

Success with Pay As You Throw

Ted Siegler and Natalie Starr
DSM Environmental Services, Inc.
DSMEnvironmental.com

DSM's Role In PAYT

- **Technical assistance to municipalities**
 - Analysis of the potential for PAYT
 - Citizen meetings and focus groups on attitudes toward PAYT
 - Working with municipal staff to design PAYT programs specific to the municipality
 - Advocating for PAYT at Council meetings
 - Preparation of RFP's for contract collection under PAYT programs
- **Our presentation today will focus on our experience with implementation of PAYT**

Let's Start With a Name Change

- For all those communities where PAYT is a four letter word!
- Old Terminology
 - Unit Based Pricing
 - Volume Based Pricing
 - User Based Pricing
- Re-Branded
 - Save Money And Reduce Trash (SMART)

SMART Benefits

- **Remove costs of solid waste and recycling from municipal budgets and property taxes**
- **Charge in a more equitable way for waste collection and disposal**
- **Increase recycling and yard waste diversion**
- **Encourage waste reduction and reuse**

Removing All or Some Portion of Waste Management Cost from Property Taxes

- **Municipal budgets are under significant strain**
 - **Rising health and pension costs**
 - **Public safety demands**
 - **Education**
 - **Roads and bridges**
- **In essence, PAYT can “de-couple” decisions about solid waste from property tax issues**
- **Provides ability to add new programs paid for by users**
- **Eliminates business subsidy of residential waste management**
- **But also eliminates the income tax reduction (subsidy) that many households realize by paying for solid waste with property taxes**

Creates More Equitable Fees

- Depending on how aggressively structured, unit based pricing can be used to treat solid waste collection, processing and disposal just like any other utility – the more you generate the more you pay
- But, as currently structured most programs embed cost of recycling and yard waste collection in solid waste charge
 - That means big users of recycling and yard waste collection system (often high income households) may be subsidized by low income users who may generate both less recyclables and less yard waste

Incentivizes Materials Diversion

- Diversion of recyclables and organics is typically the primary goal of unit based pricing for environmental agencies
 - But diversion is not typically the primary driver for municipal governments
 - Savings in municipal budgets is typically the primary driver
- How much diversion depends to a significant degree on several key factors
 - How aggressively solid waste is priced
 - Whether there is some type of minimum level of service that everyone gets before a requirement to pay
 - The infrastructure available for diversion
 - Parallel access for all
 - Large rolling carts for single stream recycling
 - Regular collection frequency for yard waste
 - And even local, reuse opportunities

Encourages Waste Reduction

- Many municipalities report total reductions in solid waste collected ranging from 20 to 40 percent
- The question is how much of the reduction represents a reduction in waste generation, as opposed to diversion.
 - SERA study (2000) found diversion was 17% with recycling representing 5-6 percent, yard waste diversion another 4-5 percent, and source reduction 6 percent

How Much Is Reduced Generation (The Holy Grail of Waste Management)

- Diversion to recycling and organics management are relatively easy to quantify
- But other diversion is much more difficult to quantify
- Depends on one or more of the following variables:
 - Removal of waste that shouldn't have been there to start with
 - Small business waste
 - Neighboring municipalities with PAYT or more stringent limits on set outs
 - Unlimited construction or other bulky wastes before new program
 - Leakage to commercial dumpsters
 - Private haulers offering competing services for less or same cost with no limitations (Middletown, RI and Worcester, MA are two examples)
 - “Got Junk” haulers collecting material previously set out for disposal
 - Increased use of Goodwill and other reuse opportunities
 - Movement to drop-off disposal sites (if they exist nearby)
 - Movement to neighboring municipalities with less stringent requirements
 - Storage of bulky waste after implementation of PAYT (rebound effect)
 - Open burning (in rural areas)
 - Placement of waste in recycling containers

Waste Reduction or Diversion (cont.)

- With exception of SERA analysis (2000) have not found rigorous analysis which isolates these variables from true reductions in waste generation
 - Certainly, providing a price signal encourages households to think more carefully about the impact their purchases will have
 - But disposal costs under PAYT are relatively low for most households
 - Roughly 10 cents per pound at \$2 per bag
 - Unclear whether the cost to waste less – as opposed to recycle more - is significant enough to change behavior
 - Using cross-sectional data across municipalities with different incomes and different climates adds additional variables
 - In the absence of rigorous studies it is our professional opinion that only a small portion of the reported 20 to 40% reduction in waste set outs represents true waste reduction
 - SERA estimates of 5 – 7 percent seem reasonable
 - Interestingly, some economists argue that by providing “free” recycling and composting, we are discouraging true waste reduction activities

EXAMPLES

Concord, NH (Population: 40,000)

- **Contracts for three refuse collection services:**
 - Roughly 14,500 households on curb service (1-6 units)
 - Roughly 4,800 on containerized (> 6 units)
 - Downtown business district billed separately
 - Many small businesses were using curbside system
 - Curbside recycling for 1-6 unit and recycling drop-off for all



Concord *(continued)*

- **Instituted PAYT in FY 2009:**
 - Was facing a “perfect storm” of increasing property taxes and increasing disposal costs
 - City Council agreed at midnight to adopt PAYT after a 3 hour hearing
 - Had been rejected by Council in 2006
- **Key implementation issues**
 - Curbside must use bags for all refuse (\$2 for 30-gallon and \$1 for 15 gallon)
 - Weekly curbside, dual stream collection unchanged
 - Containerized (multi-family) charged based on volume and collection frequency
 - Containerized buildings added single stream containers for recyclables
 - Downtown business district – no change

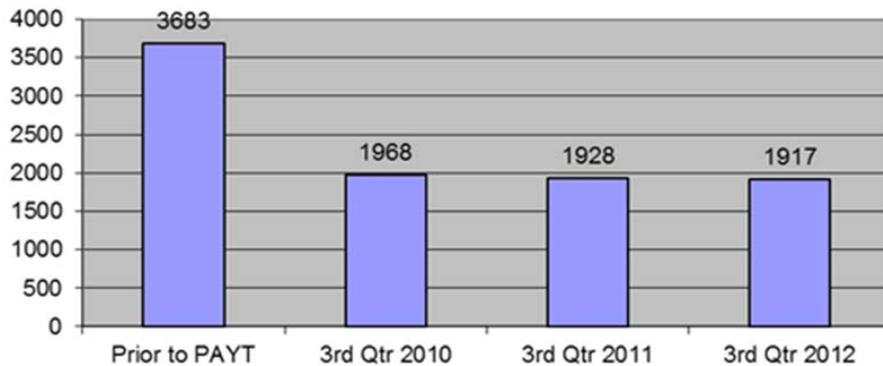
Concord's Results

(Chip Chesley, Concord General Services Director)

Solid Waste Reduction

- 40% reduction in solid waste collected

Solid Waste Volumes Prior to PAYT vs 3rd qtr FY 10, FY 11 and FY 12



Recycling

- 60% increase in recycling

Recycle Volumes Prior to PAYT vs 3rd qtr FY 10, FY 11 and FY 12



Concord System Changes

- Businesses stopped using curbside service
- Containerized customers (primarily multi-family buildings) gained parallel recycling service
- Some containerized customers (multi-family building owners) reduced container volume or got off City service
 - Contracted with a commercial hauler
- Downtown business district saw large increase in waste disposed in their dumpsters
 - Initially up 60%
- But all of these probably do not add up to the 40% reduction in disposal that Concord has recorded

Middletown, RI

- Middletown had a town transfer station (used by about 30 – 40% of residents) with remaining households subscribing to private hauler refuse collection
- Transfer station was forced to close because it was on leased Navy land
- Based on an analysis of alternatives, Town Council decided to not open new transfer station
- Instead, Middletown released an RFP for single hauler collection of PAYT refuse, recycling and yard waste using PAYT bags inside rolling carts
 - Bulky waste required pre-purchased sticker based on type of waste and volume

Middletown's Results

- **Recycling rate (for materials sent to MRF) went from less than 10% under old system to over 40%**
 - **But Middletown did not restrict residents from contracting for subscription collection of refuse (essentially opting out of PAYT)**
 - **An unknown number of households subscribed to refuse collection but continued to take advantage of “free” recycling program**
 - **Required Middletown to move to hybrid PAYT with a bi-annual fee for all households wanting to receive Middletown collection of refuse and recycling**
- **DSM is currently working with Middletown on second 5 year contract for PAYT collection –key issue is whether participation will become mandatory**

Potential for Boston

- DSM was contracted by Boston to analyze potential for implementation of PAYT City-wide
- Boston provides refuse and recycling collection to almost all 255,000 households :
 - 42% in buildings with > 6 units
 - Containerized waste for approximately 20% of buildings, and 2 or 3 times per week collection in some areas
 - Restrictions on set outs (no C&D), limits on bulky waste and addition of single stream (with carts to all 1-6 unit buildings) have already reduced set-outs by 21%
 - Recycling Rate of 18% (14% recycling, remainder yard waste)
- **PAYT Expected Results:**
 - Expected a 30% increase in recycling
 - Recycling rate expected to reach 28% (21% recycling) under most aggressive program
 - Would require everyone pay per bag (or per yard), City and Contractor to enforce jointly, and landlords to play active role
 - Waste “reduction” assumed was 18% and diversion 25% (so 25% reduction in waste set-out)

Boston (*continued*)

- **Why Not More Reduction?**
 - Boston had already reduced waste collection by 21%
 - Must share carts and containers and use bags in some places where carts can't be used
 - Not enough yards to have yard waste be a large contributor – expensive to offer yard waste
 - No where for waste to go since Boston offers everyone service and many don't have cars
 - Boston could achieve high reductions IF large multi-family switch to “commercial” service and get off Boston's residential program



BEST PRACTICES

Creating Successful Residential PAYT Systems (Key Issues)

- **Type of collection system before implementation**
 - **Municipal (public works) collection, contract or exclusive franchise**
 - **Service provided by private haulers under subscription**
 - **Drop-off service**
- **Carts or bags**
- **Percent of larger multi-family buildings, and commercial use of system**
- **Pricing structure and success**
- **Bulky wastes**
- **Political framework and timeline**

Type of Collection System

- Public control of the collection system at the time of implementation is typically necessary – although not essential
- If multiple private haulers are providing subscription based collection implementation becomes more difficult
 - Bag based system won't work because need a single bag which makes it difficult to pay private hauler –unless hauler distributes
 - While municipality could take over disposal cost, and price bag only on disposal cost, the per bag cost associated only with disposal cost would not offer a significant incentive
- Cart based system can be implemented by multiple haulers
 - Chittenden County, VT is good example
- But it is difficult for multiple haulers to implement aggressive pricing structure
 - Marginal cost to collect a larger cart is relatively insignificant
 - Unless municipality specifies through licensing that linear pricing is required of all haulers, haulers can under-price competitors by offering larger refuse capacity at lower cost

Carts or Bags

- **Bags have several advantages**
 - Municipality can avoid having to bill – bag supplier can handle this task in conjunction with retailers
 - Bags can be as small as 15 gallons, and can be weight limited (by mil thickness of bag)
- **It is possible to combine bags and carts**
 - Middletown RI
- **Carts do have benefits**
 - Less plastic waste going to landfills
 - Neater streets – less opportunity for animal scavenging
 - Automated and semi-automated collection
 - More predicable revenue source

Multi-Family Buildings

- Multi-family buildings that are too large (or do not have enough street/storage space) for individual unit carts present unique implementation problems
- Two potential solutions
 - Bag based systems where all units are supplied with bags by building owner – or must be purchased by household, with set-out as bags on the street
 - Dumpster based systems where the size of the dumpster is specified by number of units with size priced accordingly

Boston and Seattle

- **Boston**
 - Insufficient room on streets in downtown Boston for either waste or recycling:
 - Bagged recycling and frequent refuse collection
 - Containerized collection for 20% of households
 - Potential for Hybrid System with bags for curbside households and bags used in containers for containerized households (property owner supplies or gets of City service)
- **Seattle**
 - Seattle Public Utility requires all multi-family buildings to provide equal access for garbage and recycling (parallel collection) and utility works with building owner to size waste dumpster
 - In downtown district where dumpsters are prohibited building owner can provide (for free or for sale) to individual units, or they can place non PAYT bags at curb and pay double

Pricing Structure

- The amount of waste diversion/reduction depends significantly on how aggressively the service is priced
- Pricing only the impact of disposal of waste through unit based pricing will probably be insufficient to drive significant diversion
 - Typical household generates 1800 pounds per year or 35 pounds per week – at \$60 per ton that is equivalent to \$1.03 per week
 - Bag price would only be 65 cents assuming typical 20 pounds/bag

Pricing *(continued)*

- **Bundling all services and costs and providing no “free” first cart or bag will typically provide significant incentives**
 - Cost per cart or bag will typically be in the \$2.50 - \$3.00 range per 32 gallons of capacity
 - Monthly fee for cart might be \$12 - \$24 for weekly collection
- **One alternative which allows full enterprise funding but at lower cost per unit is to implement dual charge**
 - Annual fee to cover some amount of collection
 - Per bag charge for all waste

Estimating the Right Price

- **Systems designed to fully fund the service through user fees should expect significant uncertainties in first several years**
 - **The amount of waste “reduction” is unknown at time of implementation and may include factors outside of municipality control**
 - **Reliance on bag revenues alone a challenging proposition**
 - **Examples:**
 - **Concord could not predict waste reduction since didn't know how many households were on curb system and how many would opt out of containerized service**
 - **Middletown went from bag only to \$50, then \$150 annual fee plus bags to fully fund enterprise fund**

Affect on Low Income Households

- This can be a significant concern to municipal officials thinking about implementing unit based pricing
- A strategy of providing one 32 gallon cart, barrel, or bag at no cost can resolve this issue, but will reduce the impact of the pricing on waste reduction and diversion
 - Brockton is good example of this approach
- Price can be set low enough so the burden is considered manageable
 - Worcester's approach
- Depending on state law it may be possible to provide assistance to low income households through subsidy for utility payments

Bulky Wastes

- Bag and cart based systems require changes for municipalities that have had a liberal policy of collecting bulky wastes as part of MSW
- Approaches can include:
 - Stop accepting bulky wastes but provide households with the telephone number of private waste hauler who will provide service (Worcester)
 - Provide for one “free” bulky waste item per collection (Brockton)
 - Establish a price list for bulky waste with households purchasing stickers and or providing credit card number to schedule collection
 - Providing “amnesty days” can help alleviate concerns about illicit dumping (Middletown)
- At minimum limiting bulky waste allowance can lead to waste reduction



Political Framework and Timeline

- PAYT is typically publically vetted before implementation becomes possible
- The single largest driver is cost impact on property tax rate
 - It is difficult to counter the argument that PAYT will not reduce property tax rate (often called an “added tax”)
 - Environmental considerations rarely sell PAYT by themselves – but may help push over the edge
- Is there a champion in community?
 - Business community wanting garbage off property tax
 - Environmental groups supporting recycling and GHG reductions
- Need support from multiple groups
- Be prepared for the late night meetings
- Reiterate reasons for change

Emerging Issues

- **The price of success**
- **State mandated unit based pricing**
- **Organizing collection to implement unit based pricing**
- **Moving into commercial wastes**

The Price of Success

- Unit based pricing is typically used to drive increased diversion
 - Recycling and organics diversion bundled in total cost and provided as “free service” to the user
- Potential Issues:
 - Recycling and organics are not free – they can be a significant component of total cost
 - As MSW diversion increases a greater burden is placed on the remaining MSW to fund the increased diversion
 - The addition of relatively costly food waste organics could result in prices for MSW that do impact low income households
 - Aggressive pricing of carts over and above marginal cost of service can be challenged as not fair and equitable pricing

State Mandated Pricing

- There are over 7,000 municipalities with some form of unit based pricing
- But there are over 30,000 incorporated cities in the US (Wikipedia) meaning there are tens of thousands of municipalities without unit based pricing
- For some municipalities, the political cost of adopting unit based pricing is simply too great
- We often hear - “if you want unit based pricing you are going to have to mandate it” – shifting the political pain to a higher level
- Given that PAYT pricing is likely to be the largest single driver of high diversion rates it may be in a state’s best interest to mandate PAYT pricing

Organizing Collection

- For areas where subscription collection is the norm and multiple haulers operate in a single municipality, organizing collection may be necessary
- This has its own set of political issues, including potentially stranded assets and loss of a business by smaller haulers who may not be able to compete
- Ways to implement true unit based pricing with multiple haulers must be found if organized collection is not possible

Moving Into Commercial Waste

- While it can be argued that most commercial waste is already unit based priced there are municipalities who believe that more aggressive pricing is necessary
- Restrictions on container sizes, parallel recycling requirement and a true volume based pricing approach is necessary to send pricing signals to businesses
- Requiring PAYT pricing in residential multi-family units (typically considered commercial waste) may be a good implementation strategy



DISCUSSION