

The image features a scenic landscape background with rolling green hills, a blue lake, and distant mountains under a blue sky with white clouds. The WasteZero logo is prominently displayed at the top. The word "Waste" is in blue, "Zero" is in green, and a registered trademark symbol (®) is to the right. Below the logo, the tagline "Save Money. Reduce Waste." is written in a smaller font, with "Save Money." in blue and "Reduce Waste." in green.

WasteZero[®]
Save Money. Reduce Waste.

Greensboro Solid Waste Commission

November 20, 2013

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Agenda

- Introductions
- Background/Discussion of Solid Waste in Greensboro, NC
- Current Situation and Pay-As-You-Throw
- Why WasteZero
- WasteZero Solutions
- WasteZero Results
- Next Steps
- Real-Life Success Stories
- Frequently Asked Questions



City of Greensboro

Background

- Greensboro currently has a total population of 273,425.
- The city provides approximately 84,000 households with weekly curbside solid waste collection in 96-gallon carts.
 - The city collected around 55,000 tons of residential municipal solid waste in FY13. Currently, tipping fees are about \$44 per ton.
 - Receives \$30/ton revenue per ton from FCR for recyclables, totaling around \$545,000 in 2013 from residential sources.
- Fully automated biweekly curbside recycling using 90-gallon carts was implemented in 2008.
 - The city continues to increase the availability of its recycling program to multifamily communities.
- The city currently funds all solid waste and recycling through its general fund.
 - Solid Waste Management System Fund Revenues for FY13 are budgeted to be \$14.7 million.
 - Solid Waste Management System Fund Expenditures for FY13 are budgeted to be \$18.6 million.

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Current Situation

Waste Management Challenges Facing US Municipalities

- **Permitting landfill and incinerator capacity**
Including both new facilities and expansions
- **Skyrocketing tipping fees**
With no resulting enhancement to the quality of life or service levels for residents
- **Poorly designed residential fee structures**
Providing no incentive to recycle, resulting in recycling programs that are not optimized
- **Budget limitations**
Restricting our municipal partners' ability to launch and manage waste reduction programs
- **Environmental degradation**
Failing to recycle optimally negatively impacts in staggering proportions of natural resource depletion, energy consumption, and water and air quality.

In an attempt to address these challenges and to forge real and lasting change, many communities have turned to pay-as-you-throw (PAYT) programs.

Pay-As-You-Throw

According to the EPA,



“Pay-as-you-throw (PAYT) programs, also called unit-based or variable rate pricing, provide a direct economic incentive for residents to reduce waste. Under PAYT, households are charged for waste collection based on the amount of waste they throw away, in the same way they are charged for electricity, gas, and other utilities.”

*PAYT programs differ widely—
in the way they’re metered, implemented, measured, and priced.*

Pay-As-You-Throw

Critical Success Factors

For Residents

- Easy to understand
- Convenient and user-friendly
- Fair, maintaining the proper incentives
- Continuous positive behavior reinforcement
- Effective communication materials and support tools



For Municipalities

- Strong resident satisfaction
- Quick implementation
- Minimal or no capital expenditure
- Immediate and long-term waste reduction
- Minimal staffing requirements
- Long-term financial viability
- Support for community's environmental objectives



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Why WasteZero

WasteZero partners with municipalities to deliver the most effective waste reduction programs in the United States.

We provide the expertise, supplies, support services, and financing to ensure that programs are successful.

Our approach is to invest the resources needed to successfully implement programs and then share in the benefits and savings as a true partner.

Founded in 1991, we deliver programs that reduce waste going into landfills and incinerators, improve recycling rates, and generate revenue.

Why WasteZero

Key Company Facts

- We are 100% focused on implementing successful municipal waste reduction and recycling programs.
- We embrace pay-as-you-throw (PAYT) and other innovative solutions while dedicating our company to our municipal partners' success.
- We partner with approximately 800 municipalities to support their solid waste program—more than any other company in the US.
- Of the programs that we've designed and implemented over the past 20 years, 100% are still running successfully.
- We manufacture all of the supplies that support our programs in a state-of-the-art manufacturing facility in Hemingway, SC.
- We maintain offices in Cambridge, MA; Raleigh, NC; Murrells Inlet, SC; and Chicago, IL.

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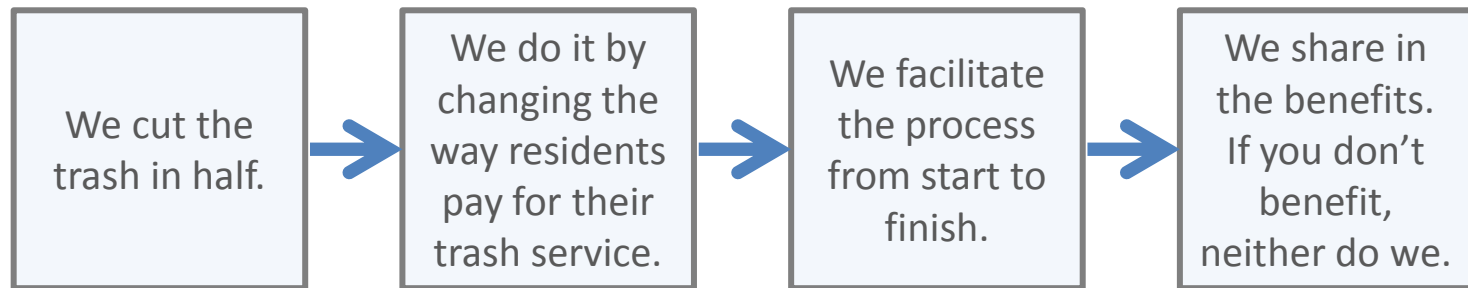
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WasteZero Solutions

Beyond Traditional PAYT

- For more than 20 years, we've provided both products *and* services.
- Over the past five years, we've evolved our primary focus to delivering fully managed WasteZero Trash Metering™ programs.
- Ours is the **only** turnkey solution in the industry.



WasteZero Solutions

Next-Generation Pay-As-You-Throw



WasteZero Trash Metering™

*“WasteZero's next-generation PAYT programs, known as WasteZero Trash Metering™, are the simplest and most easily adopted by your residents. The concept is amazingly straightforward: **rather than pay a fixed fee, residents purchase and use official municipality-approved trash bags stocked at local retailers. Since recycling is free, this naturally encourages overall waste reduction.**”*

- WasteZero Trash Metering™ programs are **more robust and effective** than any PAYT program out there.
- While traditional PAYT programs reduce a town's residential trash by an average of only 20%, our **results are consistently higher**, averaging 44% or more.
- Not only do we commit to a multi-year partnership with your community, but we also **provide all supplies and services to launch and manage your program.**



WasteZero Solutions

WasteZero Trash Metering™: Municipal Perspective

1 Three to six months in advance, the program is launched to residents via web, print, and press.



3 WasteZero stocks the municipality's bag in stores across town.



2 Customized bags featuring the city's municipal seal are produced for resident use.



4 The program goes live. Trash is now being "metered" using WasteZero Trash Metering™ bags.

- Recycling is collected in municipality-provided carts (funding remain unchanged).
- Trash is collected only in municipality's approved bags.

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WasteZero Results

WasteZero Trash Metering™

Immediate (within 30-60 days)

- Trash tonnage to landfills and or other disposal facilities is reduced by 20% to 30%.¹
- Recycling rates increase as landfill tonnage decreases.
- The municipality sees dramatic increases in revenues from recycled materials.
- The program is operating smoothly with 99%+ compliance.

Long Term

- Tonnage can be reduced up to 50%¹.
- Recycling revenues rise as more material is diverted.
- Residents become increasingly satisfied as they understand the benefits of the program.

¹Assuming municipality has no managed waste reduction program at inception.

WasteZero Results



WasteZero partners across a broad range of community sizes have averaged a 44% reduction in solid waste over a period of years.¹

¹WasteZero analysis of selected programs for which historical data were available. Programs represented have been in place for 1 to 16 years.

WasteZero Results

Benefits	Due to:
Financial	Reduced tipping fees and operational savings
	Increased revenue from the value of recycled materials
	Strengthened overall financial health of municipality, region
Environmental	Reduced natural resource depletion, energy use, and carbon emissions/toxins in the air and water
	Extended landfill life and reduce airspace depletion
Community	Ongoing direct financial impact to households for reducing trash and increasing recycling
	Additional regional employment in recycling/reuse sector

WasteZero Results

Preliminary

Preliminary Estimate of Annual Net Financial Impact

Implementing a WasteZero Trash Metering™ program will enable the city to enjoy increased revenue and reduced costs, with preliminary estimated net gains of \$6,096,00 per year.

Annual Estimates	Greensboro, NC's Current Program	With WasteZero Trash Metering™	Annual Net Impact of WasteZero Trash Metering™
Tons of Residential MSW Disposed	54,871 FY 2013 annual tonnage ¹	30,728 Assuming 44% waste reduction	24,143 Tons diverted
Program Net Revenue*	NA	\$4,744,000 Assuming \$1.70 per 30-gallon bag**	\$4,744,000 Additional program revenue
Recycling Revenue	\$545,000 Assuming revenue of \$30.00 per ton	\$835,000 Assuming revenue of \$30.00 per ton	\$290,000 Additional recycling revenue
Disposal Fees	(\$2,414,000) Assuming \$44.00 per ton disposed	(\$1,352,000) Assuming \$44.00 per ton disposed	\$1,062,000 Disposal savings
Operational Expenses	TBD To be based on city estimates	TBD To be based on city estimates	TBD Operational savings
Annual Net Income*	(\$1,869,000)	\$4,227,000	+ \$6,096,000 Net Impact

*Net of program services and supplies.

**Most communities will offer both a large bag (30-gallon equivalent) and a small bag (13-gallon equivalent).

WasteZero Results

Preliminary

Preliminary Estimate of Annual Net Environmental Impact

- The WasteZero Trash Metering™ program implemented in Greensboro will have a large impact on the environment.
- The table to the right illustrates interesting ways to think about the impact this program could have for Greensboro and the surrounding region.
- These impacts are real, permanent, and a byproduct of the program. They do not require separate funding and would happen automatically.

Annual Net Impact of WasteZero Trash Metering™	
Natural Resources Diverted¹	9,657 Incremental tons of recycling per year
Greenhouse Gas Emissions Reduced²	46,000 Metric tons of CO ₂ equivalent/year
Energy Saved	379,000 Million BTUs/year
Landfill Life Expectancy	TBD Incremental years

¹WasteZero Trash Metering™ projection.

²EPA. Waste Reduction Model (WARM). Available at: http://www.epa.gov/climatechange/waste/calculators/Warm_home.html. Accessed September 17, 2012.

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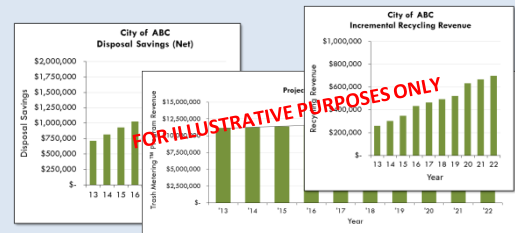
Next Steps

Refined Comprehensive Benefits Analysis for Greensboro

Benefits Analysis Overview

Financial Summary

- Disposal savings
- Recycling revenue
- Program revenue
- Operational savings



Environmental Summary

- Natural resources diverted
- Greenhouse gas emissions reduced
- Energy saved



7,062 tons Paper 4,645 tons Plastic 189 tons Aluminum

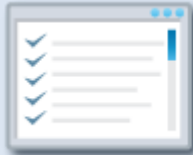
Annual Reduction in Energy Usage	
478,508	Million BTU
This is equivalent to conserving energy from...	
4,256	Household energy bills annually
9,372	Rooftop solar panel arrays ³
82,359	Barrels of oil
3,828,065	Gallons of gasoline

Annual Reduction in Greenhouse Gas Emissions	
50,955	Metric tons of CO ₂ equivalent
13,897	Metric tons of carbon equivalent
This is equivalent to reducing emissions from...	
10,991	Passenger vehicles annually
5,712,449	Gallons of gasoline
118,500	Barrels of oil ³
277	Railway cars of coal

Next Steps

A Proven Process With a Reliable Partner

Step 1 Benefits Analysis



Collect data, conduct benefits analysis

Step 2 Preliminary Planning



Review program options



Initiate transition plan

Step 3 Issue RFP



Issue RFP

Step 4 Finalize Program and Seek Approval



Dedicate WasteZero resources



Finalize program options and contract



Council vote to partner with WasteZero



Communicate benefits to residents

Step 5 Program Launch and Management



Rollout to residents



Manufacturing



Retail setup and delivery



Distribution



Accounting, reporting

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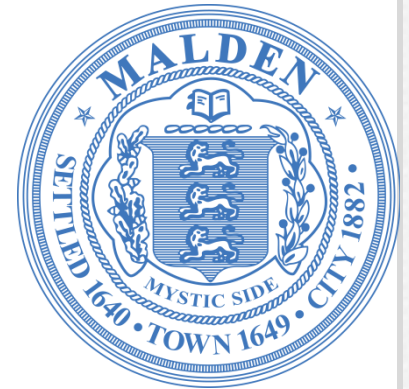


Real-Life Success Stories

Malden, MA (population ~ 56,000)

BACKGROUND

- Malden faced budget challenges for FY 2009.
 - The city wanted to avoid program and personnel cuts.
 - They were familiar with the concept of pay-as-you-throw; they had instituted a commercial PAYT program in 2000.
 - They believed that a residential program would deliver savings.
- The city implemented a residential WasteZero Trash Metering™ program in 2008.
 - Custom printed bags
 - WasteZero Retail Store Distribution™ with inventory management, accounts receivable collections, and logistics



MALDEN RESULTS WITH WASTEZERO: FIRST SIX MONTHS

- 49% reduction in solid waste tonnage and 74% increase in recycling tonnage
- \$800,000 in solid waste disposal savings
- \$1.7 million in revenue to Malden from the sale of PAYT bags
- A 98% compliance rate among residents
- Received a 2010 EPA Merit Award for this program

**\$2.5 million
in savings!**

Real-Life Success Stories

Gloucester, MA (population ~30,000)

BACKGROUND

- Gloucester began a tag PAYT program in 1990.
- They achieved some benefits, however, **revenue was lost** and **recycling rates lagged** due to:
 - Non-standard bag sizes
 - Tags that were often cut in half and used on multiple bags
 - Tags that were placed on top bag **only** in multiple bag containers
 - Lack of enforcement by hauler due to these misuses of tags
- The city implemented a WasteZero Trash Metering™ program in 2009, including:
 - Customized bags and Retail Store Distribution™



GLOUCESTER RESULTS WITH WASTEZERO

- Solid waste tonnage reduced by 37% in the first month alone
- Solid waste tonnage reduced 28% to 30% on average annually since program inception
- 6,000 tons of solid waste diverted from the incinerator over last three years

Real-Life Success Stories

Decatur, GA (population ~19,335)

BACKGROUND

- While the City of Decatur already offered a recycling program, to meet state requirements to reduce landfill deposits, in 1997 it recognized a need to step up its waste management efforts.
- The city rolled out its new PAYT system to residents in 1998.
 - Mail and outreach
 - Local media
 - Public hearings and neighborhood meetings
 - Three sizes and colors of WasteZero customized plastic trash bags
- Residents citywide purchase WasteZero Trash Metering™ trash bags in grocery stores, hardware stores, and municipal offices.
- As a result, the city saves more than \$150,000 annually and applies that savings to fund local recycling events, raise awareness, and increase recycling rates even further.



DECATUR RESULTS WITH WASTEZERO: 1998 TO PRESENT

- 42% reduction in solid waste tonnage
- 79% increase in amount of recycling tonnage
- 33% increase in compost tonnage
- 100% increase in recycling rate (from 10.7 to 22%)
- More than \$150,000 saved in disposal costs in their first year and each year since

Real-Life Success Stories

Dartmouth, MA (population ~34,000)

BACKGROUND

- Evaluated PAYT option starting in March 2007 as a means to respond to fiscal problems facing the Town in FY 2008
- Also wanted to extend life of Crapo Hill Landfill
- Implemented a WasteZero Trash Metering™ program in October 2007
- Introduced SMART Waste Reduction Program and Automated Recycling Collection on August 1, 2012



DARTMOUTH RESULTS WITH WASTEZERO: 2008-2012

- 57% decrease in solid waste tonnage
- 50% increase in recycling tonnage
- 150% increase in recycling rate (from 13% to 37%)
- 43% reduction in manpower

Fiscal Year	MSW Tonnage
FY 2006	11,303 tons
FY 2008	6,595 tons (9 months)
FY 2009	4,942 tons
FY 2012	4,841 tons

Real-Life Success Stories

Shrewsbury, MA (population ~32,000)

BACKGROUND

- In 2007, Town officials started to consider pay-as-you-throw solutions:
 - Tipping fees were scheduled to nearly double in 2008
 - Surrounding towns were already using PAYT
 - Town wanted to increase recycling and reduce MSW to offset increase in costs and remove the need to generate new revenue

- The town implemented a WasteZero Trash Metering™ program in 2009.
 - Custom printed bags
 - WasteZero Retail Store Distribution™ including inventory management, accounts receivable collections, and logistics



SHREWSBURY RESULTS WITH WASTEZERO

- 40% reduction in trash tonnage annually
- Increase in their recycling rate to a constant 34%
- Revenue from the sale of the 33- and 15-gallon trash bags fully covers the annual cost of waste disposal – previously funded by tax revenue

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Frequently Asked Questions

“Will this work in a community like ours? We’re different.”

We have successfully implemented WasteZero Trash Metering™ programs across a wide variety of communities, including several that have demographics similar to Greensboro.

Selected WasteZero Trash Metering™ Communities ^{1,2}	2011 Total Population	% 65 Years and Over	% Non-English Native Language	Median Household Income	% Families Below Poverty Line	% Dwellings with 5+ Units
Greensboro, NC	273,425	11.5%	13.2%	\$41,973	18.4%	37.2%
Worcester, MA	181,045	11.7%	32.4%	\$45,036	15.0%	28.1%
Plantation, FL	89,955	13.5%	27.1%	\$66,435	5.3%	33.6%
Binghamton, NY	47,376	5.9%	13.6%	\$30,702	20.4%	22.3%
Malden, MA	59,450	11.8%	47.9%	\$56,347	9.8%	31.6%

¹US Census Bureau. 2010. American Fact Finder. Demographic Profile: Table DP1.

²US Census Bureau. 2010. American Fact Finder. ACS 5-year estimates: Tables DP02-04.

Frequently Asked Questions

“How do we enforce with automated collection services?”

Combining the convenience of enforcement technology and WasteZero Trash Metering™ bags with automated collection means instant operational efficiencies—and it’s easier than you may think.

CHALLENGE

Operators are constantly striving to increase efficiencies along their routes. Being faced with the challenges of monitoring enforcement technology may seem like “one more time-consuming step” in getting their jobs done.

SOLUTION

Enforcement technology is so efficient that operators no longer need to monitor bins outside of the truck.

- Non-compliance is now caught on video.
- GPS devices make reporting violators easy and instantaneous.



Combining the automated trucks and bins with the accountability inherent in plastic trash bags is not only possible, but an enormously effective and enforceable method of waste management.

Frequently Asked Questions

“How do we enforce with automated collection services?” (Cont.)

While automated trucks and bins are more convenient and time saving than other collection methods, touchpad GPS devices and cameras increase efficiencies exponentially.

Cameras and In-Cab Monitors

- › Simple, affordable, and widely used technology exists that allows for color, weatherproofed, and industrial strength cameras to be affixed to automated trucks. The camera videotapes the contents of bins as they're tipped from the can to the truck.
- › Color cameras make it possible to see different colored bags emptied into the truck, making non-compliant bags easily identifiable.

GPS with Easy-to-Use Touchpads

- › Once non-compliant bags are in view, the operator simply pushes one button on the GPS touchpad, immediately sending information about violators to appropriate parties.
- › Violators are instantly warned and then later ticketed if necessary.

Combining the automated trucks and bins with the accountability inherent in plastic trash bags is not only possible, but an enormously effective and enforceable method of waste management.

Thank You!

WasteZero[®]
Save Money. Reduce Waste.

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