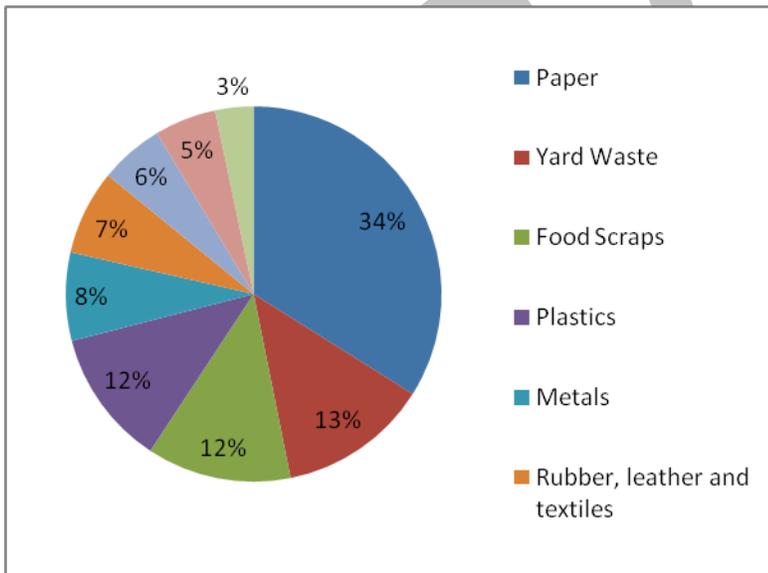
The overall residential recycling rate (including commodities and yard waste) could increase from 9% to 45%; an increase of over 500%.

Recycling is considered by the EPA and the state of NY to be both commodities materials and yard waste. EPA studies show that approximately 70 to 75 percent of diversion in PAYT programs is recycled or composted, but 25 to 30 percent can be categorized as source reduction. Approximately 6,900 tons of the diverted material will go toward increased commodity recycling, and 3,800 tons toward increased yard waste or back yard composting. The commodity tonnage has the potential to create significant revenue based on the average price per ton from the Connecticut Resource Recovery Authority.

The remaining diversion comes from waste reduction (i.e., through reducing and reusing). This is an added environmental benefit. When faced with financial incentives, consumers actually make better purchasing decisions at the source or retail level. Therefore, products that are packaged better, smaller or with recyclable materials are chosen over those that do not fit the new environmentally inspired criteria.

The City of Milford does not have an official waste characterization study. The EPA uses a *Franklin Associates* waste characterization study from 2005 as a benchmark. There are some differences in regional waste. And the percentages of individual materials can vary from the national average. The SMART guidebook will use the national average to extrapolate an estimate of the Milford residential waste stream. Based on the EPA report *Solid Waste in the United States Facts and Figures*, the following is a look at the estimated per person generation of each material in the City of Milford.

Image 13 Waste Characterizations - US and Milford



Milford	Per Capita
Paper	400.02
Yard Waste	152.22
Food Scraps	146.32
Plastics	138.06
Metals	89.68
Rubber, leather and textiles	86.14
Wood	64.9
Glass	62.54
other	38.9
	1178

5.2 SMART Design for Milford

A SMART waste management plan for the City of Milford would utilize the current trash and recycling collection structure in order to meet the needs of the City and residents. With the implementation of unit based pricing it is best to keep the same collection system in place to avoid too much change at one time. After implementation the City would have the ability to upgrade or change the actual collection system at a later date.

Program Design

The City of Milford residential taxes pay for the hauling and tipping trash. Taking the cost of collection and tipping out of the tax base would allow residents the ability to be SMART (save money when they reduce trash). The estimated residential tip cost over the next 5 years is or \$103 - \$211(+) per household annually. Reducing taxes and creating a per-bag charge would incentivize residents to recycle more instead of paying for trash bags. This design option would require the use of an Official City of Milford trash bag. The Official Milford bag would be priced to cover the cost of tipping and collection.

Official City bags would be purchased by the City and then made available at local retailers (there are companies that handle this for the City so it is virtually hands off). The City may be required to create an ordinance stating that residential trash must be placed in Official City Trash Bags. The bags are purchased by residents in lieu of the portion of property tax that previously covered disposal costs.

This is actually a simple solution to waste reduction within the City. A SMART program will not affect the structure/ style of collection. Residents will still place bags at the curbside or cans to place their bags in (if they prefer). The City will most likely have to adjust routes due to the change in waste stream. It is estimated using data from the Massachusetts department of Environmental Protection and the US EPA (Skumatz research) that approximately 30% of material will go to source reduction. This will mean an overall reduction to the City in actual materials transported. This reduction will allow them to make logistical changes that should be favorable to their bottom line. The City will adjust routes and possibly trash and recycling days in order to adapt to the new material streams.

The Sanitation employees will be asked to monitor compliance. Since it is the employees responsibility to collect trash from the household, it will ultimately fall on their shoulders to make sure residents are following the ordinance. Stickers for non compliance should be provided by the City for the employees to use. If household trash is not in Official City of Milford Trash Bags the employees will label it and leave it behind. Employees will be accountable for compliance and there will have to be a penalty / fine set up for non-compliance by residents.

Taking the cost of trash disposal out of the tax base could be achieved in a number of ways:

- 1). The most well received method is to publically show a reduction on the property tax / fee. For example last year it cost each household an average of approximately \$103 -211 in disposal (within the tax payment). This year your taxes will be \$103- 211 less and instead residents will pay as you go for what they use.
- 2). The state of MA has been very successful with a strategy of 'not' reducing the tax. Instead, municipalities explain to residents that there will be no tax increase this year and the money that was going toward disposal costs will now be used for other public services (additional library hours, police or fire services etc).
- 3). Another option is to give a rebate for the overall savings one year after inception. This allows the City to use the current tax budget to cover any start up costs such as bags, additional recycling containers, and educational costs. Any remaining ear marked disposal monies, can be used for other City services, or added to an enterprise

fund. The buildup of funds from bag sales can also be added to the enterprise fund. This account can be directly rebated back to each resident or used for a specific community projects.

It is important to take into consideration rental properties. Nearly 80% of households in Milford are owner occupied. Approximately 20% of households that are participating in the SMART program would be renters. There are ways to make SMART more equitable to renters. Landlords can give a rent rebate or discount to tenants, landlords could also purchase some number of bags for residents as in the city of Binghamton NY. There are other ways to create recycling rebates.

Alternative or future design option. The City of Milford uses municipal employees and trucks to collect trash and recycling. The above design option does not limit the ability for the City to add automated collection of either trash or recycling. Adding automated collection may decrease labor and workman's compensation costs. The above design can be adjusted if the City decides to invest in automated trucks for either type of collection.

5.3 Rate Structure Options

The following rate structure options use 500 pounds per capita as a benchmark. This equals a 57% reduction in waste for the City of Milford. This analysis also makes assumptions on 3 other benchmarks: a waste reduction to 400, 600, and 700 lbs per capita, representing: 65%, 50%, and 40% waste diversion respectively. Several cities throughout the US have achieved per capita disposal of 400 pounds and under. The projected decrease in residential waste due to SMART is of critical importance since an overly optimistic projection will result in underestimating the projection of waste. Conversely an overly conservative waste reduction projection will result in lower revenues than necessary to fund the program costs. All of the design options continue to provide free drop off at the transfer station for recycling or trash. Some communities also use the unit based pricing system for trash at the transfer station.

There are two possible rate structure options:

Image 14. Rate Structure Option 1 (covers all residential solid waste costs from proposed budget)

Projected Per Capita Disposal	500	500	500	400	400	400	600	600	600	700	700	700
Bag price	3.00	3.25	3.50	3.00	3.25	3.50	3.00	3.25	3.50	3.00	3.25	3.50
Revenue/\$												
Trash Fee / base	-	-	-	-	-	-	-	-	-	-	-	-
Sale of Trash Bags	3,667,500	3,973,125	4,278,750	2,934,000	3,178,500	3,423,000	4,401,000	4,767,750	5,134,500	5,134,500	5,562,375	5,990,250
Increased Recycling Revenue	58,191	58,191	58,191	66,749	66,749	66,749	49,634	49,634	49,634	41,076	41,076	41,076
Total Revenue	3,725,691	4,031,316	4,336,941	3,000,749	3,245,249	3,489,749	4,450,634	4,817,384	5,184,134	5,175,576	5,603,451	6,031,326
Cost Reductions												
Avoided Disposal Cost	1,330,080	1,330,080	1,330,080	1,525,680	1,525,680	1,525,680	1,134,480	1,134,480	1,134,480	938,880	938,880	938,880
Reduction Labor	-	-	-	-	-	-	-	-	-	-	-	-
Total Cost Reductions	1,330,080	1,330,080	1,330,080	1,525,680	1,525,680	1,525,680	1,134,480	1,134,480	1,134,480	938,880	938,880	938,880
Total Source of Funding	5,055,771	5,361,396	5,667,021	4,526,429	4,770,929	5,015,429	5,585,114	5,951,864	6,318,614	6,114,456	6,542,331	6,970,206
Cost of PAYT												
Trash Bag Cost	305,625	305,625	305,625	244,500	244,500	244,500	366,750	366,750	366,750	427,875	427,875	427,875
Cost of additional containers	-	-	-	-	-	-	-	-	-	-	-	-
Cost of additional vehicles	-	-	-	-	-	-	-	-	-	-	-	-
Total cost of program	305,625	305,625	305,625	244,500	244,500	244,500	366,750	366,750	366,750	427,875	427,875	427,875
NET	4,750,146	5,055,771	5,361,396	4,281,929	4,526,429	4,770,929	5,218,364	5,585,114	5,951,864	5,686,581	6,114,456	6,542,331
Budget	4,673,868	4,673,868	4,673,868	4,673,868	4,673,868	4,673,868	4,673,868	4,673,868	4,673,868	4,673,868	4,673,868	4,673,868
Difference	76,278	381,903	687,528	(391,940)	(147,440)	97,061	544,496	911,246	1,277,996	1,012,713	1,440,588	1,868,463

The proportional rate option would require some start up funding for bags, possibly additional recycling containers and education. One option would be to begin the program in March 09 since the taxes have already been collected to cover the tip fees from March 09 through June 09. The City would then have two options reducing taxes in the next fiscal year by the entire estimated residential tip cost or rebating taxes based on the actual value of the diverted tonnage in the following year. Delaying the actual rebate for one year would enable the City to build some padding into the budget and perhaps create a recycling education account to promote recycling in other areas of the City. Projected bag cost covers the entire annual budget. The entire reduction is passed on and residents pay as they go for service and disposal

Image 15. Rate Structure Option 2 (covers total disposal cost only based from projected budget)

Projected Per Capita Disposal	500	500	500	400	400	400	600	600	600	700	700	700
Bag price	1.50	1.75	2.00	1.50	1.75	2.00	1.50	1.75	2.00	1.50	1.75	2.00
Revenue/ \$												
Trash Fee / base												
Sale of Trash Bags	1,833,750	2,139,375	2,445,000	1,467,000	1,711,500	1,956,000	2,200,500	2,567,250	2,934,000	2,567,250	2,995,125	3,423,000
Increased Recycling Revenue	58,191	58,191	58,191	66,749	66,749	66,749	49,634	49,634	49,634	41,076	41,076	41,076
Total Revenue	1,891,941	2,197,566	2,503,191	1,533,749	1,778,249	2,022,749	2,250,134	2,616,884	2,983,634	2,608,326	3,036,201	3,464,076
Cost Reductions / \$												
Avoided Disposal Cost	1,330,080	1,330,080	1,330,080	1,525,680	1,525,680	1,525,680	1,134,480	1,134,480	1,134,480	938,880	938,880	938,880
Reduction Labor	-	-	-	-	-	-	-	-	-	-	-	-
Total Cost Reductions	1,330,080	1,330,080	1,330,080	1,525,680	1,525,680	1,525,680	1,134,480	1,134,480	1,134,480	938,880	938,880	938,880
Total Source of Funding	3,222,021	3,527,646	3,833,271	3,059,429	3,303,929	3,548,429	3,384,614	3,751,364	4,118,114	3,547,206	3,975,081	4,402,956
Cost of / \$ PAYT												
Trash Bag Cost	305,625	305,625	305,625	244,500	244,500	244,500	366,750	366,750	366,750	427,875	427,875	427,875
Cost of additional containers	-	-	-	-	-	-	-	-	-	-	-	-
Cost of additional vehicles	-	-	-	-	-	-	-	-	-	-	-	-
Total cost of program	305,625	305,625	305,625	244,500	244,500	244,500	366,750	366,750	366,750	427,875	427,875	427,875
NET	2,916,396	3,222,021	3,527,646	2,814,929	3,059,429	3,303,929	3,017,864	3,384,614	3,751,364	3,119,331	3,547,206	3,975,081
Budget	2,308,080											
Difference	608,316	913,941	1,219,566	506,849	751,349	995,849	709,784	1,076,534	1,443,284	811,251	1,239,126	1,667,001

The two tiered option leaves all fixed costs in the tax base and proposes that bag sales cover the disposal / tip costs.

6. Recommendations

The City of Milford is a great candidate for a SMART waste management program. SMART can be achieved with very little change to the current collection system, and meets the City's objective of creating a successful, sustainable, user-friendly, cost effective residential waste reduction program while working within the current collection infrastructure.

1). Begin a SMART Program in March 2009. The timing is perfect because the City will be at the start of a new contract with no put or pay penalty for waste reduction. The savings is significant both financially to the City and its residents but, also the environment. There are very few logistical changes that need to be made for collection of trash and recycling.

2). An ordinance will be needed that requires residential trash must be contained in an 'official' City of Milford Trash Bag. Create enforcement guidelines and also stickers for hauler to use non compliant bags.

3). Begin an enterprise fund in March 09. Determine how to handle the new revenue stream. The enterprise fund could also be used to capture additional recycling revenue form the increased stream of material. It is up to the administration to decide the best use of the additional funds. Should money be rebated (given back) to residents or used for City services?

4) Convey a clear message to the public. Residents need to know that this is a program saving both money and natural resources. They need to understand that their efforts are worthwhile and are making a difference. If this message is well delivered residents will be very satisfied and happy to participate in a SMART program

5). Create a volunteer advisory committee to carry out the implementation. This committee would be a communications link between the needs and concerns of both residents and the City officials. The members should be comprised of a combination of residents, City officials and employees. Committee members should bring experience in areas like legal, PR, marketing, and education. The committee should monitor and advise on the current implementation and the future phases of the program.

The committee should:

1. Decide on the public relations and education leading up to implementation. Design a tool kit to be distributed to all residents. Examples of items to include in each kit are:
 - Detailed explanation and instructions of the new program.
 - A small, easy to understand, how-to quick reference guide with graphics and short reminders.
 - Schedule of curbside pick up and drop off items and dates.
 - Other materials for a smooth, simple start up.
2. Help decide on bag color and design; choose participating grocery stores.
3. Create multifamily enforcement suggestions and guidelines.
4. Suggest ways to recycle cardboard for residents
5. Suggest additional items to be added for recycling collection. Investigate other state recycling lists.
6. Create up-stream producer responsibility by educating local restaurants, grocery, and convenience stores about 'one way carry out packaging' which meets recycling regulations.
7. Address the potential of illegal dumping. Penalties should be consistent with those currently in existence, such as litter. The City will need extra staff in the beginning to educate local businesses about the possibility of illegal dumping and encourage them to lock dumpsters and report problems.
8. Address bulky items at transfer station drop off. The City should utilize the current transfer station as a drop off location and consider charging for car loads.
10. Encourage source reduction. Source reduction is a great benefit of unit based pricing. Residents are motivated to think before they act by pulling items out of the waste stream that used to be considered trash but actually have value to someone else.
 - Work with Salvation Army, Goodwill and local charities to create additional drop off locations or a bag system such as NJ.
 - Create a Swap Shop in town. A means for residents to exchange usable items. This can also be achieved through a website a "City EBay.
 - Work with groups like Got Books, and electronics manufacturers to take back additional items that can be reused.
11. Update City Website
12. Deal with renters and create penalties for those not following the ordinance so that home owners or management companies don't bear the burden of noncompliance.

8. Timeline to Implementation

The first step is to say **YES to SMART** waste management and decide on details of program such as: rate structure; cash flow; and how additional bag revenue will be handled.

The next step for the City of Milford is to create an advisory committee made up of some City employees, residents, and council members (as suggested above). The advisory committee can guide the City through the implementation process. Generally a 6 month period is ideal.

Phase 1 Oct Nov

1. Create a clear message to sell the SMART program to residents.
2. Create official timeline and outline goals for committee
3. Plan meeting calendar with dates to speak with local groups.
4. Check into recycling containers. Do residents have enough containers to maximize recycling?
5. Create public education and relations strategy target dates and costs. Much of this will be free because this is big news, however some planned adds will be helpful
6. Develop materials for residential tool kit
7. Fine tune details of low income families
8. Determine if ordinances are needed / fines / penalties

Phase 2 Dec

1. Public relations through local newspaper, advertorials, interviews, PSA, flyer for households etc
2. Address the issues listed in above section (illegal dumping, cardboard recycling, producer responsibility et
3. Determine how to handle bulky items that are picked up at household stickers / design order stickers
4. Determine weight limits on items or bags
5. Create bid specifications for Official City of Milford trash bags and related services.
6. Present RFP specifications for approval by Milford.
7. Send specifications out through internet and by mail allow 3 weeks for return of RFP
8. Determine a specific start date by working backwards from bag delivery time. Ideally Official City bags should be in stores 4 to 5 weeks before start date.

Phase 3 Jan

1. Work on Website information / links to other programs and EPA
2. Possible school education program / contest for website and bag art

Phase 4 Feb

1. Continue public relations so residents understand where to purchase bags and what items can be recycled etc,
2. Mail information in tax bill / show discount or disclosure of disposal costs.
3. Mail out starter Kit
4. Distribute additional recycling containers if necessary
5. Order stickers for bulky items

Phase 5 Implementation and follow up March

1. Continue positive press during first year to reinforce the decision of the council.
2. Appear on morning shows or other local or CT state news shows over the first quarter to boast about the success of participation and compliance.

90 percent comply with pay as you throw program

By Jeff Malachowski/Staff Writer

Thu Aug 14, 2008, 04:04 PM EDT

SHREWSBURY -

With one week of the new pay as you throw trash program under their belts, town officials called the first week a success.

“The first week went terrific,” said Director of Public Health Nancy Allen. “We had about 90 percent compliance. Ninety percent of our households had trash out in blue pay as you throw trash bags. We want to commend our residents for a good job and thank them for their cooperation ”

Allen said there was a large reduction in the amount of trash residents left at their curbs last week and an increase in recycling because of the new trash removal system, which went into effect Aug. 4.

“Trash was surprisingly light,” said Allen. “The tonnage for the week was 50 percent less than in August of 2007.”

Exact numbers on the increase in recycling will be available during the middle of next week, but Allen said some homes had as many as five recycling bins at the curb last week.

Residents who did not use the pay as you throw trash bags did not have their rubbish collected last week and an orange sticker was left on the bag alerting residents as to why their trash was not picked up. If the trash bags were still at the curb the following day, Sanitary Inspector Bob Moore left a notice alerting residents the bag had to be removed from the curb immediately and be put out next week with a pay as you throw bag.

Are We Saving With Save-As-You-Throw?



Written by Dick Rothschild

Mon, Jun 16 2008 00:00

DRAFT

Now that enough words have been generated about Save-As-You-Throw to fill a dozen 33 gallon blue bags, isn't it about time for a reality check? How much are we really saving? To find out, I met recently with the DPW's Peter Butkis and Chris Smythe. Peter is the Acting Director of the Department of Public Works and Chris administers the Save-As-You-Throw (SAYT) program. This is what I learned.

Until November, 2007, we were dumping, on average, over 100 tons of trash in the pit, monthly. It costs the Town (us) \$97 a ton for it to be trucked to the SEMASS Resource Recovery Facility in Rochester, MA. It is burned there to generate electricity. Since November 1, when we began Single Stream Recycling, the tonnage of trash decreased 40 percent per month (from 100+ tons to 60 tons) A pretty impressive opener. But hold on for the second act. In April 2008, the first month the curtain went up on Save-As-You-Throw that 60 tons shrank by half, to only 30 tons.

Last fall, five or six trailers were needed each month to haul the trash to SEMASS. We are now dispatching them at the rate of only 1 1/2 trailer loads per month.

Aside from fuel saved and CO² emissions eliminated, consider how much cold cash the Town is saving. The 70 percent trash reduction brought about by the combination of single stream recycling and save-as you-throw translates into to an annual savings of \$81,480.

That's not all. Icing on the cake is provided by recyclables. Since November our recyclables have been averaging about 170 tons per month, up from 134 tons for the same period the previous year. We are paid \$7.50 per ton for recycled material. That may not seem like much until you take into account that the recycler, Integrated Paper Recycling, also pays for the containers and the cost of trucking them to and from their single stream recycling plant in North Adams. The payment we receive for recycled material puts \$3,240 into our coffers bringing our total yearly savings close to \$85,000.

Waste pays dividends in East Longmeadow

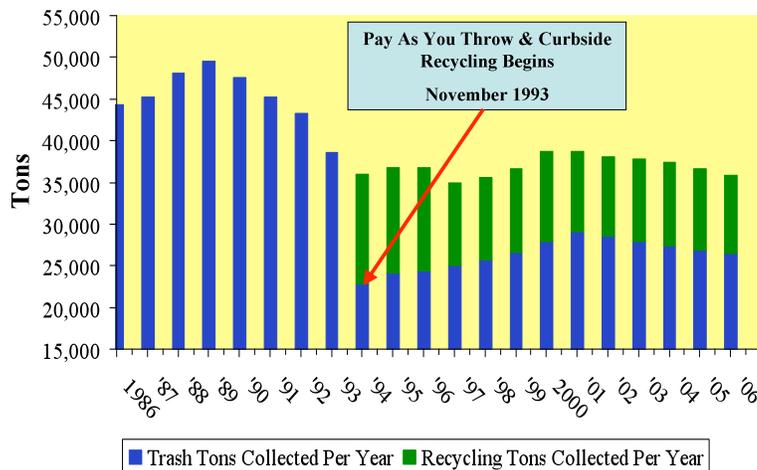
Sunday, July 20, 2008

By ELIZABETH ROMÁN

EAST LONGMEADOW - After more than two years of watching what they throw in the trash or forking over \$1.75 for extra trash bags, the residents here are seeing the results of their efforts. "This program has helped our citizens understand the importance of recycling," said Board of Selectmen Chairman James D. Driscoll, who was instrumental in bringing the program to the town. "It was not a popular decision at first, but people have come around." The town has saved \$300,000 in trash disposal costs and has earned \$700,000 in recycling since the program took effect close to three years ago.

The waste reduction program is based on a weekly trash pick up with the first bag or barrel of trash in a household collected at no charge. Trash exceeding the 35-gallon, or 50-pound trash limit must be disposed of in town approved bags, which cost \$1.75. There is unlimited collection for recycling. With four children and two dogs Driscoll said his family rarely has to buy extra bags. "It's a good education for the kids. They rinse out the yogurt cups and make conscious decisions to recycle whatever they can," he said. To remove larger items, yard waste, metal and wood citizens can visit the town's transfer station. "A lot of the products that come through here are either recycled internally or sent out to other facilities that recycle the products," said Sean Kelley, senior project manager for the Department of Public Works. "We have a pretty intensive composting system as well." Earlier this year Arleen C. Miller, the Western Massachusetts municipal recycling coordinator for the Department of Environmental Protection, did a summary of East Longmeadow's progress from the 2005 to 2008. Miller calculated that the town's recycling rate has increased from 25 percent in 2005 to 33 percent in 2008. "Trash tonnage has continued to decrease, even beyond the amount reduced last year," she said. "The program has been very successful in East Longmeadow." What started out as a way to reduce some of the trash fees the town was facing has become a full blown effort to make the town more energy efficient and earth friendly. East Longmeadow High School teacher Mary Jane McMahon worked with her students all throughout the school year to create a Green Team, which participated in events and activities geared towards stopping pollution, increasing recycling and more. The school was one of more than 80 schools in Massachusetts honored by the Department of Education for their efforts. "Our schools embraced this program and have worked well with us," Driscoll said. "We were also able to get large recycling bins for the schools which they have filled up every other week." The town is currently placing the funds they have earned in the general fund. "With that money we have been able to hire three police officers and have avoided an override, which many of our surrounding communities have not been able to do," Driscoll said. The board is currently working with a Green Committee made up of residents who are interested in lowering fuel and energy costs. "We want to be a model so that other municipalities realize that with lots of small changes you can make a big difference and benefit financially as well."

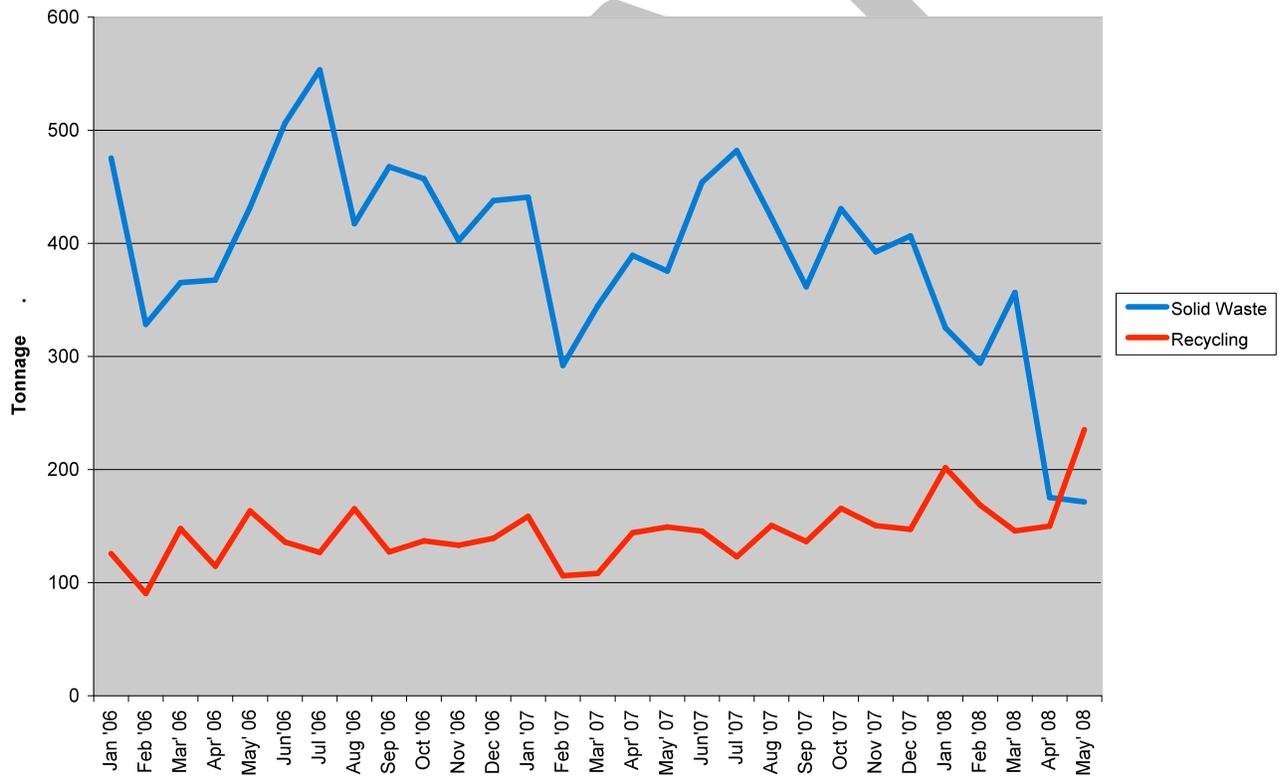
Trash Tonnage Before/After Pay As You Throw City of Worcester



Northborough Trash and Recycling Comparison Chart FY93 - FY08



Town of Duxbury Solid Waste and Recycling Tonnage History



CITY OF BINGHAMTON GARBAGE PROGRAM

GARBAGE COLLECTION

These bags are for the collection of garbage.

Anything that is light enough or small enough to fit in a bag must be placed in a City bag in order for it to be collected.

Garbage placed in other containers or bags will not be collected.

Large trash items can be placed on the curb for pick-up on the same day as your yellow bag collection.

You must call 772-7020 to report that you have placed metal items on the curb.

RECYCLING & YARDWASTE

Recycling shall be placed at the curb on the same day as your garbage collection.

Yardwaste is collected everywhere in the City on Mondays unless there is a holiday in the week.

Branches cannot be longer than 4 feet in length and must be in manageable bundles.

Yardwaste must be in open containers. If bags are used they must be left open with the edges rolled back. Bags will not be left at curbside.

INFORMATION AND QUESTIONS

FURTHER INFORMATION CAN BE OBTAINED BY CONTACTING THE
CITY OF BINGHAMTON RECYCLING DEPARTMENT AT 772-7049
THANK YOU FOR YOUR COOPERATION IN MAKING BINGHAMTON
A CLEAN AND ENVIRONMENTALLY CONSCIOUS CITY!

**DO NOT SET OUT ANY OTHER BAG
FOR GARBAGE COLLECTION
EXCEPT CITY OF BINGHAMTON BAGS!**

**CONTAINS 5 LARGE-
CITY OF BINGHAMTON
GARBAGE BAGS**

Comments on quality of this product should call:
ENVIRO-BAG @1-800-866-3954

