

The Town of Monroe Connecticut SMART Waste Management



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

The Monroe Connecticut Feasibility and Implementation Strategies for Unit Based Pricing

Town of Monroe 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 Town of Monroe 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. Unlimited recycling is available to all households with no additional cost while residents pay as they go for the waste they generate.

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 Monroe'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.

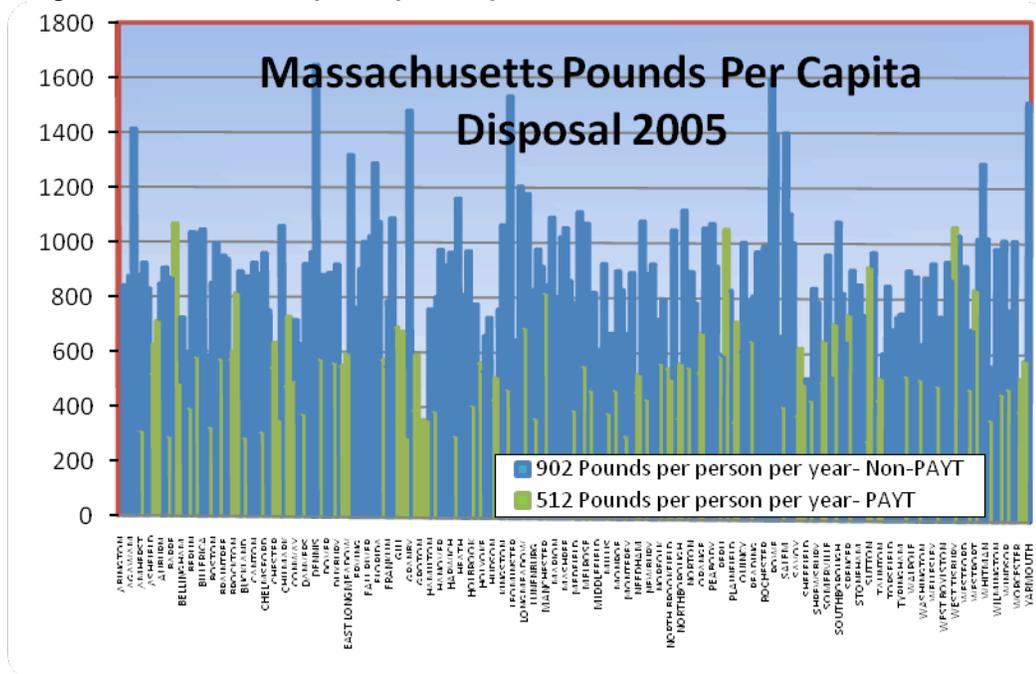
2. Rate Structure and Program Options

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 oranges 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 a history of town specific disposal rates 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.	

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 4. 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	

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.

Town of Monroe Overview

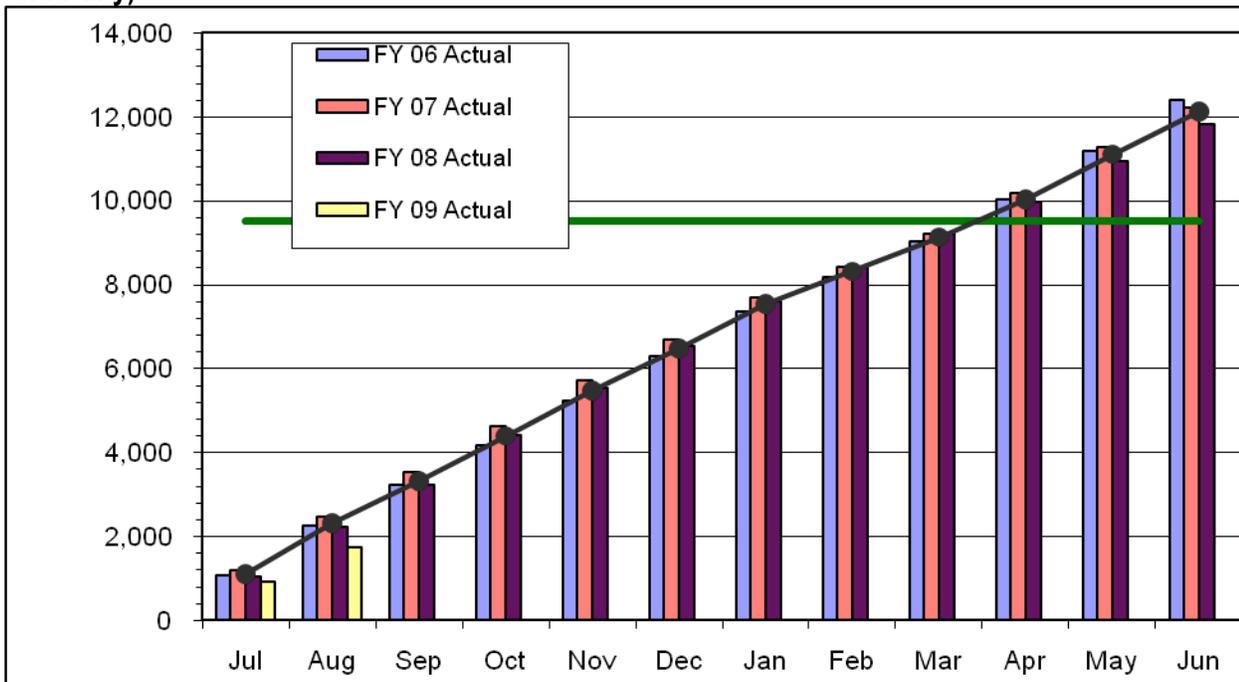
4.1 Existing Waste Collection System

The Town of Monroe offers no municipal service for trash collection. Trash is picked up by approximately 10 local haulers individually contracted by Town residents. The haulers charge a monthly or quarterly fee for collection ranging from \$30.00 per month. Trash is collected once per week from the curbside or back yard of each household. Multi-family residences and businesses contract with local haulers as well. There were 12,140 tons of trash collected in 07/08 calendar year. The commercial businesses and residential trash tonnages are not separated. It would be extremely difficult to determine this exact number, so for the purpose of this guidebook the ratio of 80% residential and 20% commercial will be used. This number should be accurate enough for this evaluation. It is estimated that approximately 9,712 tons is associated with residential and multi-family waste and 2,428 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 Town of Monroe was 1022. This number falls in line with peer communities in Connecticut and Long Island with similar income demographics and current recycling rates.

The residents of Monroe may also use the Transfer Station to drop off trash and bulky items. Bulky items are free to residents from November to January. There is a sticker required for unlimited disposal at the Transfer Station. It is a nominal annual cost to residents.

The haulers are responsible for collection of single and multi-family waste which they bring to the Transfer Station. There is a tip fee at the transfer station to haulers of \$82.50 per ton. The cost of the trash tipping is not covered in the tax base, it is built into the haulers collection costs. The trash that is collected at the Transfer Station is currently brought to the Bridgeport WTE facility through a contract with Connecticut Resource Recover Authority. The tip cost is currently estimated at \$82.50 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. The disposal contract is still being negotiated with Connecticut Resource Recover Authority, and will not include the previous 'put or pay' penalty for decreased disposal. The contract will, however, include a regional 'put or pay' which should be evaluated further by town officials and the Connecticut Department of the Environment.

Image 5. Historical Cumulative Tonnage Chart for Residential and Commercial waste (Haulers and drop off facility)



4.2 Existing Recycling Collection System

Recycling in the Town of Monroe is handled by one single hauler contracted through the Town. The overall tonnage of trash collected in 07/08 at the transfer station was 12,140. The total recycling tonnage was 3,516, equaling a total overall generation of material from both the residential and commercial sectors of 15,656, and yielding an overall recycling percentage of 22%. The residential recycling is estimated at 3,226 tons of material or 24 % of the overall residential generation. The recycling tonnages and breakdown are from the fiscal year 06/07 DEP report, so this number may vary slightly. The residential breakdown indicates only 18 tons of leaves and yard waste was collected. Residents are able to drop off yard waste at the transfer station at no charge throughout the year. The yard waste portion of the recycling stream is less than 1%. This is unusually low, and could be because the Town is rural and many people compost leaf and yard waste in their yards.

The Town of Monroe currently recycles 3,244 tons through the residential dual stream curbside program. Town residents must drop off cardboard at the transfer station or make a private deal with haulers because cardboard is not included in the current collection contract. The Town'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 2010. The Town currently collects commodity recyclable materials, including plastic #1 and #2, paper, newspaper, magazines, chipboard and, metal, aluminum, and glass. There are opportunities for the collection of additional items and this should be considered with any new contract.

Image 6. Historical Recycling Tonnage chart

Recycling Rates	
Waste Total / tons	9,712
Commodity Recycling / tons	3,226
Metal / tons	0.00
Yard Waste / tons	18
Total Generation	12,956
Recycling Commodity Percent	0.248997
Yard Waste percent	0.001389
Total Recycling / tons	3244
Total percent	0.250386

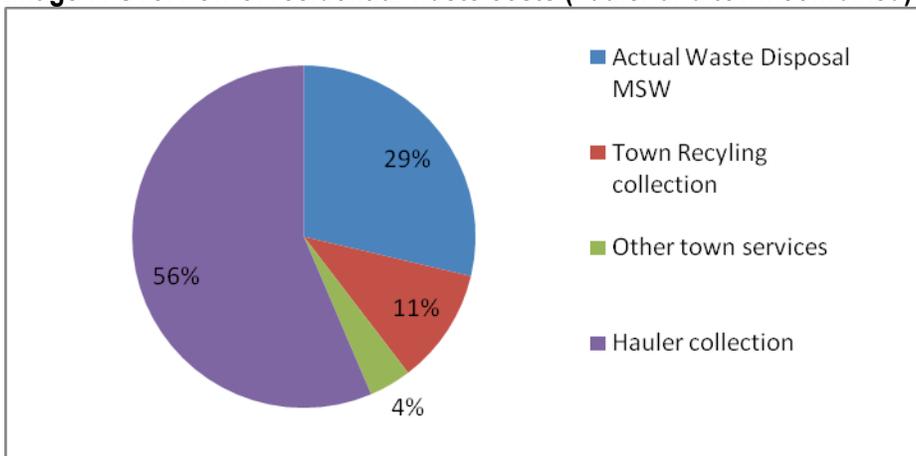
4.3 Overall Solid Waste Budget

There are a total of 6,600 households including 500 condominiums/multifamily units serviced by haulers in the Town of Monroe. The town residents pay for both tipping and collection through a hauler based system. The average household subscribing to this service pays approximately \$360 per year. Based on this number the total cost to all town residents is \$2,376,000. The total tipping cost based on the residential tonnage is \$801,240 annually. It is assumed for the purpose of this SMART guidebook that residential disposal (tip) cost is approximately 34% of the overall hauler cost to residents.

Overall Solid Waste Budget / Costs

Currently the Town of Monroe is not paying a tip fee for recyclable materials nor are they receiving a rebate or a 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. It would be in the best interest for the Town of Monroe to negotiate a rebate or profit share based on the fact commodity values are continuing to rise.

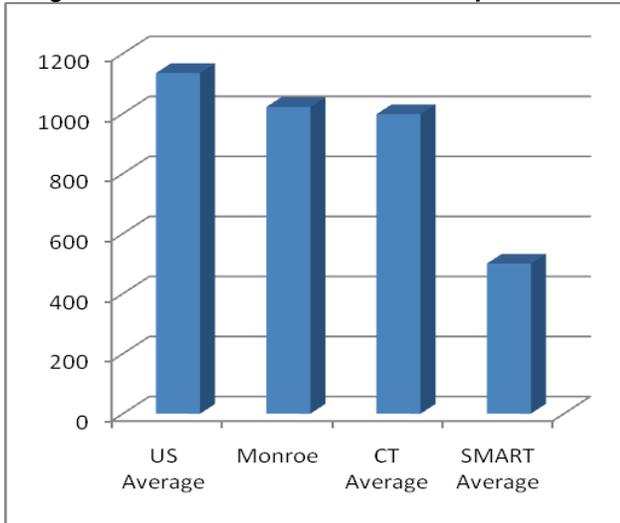
Image 7. Overview of residential waste costs (hauler and town combined)



4.4 Waste Minimization Goals for the Town Monroe and the State of Connecticut

The Town of Monroe has no specific recycling or diversion goal for fiscal year 2008/09. 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. The United States EPA has a goal of 35% recycling including both commodity materials and yard waste.

Image 8. State and National rates compared with SMART communities



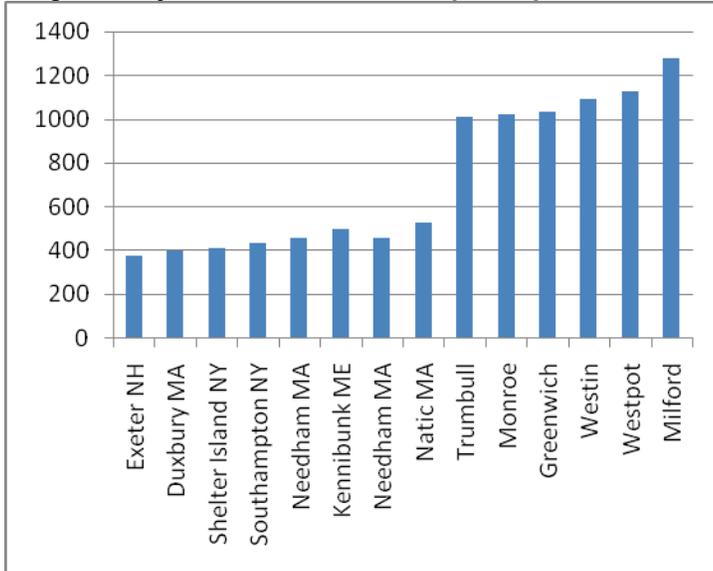
5. SMART Unit Based Pricing (UBP) Program Projections and Design

5.1 Projected per capita disposal change

The Town of Monroe 07/08 residential waste tonnage, including bulk items is 12,140, which equals 1022 pounds of trash per capita. Unit Based Pricing (UBP) could decrease the disposal to approximately 500lbs per person per year. Based on a population of 19,000 a decrease in disposal of 522 lbs per person per year would yield a total reduction of 4,962 tons annually for Monroe. This is a decrease of 51% per year in the estimated residential waste stream, or 40% in the total waste stream including residential and commercial.

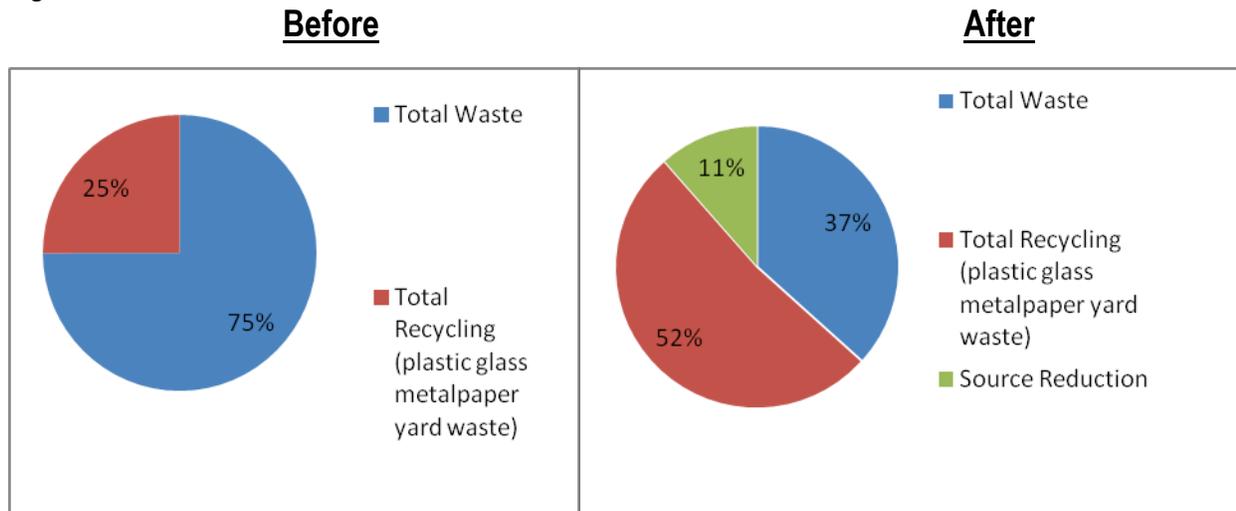
The following chart is a look at other communities with similar populations; all with curbside programs or PAYT programs. This chart also reflects the type of recycling program offered. This comparison demonstrates the waste reduction that Monroe may achieve through unit based pricing. The Towns on the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

Image 9. Projected Town of Monroe 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 10. Waste Stream Before and After SMART



Trash represents 75% of Monroe's total 2008 residential stream (before UBP) but reduces to only 37% after the implementation of a SMART program. An estimated decrease of 51% in waste brought to the transfer station would equal approximately \$ 410,000 in avoided disposal costs annually for the residents of the Town. This is a decrease in the estimated annual cost to residents of \$62.50 or 17% of their total cost.

The overall residential recycling rate (including commodities and yard waste) could increase from 25% to 52% an increase of over 100%. Waste reduction (i.e., through reducing and reusing) provides 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. EPA studies show that approximately 70 to 75 percent of diversion in SMART programs is recycled or composted, but 25 to 30% can be categorized as source reduction.

5.2 SMART Design for Monroe

A SMART waste management plan for the Town of Monroe would utilize the current trash and recycling collection structure in order to meet the needs of the Town 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 Town would have the ability to upgrade or change the actual collection system at a later date.

Program Design

Option 1

The Town of Monroe is not responsible for the hauling of trash or the tipping cost. Eliminating the tip cost to the haulers would allow residents the opportunity to be SMART. The estimated annual residential cost of disposal is \$801,240. Reducing the tip cost to haulers will allow haulers to then reflect this reduction in the per household charge. Basically the haulers can reduce their costs per household by approximately 34% which reflects the costs associated with disposal of material only. The exact pricing from hauler to residents would be up to each hauler. The market should drive fair competition and create a pricing structure agreeable to both hauler and resident. The Town of Monroe would now collect the tip cost through the sale of special Town of Monroe colored trash bags. A per bag charge would motivate residents to recycle more instead of paying for trash bags.

Official Town bags would be purchased by the Town and then made available at local retailers (there are companies that handle this for the Town so it is virtually hands off). The Town may be required to create an ordinance stating that residential trash must be placed in Official Town Trash Bags. The bags are purchased by residents to cover the portion reduced from their hauler.

This is actually a simple solution to waste reduction within the Town. A SMART program will not affect the haulers logistically because they will continue to be contracted separately by residences. Haulers will actually benefit from a reduction in volume of waste. They will increase their productivity and be able to maximize trucks and routes. However, this will require a rate structure adjustment. The town will have to work with the haulers and possibly help them review their actual disposal costs. The haulers will have to monitor resident compliance. Since it is the haulers 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 Town for the hauler to use. If household trash is not in Official Town of Monroe Trash Bags the haulers will label it and leave it behind. Haulers will be accountable for compliance and there will have to be a penalty / fine set up for non-compliance.

This is a winning situation for everyone. The haulers will benefit from increased productivity and reduced collection costs, the residents will benefit from decreased costs and the opportunity to pay as they go, the town will benefit from increased recycling of commodity materials, and the environment benefits from an approximate 14% in decreased GHG (green house gases).

Option 2

The haulers could create their own unit based program and continue to charge residents for both collection and tipping through either bags or a true unit based container program. This would leave the tip cost in the hands of each hauler. Creating a unit based bag cost to include collection costs and tipping is actually very easy for haulers and it would decrease their administration costs (billing and collecting monthly from residents). If haulers prefer they could use a unit based pricing system for different size containers, providing an incentive for residents to choose smaller containers. Option 1 is less risky to the hauler because they are insured their cost and profit through their monthly fee. But option 2 could be explored further, if haulers prefer to handle this on their own.

5.3 Rate Structure

The following rate structure options use 500 pounds per capita as a benchmark. This equals a 51% reduction in waste for the Town of Monroe. This analysis also makes assumptions on 3 other benchmarks: a waste reduction to 400, 600, and 700 lbs per capita, representing: 60%, 40%, and 30% 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.

There are two possible rate structure options:

The proportional rate option would require some start up funding for bags, possibly additional recycling containers and education. The goal of the Town would be to ensure that the bag cost to residents for Official Town of Monroe trash bags cover the town tip cost and as well as some additional to cover start up and education. If there is a surplus it can be used to promote recycling in other areas of the Town. An annual surplus could be built up in an enterprise account to cover increases in disposal costs in future years. The per bag charge could be easily adjusted every few years to reflect CPI increase in the disposal contract.

Image 11. Rate Structure Option 1 (covers residential disposal costs plus additional recycling funds to cover start up costs and ongoing education)

**Rate
Structure
Option 1**

Projected Per Capita Disposal	500	500	500	400	400	400	600	600	600	700	700	700
Bag price	2.00	2.25	2.50	2.00	2.25	2.50	2.00	2.25	2.50	2.00	2.25	2.50
Revenue/\$												
Trash Fee / base												
Sale of Trash Bags	950,000	1,068,750	1,187,500	760,000	855,000	950,000	1,140,000	1,282,500	1,425,000	1,330,000	1,496,250	1,662,500
Increased Recycling Revenue	17,367	17,367	17,367	20,692	20,692	20,692	14,042	14,042	14,042	10,717	10,717	10,717
Total Revenue	967,367	1,086,117	1,204,867	780,692	875,692	970,692	1,154,042	1,296,542	1,439,042	1,340,717	1,506,967	1,673,217
Cost Reductions /\$												
Avoided Disposal Cost	409,365	409,365	409,365	487,740	487,740	487,740	330,990	330,990	330,990	252,615	252,615	252,615
Reduction Labor	-	-	-	-	-	-	-	-	-	-	-	-
Total Cost Reductions	409,365	409,365	409,365	487,740	487,740	487,740	330,990	330,990	330,990	252,615	252,615	252,615
Total Source of Funding	1,376,732	1,495,482	1,614,232	1,268,432	1,363,432	1,458,432	1,485,032	1,627,532	1,770,032	1,593,332	1,759,582	1,925,832
Cost of / \$ PAYT												
Trash Bag Cost	118,750	118,750	118,750	95,000	95,000	95,000	142,500	142,500	142,500	166,250	166,250	166,250
Cost of additional containers	-	-	-	-	-	-	-	-	-	-	-	-
Cost of additional vehicles	-	-	-	-	-	-	-	-	-	-	-	-
Total cost of program	118,750	118,750	118,750	95,000	95,000	95,000	142,500	142,500	142,500	166,250	166,250	166,250
NET	1,257,982	1,376,732	1,495,482	1,173,432	1,268,432	1,363,432	1,342,532	1,485,032	1,627,532	1,427,082	1,593,332	1,759,582
Budget	1,216,877	1,216,877	1,216,877	1,216,877	1,216,877	1,216,877	1,216,877	1,216,877	1,216,877	1,216,877	1,216,877	1,216,877
Difference	41,105	159,855	278,605	(43,445)	51,555	146,555	125,655	268,155	410,655	210,205	376,455	542,705

Image 12. Rate Structure Option 2 (covers total just disposal based on 09 projected tonnage from haulers with no additional funds)

**Rate
Structure
Option 2**

Projected Per Capita Disposal	500	500	500	400	400	400	600	600	600	700	700	700
Bag price	1.50	2.00	2.50	1.50	2.00	2.50	1.50	2.00	2.50	1.50	2.00	2.50
Revenue/\$												
Trash Fee / base	-	-	-	-	-	-	-	-	-	-	-	-
Sale of Trash Bags	712,500	950,000	1,187,500	570,000	760,000	950,000	855,000	1,140,000	1,425,000	997,500	1,330,000	1,662,500
Increased Recycling Revenue												
Total Revenue	712,500	950,000	1,187,500	570,000	760,000	950,000	855,000	1,140,000	1,425,000	997,500	1,330,000	1,662,500
Cost Reductions												
Avoided Disposal Cost	409,365	409,365	409,365	487,740	487,740	487,740	330,990	330,990	330,990	252,615	252,615	252,615
Reduction Labor	-	-	-	-	-	-	-	-	-	-	-	-
Total Cost Reductions	409,365	409,365	409,365	487,740	487,740	487,740	330,990	330,990	330,990	252,615	252,615	252,615
Total Source of Funding	1,121,865	1,359,365	1,596,865	1,057,740	1,247,740	1,437,740	1,185,990	1,470,990	1,755,990	1,250,115	1,582,615	1,915,115
Cost of PAYT												
Trash Bag Cost	118,750	118,750	118,750	95,000	95,000	95,000	142,500	142,500	142,500	166,250	166,250	166,250
Cost of additional containers	-	-	-	-	-	-	-	-	-	-	-	-
Cost of additional vehicles	-	-	-	-	-	-	-	-	-	-	-	-
Total cost of program	118,750	118,750	118,750	95,000	95,000	95,000	142,500	142,500	142,500	166,250	166,250	166,250
NET	1,003,115	1,240,615	1,478,115	962,740	1,152,740	1,342,740	1,043,490	1,328,490	1,613,490	1,083,865	1,416,365	1,748,865
Budget	801,240	801,240	801,240	801,240	801,240	801,240	801,240	801,240	801,240	801,240	801,240	801,240
Difference	201,875	439,375	676,875	161,500	351,500	541,500	242,250	527,250	812,250	282,625	615,125	947,625

6. Recommendations

The Town of Monroe 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 Town's objective of creating a successful, sustainable, user-friendly, cost effective residential recycling program while working within the current collection infrastructure.

1). Begin a SMART Program on January 09. The timing is perfect because the Town will be at the start of a new contract with no specific 'put or pay' penalty for waste reduction. The savings is significant both financially to the Town and its residents but, also the environment. There are no logistical changes that need to be made for collection of trash or recycling.

2). Begin an enterprise fund in January 09. Determine how to handle the new Official Town of Monroe trash bag revenue stream. The enterprise fund could also be used to capture additional recycling revenue from the increased stream of material as well. It is up to the administration to decide the best use for any surplus funds. Should money be rebated (given back) to residents or used for other town recycling services? It is also up to the administration to 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

3). Eliminate tip fee to haulers. Work with haulers to suggest rate reductions based on potential tonnage reductions.

4) The recycling profit share from the next contract could be added to a town enterprise account. Together the savings could go into a town recycling fund. The fund could be used as a profit share / rebate for residents as in Portland, Oregon or it could be used for a general recycling fund for town events, beaches, schools etc.

5. In order to maximize the SMART program the Town needs to consider a way to add cardboard to the recycling stream immediately. One possibility is collecting these materials along with the other recycling in a clear plastic drawstring trash bag. This style of separation is done successfully in several cities including St. Peters MO, Holland Michigan and NYC. The current recycling hauler would collect the clear plastic bags of cardboard along with the newspaper and mixed paper. When they reach the transfer station these bags could be placed in a trailer provided by one of the local paper recyclers. There would be some labor required at the transfer station. The Town could make a deal directly with a paper recycler for market value of the collected material and this would offset the additional cost of separating the bags. The greatest benefit would be the savings achieved through the avoided disposal cost of the related tonnage. Cardboard and chipboard packaging are very heavy.

7. Implementation Suggestions

An ordinance will be needed to require that residential trash must be contained in an 'official' Town of Monroe

Trash Bag. A volunteer advisory committee should be formed to carry out the implementation. This committee would be a communications link between the needs and concerns of both residents and the Town officials. The members should be comprised of a combination of residents, Town 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. 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.
2. 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.
3. Help decide on bag color and design; choose participating grocery stores.
4. Create multifamily enforcement suggestions and guidelines.
5. Suggest ways to recycle cardboard for residents
6. Suggest additional items to be added for recycling collection. Investigate other state recycling lists.
7. Create up-stream producer responsibility by educating local restaurants, grocery, and convenience stores about 'one way carry out packaging' which meets recycling regulations.
8. Address the potential of illegal dumping. Penalties should be consistent with those currently in existence, such as litter. The Town 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.
9. Address bulky items at transfer station drop off. The Town should utilize the current transfer station as a drop off location and consider charging for bulky items.

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. Two economical solutions are to reduce and reuse. Samples of source reduction seen in communities with unit based communities are bringing clothes, shoes, small appliances, and electronics to the Salvation Army; bringing your own bag or mug back to the retailer; giving furniture and toys to relatives or friends; or using a local 'Swap Shop'. Many successful programs have a means for customers to exchange usable items at a 'Swap Shop'. This allows customers to drop-off items and staff will sort and store items at the facility preparing them for a future owner. Technology has been used to simplify this process. A web site, or a section of the Town's web site, could be dedicated for customers to post usable items no longer needed as well as posting items wanted. Supplier and receiver make their own arrangements for pick up or delivery. Items can be exchanged for further use, reducing waste and costs for all parties, removing the need for use of Town facilities. Only one person (a few hours a month) is needed to set up the site and monitor it.

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 Town of Monroe is to create an advisory committee made up of some Town employees, residents, and selectmen (as suggested above). The advisory committee can guide the Town through the implementation process. Generally a 4 to 6 month period is ideal.

Phase 1 September / October

1. Create a clear message to sell the SMART program to residents.
2. Create bid specifications for Official Town of Monroe trash bags and related services.
3. Present RFP specifications for approval by Town.
4. Send specifications out through internet and by mail allow 3 weeks for return of RFP
5. Check into recycling containers. Do residents have enough containers to maximize recycling?

6. Determine a specific start date by working backwards from bag delivery time. Ideally Official Town bags should be in stores 3 to 4 weeks before start date.
7. Create public education and relations strategy

Phase 2 November / December

1. Public relations through local newspaper, advertorials, interviews, PSA, flyer for households etc
2. Possible school education program
3. Mail information in tax bill / show discount or disclosure of disposal costs.
4. Address the issues listed in above section (illegal dumping, cardboard recycling, producer responsibility etc)

Phase 3 January/February/ March

1. Eliminate tip cost to haulers
2. Implementation of SMART waste management program
3. Continue public relations so residents understand where to purchase bags and what items can be recycled etc.

The recycling profit share could be added to a Town rebate for avoided disposal. Together the savings could go into a Town recycling fund. The fund could be used as a profit share / rebate for residents as in Portland, Oregon or it could be used for a general recycling fund for Town events, beaches, schools etc.

Appendixes

Time line for implementation

1. Similar news clippings
Shrewsbury
Duxbury
Longmeadow
Bath and Brunswick
2. Waste Reduction Charts
Northborough
Worcester
Duxbury
Stafford
3. Flyers
Marshfield
4. Bag inserts
Binghamton
Stafford
5. Press Release
Plymouth