"Pay-As-You-Throw"
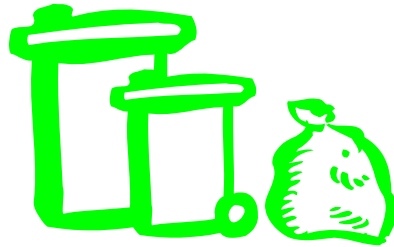
Unit Pricing of
Municipal Solid Waste

Pay-as-you-throw programs are incentive-based strategies for reducing the amount of MSW community residents generate.

This briefing will include an introduction to pay-as-you-throw and a discussion of how it can help our community better manage MSW.

We also will talk about how to design and implement a program that will succeed in our community. Many of these strategies have been learned from communities that have implemented programs of their own.

MSW Hierarchy Pyramid

Waste Prevention

Composting and Recycling

Landfilling and Combustion

Maintaining control over solid waste in the long term depends on emphasizing waste reduction.

Landfilling and combustion, while necessary, are the least desirable management methods. They occupy the bottom of the hierarchy.

Recycling, which reduces the amount of waste we have to dispose of, is preferable.

Waste prevention, which prevents materials from becoming waste in the first place, is at the top of the hierarchy.

Potential Benefits

■ **Encourages the Three Rs:**

- **Reduce**
- **Reuse**
- **Recycle**

REDUCE
REUSE
RECYCLE

Pay-as-you-throw directly supports waste prevention and recycling. Because residents pay for whatever they throw out, they tend to work harder to reduce, reuse, and recycle.

Because of this "pocketbook" motivation, it is likely that pay-as-you-throw will result in less total waste our community has to dispose of. Increased recycling rates will be a major factor in this.

In addition, when markets for collected materials are strong, greater recycling rates offer the potential for increased revenues from the sale of these materials.

Potential Benefits

- **Encourages the Three Es:**
  - **Environment**
  - **Economics**
  - **Equity**

The increased reducing, reusing, and recycling leads to further benefits, called the Three Es.

Environment: Less waste means less landfill space is needed. In addition, reduced need for manufacturing goods can result in less pollution.

Economics: For the municipality, less waste means lower collection and disposal costs. For residents, they control their costs. If they throw away less, they will pay less.

Equity: Waste management costs money, but now the costs are spread more fairly. Those residents that generate large amounts of waste will have to take financial responsibility for it.

Waste Reduction Results

- **Perkasie, PA** — 54%
- **MN Town 1** — 60%
- **MN Town 2** — 37%
- **Duke University Study of 14 cities** — 44%

6 MA Cities

- **Before Unit Pricing** — 1.5 - 4.5 ppd
- **After Unit Pricing** — 0.89 - 1.09 ppd

- **Cornell University, Tompkins County, NY** — 76% of residents reduced waste

What does the evidence show? In virtually every case, communities with pay-as-you-throw report that waste generation declined. Here are some examples.

The average waste reduction reported by pay-as-you-throw communities is between 25 and 45 percent. (Results may vary, depending on such factors as current waste collection systems and options chosen for pay-as-you-throw.)

Different Unit Pricing Programs
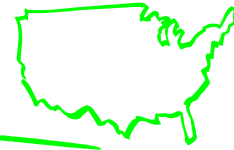
Community	Population	Type of Program	Change in MSW	Change in recycling
Plantation, FL	64,000	Bags	*	+21%
Perkasie, PA	7,900	Bags	-54%	+50%
High Bridge, NY	4,000	Stickers	*	+18%
Illion, NY	9,500	Bags	-51%	+41%
Pasadena, CA	119,374	Can	-21%	*
Loveland, CO	31,000	Stamp	-62%	*
Austin, TX	450,000	Can	-40%	*
Dupage County, IL	668,000	Bags	-53%	*

* Data not avalilable

Those communities with existing recycling programs also show significant increases in the amount recycled.

Studies also show that waste prevention and recycling amounts increased in all the reporting communities, regardless of size or geographic location.

Deciding Whether to Use Pay-As-You-Throw

- **Will the program meet our MSW goals?**
- **Will residents support the program?**
- **Will costs and revenues balance?**

Ultimately our community has to decide about pay-as-you-throw based on three issues:

Will it meet our MSW goals? We need to compare the potential advantages of pay-as-you-throw to our MSW goals and make a judgment about whether the program will bring us closer to meeting these goals.

Will residents support it? They most likely will, if the program is well-designed and we reach out to educate them about pay-as-you-throw.

Will costs and revenues balance? The only way to determine this is to perform some detailed rate design work and evaluate the results.

Pay-As-You-Throw Goals (Examples)

- **Raise sufficient revenues**
- **Encourage MSW reduction through price signals**
- **Convey a better understanding of social costs to citizens**
- **Charge for recycling and other complementary programs**
- **Allow for the needs of special groups**
- **Keep the program simple to use and run**

Pay-as-you-throw programs can help a community meet a number of important goals. These are just a few examples.

Our goals include:

[List your community's MSW goals; discuss how well pay-as-you-throw will meet them]

Education and Outreach

- **Need the support of residents!**
- **Build consensus with an outreach campaign**
- **Citizens' advisory council can help:**
  - **Set goals**
  - **Build consensus**

If we decide to go with pay-as-you-throw, we must earn the support of residents. A key lesson from communities with pay-as-you-throw is that such programs will not succeed without residents' approval.

To achieve this, the first step will be to initiate an outreach campaign. One goal of the campaign is to inform residents about why the new program is needed.

A second goal of the campaign is to involve residents in the actual planning for the program. Setting up a citizens' advisory council that includes civic leaders and other residents can help accomplish this.

The citizens' advisory council can assist in developing goals and in finding ways to reach out to the community about the new program. The council also can provide input on important decisions about how the program will be structured.

Building Consensus

- **Explain current MSW issues**
- **Present community's MSW goals**
- **Explain how Pay-As-You-Throw can meet these goals**
- **Residents more likely to support program when they see tangible benefits**

It is possible there may be some initial opposition to the program, since residents are going to be asked to pay for a service they may think they had been getting for free.

To overcome this, our outreach campaign could first discuss the problem. For example, we can let residents know that the increasing amount of trash is making MSW management harder and more expensive.

Then, we could relate these issues as goals. For example, we could say that a primary goal is to reduce MSW amounts.

Finally, our campaign should explain pay-as-you-throw and discuss how it can help us reduce trash and achieve other goals as well.

Techniques for Building Consensus

- **Hold public meetings**
- **Issue press releases/outreach to local media**
- **Prepare briefs for elected officials**
- **Work with retailers**
- **Enclose information with utility bills/other mailings to residents**

There are many different ways to structure the outreach campaign. Presentations could be made at public meetings on pay-as-you-throw and why it can help.

Involving local news outlets via press releases and invitations to public meetings is important. Achieving positive press coverage could go a long way toward easing residents' concerns.

Briefings for elected officials can help them better explain the program in public appearances.

Retailers can be educated about the program and also can display materials about it in their stores. Direct outreach to residents through mailings can be effective as well.

Another effective method of generating public support is to reach out to specific groups, such as the elderly or school children.

Children in particular are an important audience. Children tend to bring the messages they receive back home to their parents, which can help pay-as-you-throw gain acceptance community-wide.
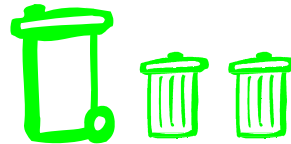
Rate Structure Container Options

- **Tags**

- **Bags**

- **Cans**

The next step is to design the structure of the program.

Some programs sell tags or stickers to residents to affix to their own bags. Under this system, the price of the tag or sticker includes the collection and management costs for the trash. The tag often indicates a specific size container, and alerts collection crews that the waste has been paid for.

Bags with some type of distinctive marking or color can be sold to residents at retail outlets or municipal offices. The price of the bag includes the collection and management costs for the trash.

Cans also can be used. One option is to offer a large can, and bill residents for the number of cans they fill up. Smaller size cans also could be used for any waste beyond the first large container.

Bag and tag systems tend to allow for faster collection, and no billing is needed. Residents tend to find these systems easy to understand.

There can be some revenue uncertainty, however, since residents may buy bunches of bags or tags at hard-to-predict intervals.

Can systems tend to offer greater revenue stability, and won't tear or scatter trash. Cans also often are compatible with automatic collection equipment.

A system for billing residents for their can set-outs is needed, however, which can increase administrative costs.

Rate Structure Systems for Unit Pricing

- **Proportional (linear)**
- **Variable Container**
- **Two-tiered/ Multi-tiered**

The next step is to decide how to price the containers.

Under proportional systems, a flat price is charged for each container. This provides a very simple, clear signal to residents to reduce waste, and it is easy to administer.

The variable rate is used when different size containers are available. One price is used for the large container, and different prices are set for the smaller containers residents might use.

Because revenues may fluctuate with linear and variable rate systems, some communities use two-tiered or multi-tiered systems. These options establish a monthly flat fee to cover the fixed costs of MSW management. Then, a per-container charge is set on top of that. This lessens the waste reduction signal somewhat, but minimizes any revenue uncertainty.

Because residents have an incentive to reduce waste, it makes sense to offer additional avenues to accomplish this. These options are called complementary programs.

For example, nearly all communities with pay-as-you-throw include curbside recycling collections. Recycling enables residents to divert a large percentage of the waste they have generated.

Complementary Programs

- **Recycling collections**
- **Yard trimmings collections for composting**
- **Bulky items pickups**

Yard trimmings, which comprise a large percentage of the waste stream, also can be diverted through curbside collection or by encouraging backyard composting.

Bulky items will need to be planned for. Because they cost more to collect and dispose of, many communities have established a special fee system for "white goods" or bulky items using tags or stickers. Residents often are asked to put a set number of tags or stickers on these large waste items to indicate that their collection has been paid for.

Designing a Rate Structure

- **Costs**
  - **Estimate Demand:**
    _____ cubic yards/tons MSW
  - **Determine Services**
    (curbside recycling, low-income
    assistance, etc.)
  - **Estimate Costs:**
    $ _____ fixed and variable costs

After making the basic decisions about the program, the next step is to create a rate structure that balances costs and revenues.

The first step is estimating the demand for services, expressed as the amount of waste you expect to collect annually. This figure should take into account possible changes in the size of our community and the waste reduction impact of the new program.

The next step is determining the services that will be offered with the program. These services might include curbside recycling, a composting program, bulky waste collection, or assistance to low- or fixed-income residents.

Next, the cost of collecting the estimated amount of waste and providing the planned services needs to be calculated.

Designing a Rate Structure

- **Revenues**
  - **Develop Rates: $ _____ per unit**
  - **Calculate Revenues:**
   **_____ units MSW x $ _____ per unit = $ _____**

Revenues then need to be calculated.

First, an estimated fee per container should be established. Then, this rate is multiplied by the annual number of containers residents are expected to fill. These are the revenues that the program will generate.

Designing a Rate Structure

- **Balance**
  - **Weigh costs against revenues**
  - **Adjust costs and/or revenues as needed**

$ _____
Costs

$ _____
Revenues
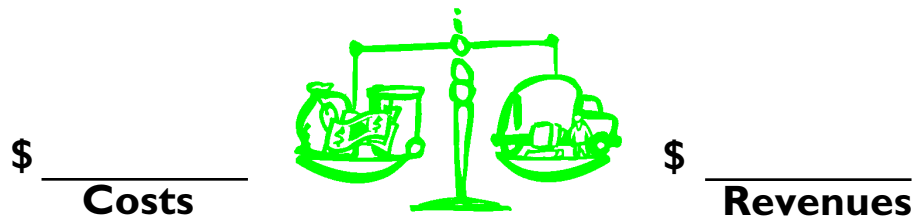
Now the expected costs and the projected revenues can be compared and balanced.

It is likely that adjustments will be needed. It may be necessary to cut back on some services or raise the per-container fee to cover a shortfall.

On the other hand, if a surplus is projected, then the container fee could be lowered. A lower price also might help convince residents to support the program.

Challenges and Solutions

- **Illegal dumping** — Education, legal diversions, enforcement

- **Multi-family housing** — Include charges in rent, bar code chutes

- **Low-income groups** — Rebates, discounts

- **Covering costs & revenue stability** — Two-tiered billing

- **Regressivity & hidden tax issues** — Appropriate pricing and refunds

There are a number of potential barriers we need to consider. With the appropriate planning, these barriers can be overcome.

The most commonly voiced concern when pay-as-you-throw is proposed is illegal dumping. However, experience from communities with pay-as-you-throw has shown that illegal dumping typically is less of an issue than originally feared. The key is educating residents to keep them from dumping their waste and provide them with significant opportunities (such as recycling and composting) to divert their waste legally. Strong enforcement also should be available.

Residents in multi-family housing can be difficult to service, since they often place their trash in common dumpsters. Possible solutions include adding the charges to rent or incorporating bar code readers in garbage chutes to monitor waste generation by residents.

To help low-income groups participate, rebates, discounts, or other forms of assistance can be provided.

If it turns out that a major priority is to ensure that revenues will consistently cover costs, a two-tiered or multi-tiered rate structure can be used.

Residents also might be concerned about being taxed for solid waste services and then, under the new program, also being charged the variable fee. Making a point of lowering taxes by the appropriate amount or redirecting those revenues to other programs that residents support can help diffuse this issue.