

# Maine Townsmen

The Magazine  
of the Maine Municipal Association

November 2014

## New Approaches To Solid Waste

**Composting and pay-per-bag  
programs gain popularity,  
though community  
experiences vary**



### **ALSO IN THIS ISSUE**

**After the mid-term elections  
GIS mapping for smaller towns  
School construction decisions  
2014 Convention photos**

# Cutting trash in half: Secure finances with pay-as-you-throw

*While traditional forms of disposal such as landfills and incineration remain, the authors note that pay-per-throw is growing in Maine.*

By George Campbell and John Campbell

In Maine and across the U.S., the solid waste system is depleting the coffers of towns and cities while damaging our environment. The way we manage our trash wastes tremendous amounts of financial and natural resources, but it does not have to be that way. The good news is that the solid waste system is so large that even small changes can have a profound financial and environmental impact – as the large and growing number of municipalities in Maine that are taking steps to address this system can attest.

The economic toll of trash is stunning. Every year, \$200 billion is spent on solid waste management and wasted energy due to trash. Moreover, we are missing out on \$184 billion each year in opportunities for additional revenue from increased manufacturing using recycled goods, recyclable materials thrown in landfills and incinerators and payroll from more recycling-related jobs. Altogether, those avoidable costs and unrealized revenue opportunities make trash a \$384 billion problem for the U.S. economy – every year.

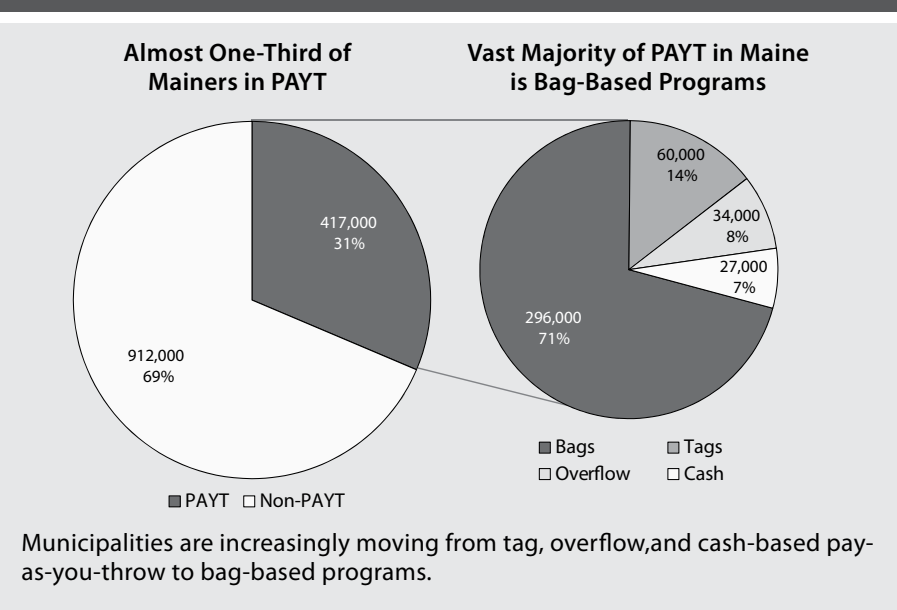
Similarly, while we all understand intuitively that trash is bad for the environment – landfills and incinerators cause damage to soil, water, and air quality – many people are surprised by

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**George Campbell** was Mayor of Portland when the City instituted its successful pay-as-you-throw program, in 1999. Campbell currently serves as a Vice President at the Louis Berger Group and as Senior Managing Director at Lexden Capital; in both of these roles, he oversees large public/private partnerships.

**John Campbell** is Chairman of the Board of WasteZero, the leading provider of municipal solid waste reduction programs in the U.S. Previously, Campbell was the co-founder, chairman and Chief Executive Officer of Campbell Alliance, a specialized management consulting firm.

## PAY-AS-YOU-THROW IN MAINE



Source: WasteZero analysis

just how enormous the environmental cost of our solid waste system actually is. All of the garbage that's thrown away across the U.S. produces 275 million metric tons of carbon dioxide equivalent every year. That's the same as the emissions from one out of every five cars in the U.S. And all that trash wastes 3.5 quadrillion BTUs of energy annually, enough energy to power fully one-quarter of all U.S. homes for an entire year.

### Common sense solution

One solution to this financial and environmental problem lies with “pay-as-you-throw” programs, a common-sense response in which towns and cities move from charging people for their solid waste services via a flat fee buried in the property tax bill to paying a variable rate based on how much

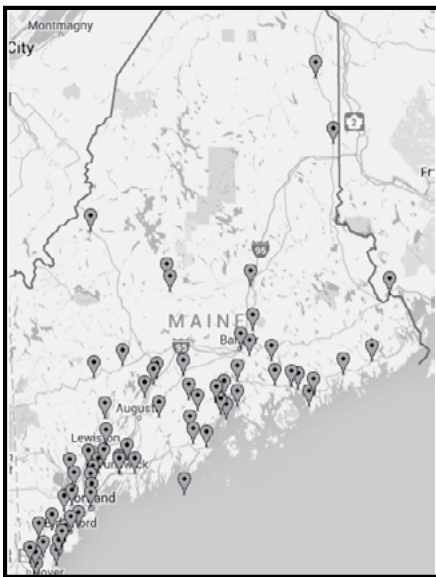
they throw away. This gives people incentives to throw away less and recycle more.

Variable-rate pricing for solid waste is a “smart fee” structure that brings this utility in line with the payment model for other utilities, such as water and electricity. It encourages more responsible use of a valuable resource and better aligns outcomes with municipal goals such as reduced spending on waste disposal, increased revenue generation and operational efficiency.

Pay-as-you-throw, or PAYT, can come in different forms:

- Cash-based systems, where people pay with cash for each bag they throw away, usually at a transfer station.
- Variable-rate carts, which offer multiple trash cans of varying sizes,

## EXISTING MAINE PAY-AS-YOU-THROW PROGRAMS



with the largest being the most expensive.

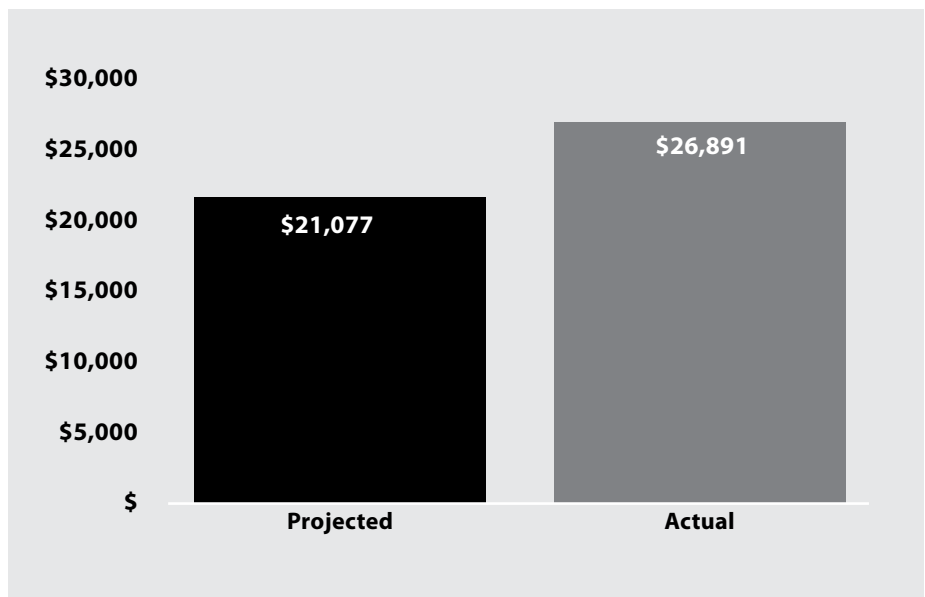
- Overflow programs, where people pay for each bag of trash that does not fit into their cart.
- And, systems where people attach pre-paid stickers or tags to each bag of trash they throw away.

All of those systems reduce solid waste tonnage to some degree, but their effectiveness can be limited by ineffective pricing structures, weak incentives at the individual level and challenges with enforcement. As a result, none have proven to be as effective at waste reduction as the form of pay-as-you-throw that is by far the most prevalent across Maine: bag-based programs.

With bag-based PAYT, people use specially marked city or town trash bags, usually in recognizable, bright colors with a municipal seal imprinted on them. The bags cost more than traditional trash bags (often \$1 or \$2, depending on size), because they cover not only the cost of the bag but also the cost of collection and disposal.

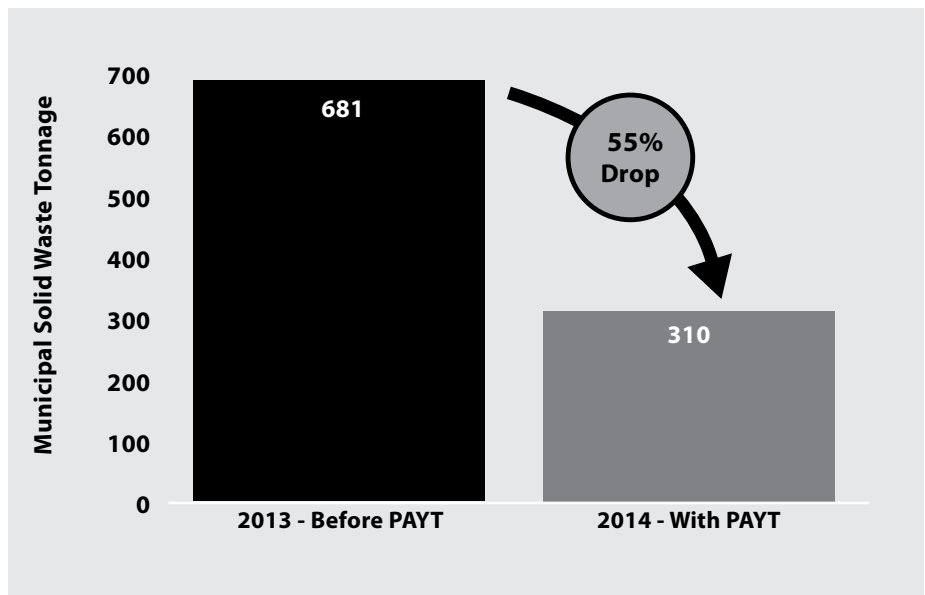
Making people aware of the true cost of their garbage every time they throw something away makes them think twice about throwing away things that have value outside the trash can – whether through reuse, recycling, composting, charitable donations or source reductions. Bag-based PAYT

## WATERVILLE DISPOSAL SAVINGS WITH PAY-AS-YOU-THROW: FIRST EIGHT WEEKS



Source: Waterville Department of Public Works

## WATERVILLE MSW REDUCTION WITH PAY-AS-YOU-THROW: FIRST EIGHT WEEKS



Source: Waterville Department of Public Works

has been proven to cut trash volumes by an average of 44 percent, dramatically helping municipal finances and reducing garbage's environmental toll.

PAYT is changing cities and towns throughout Maine. Almost one-third of Mainers – 417,000, or 31 percent – live in a PAYT community today. And 71 percent of that population takes

part in bag-based PAYT. That number is growing. Just in the last few months, the City of Waterville and Town of Etna adopted PAYT programs, and more communities sign on each year. In each of those cities and towns, people are taking dramatic and positive steps to reverse the financial and environmental damage of our solid waste system.



## Success stories in Maine

The Maine towns and cities that have PAYT stand as strong evidence of the programs' effectiveness at cutting waste and helping municipal finances. Three relatively new programs in Maine provide good examples.

Waterville began a bag-based, pay-as-you-throw program in early September of this year. The city opted to direct some of the revenue from PAYT to finance city-wide curbside recycling. Together, PAYT and the curbside recycling it enables reduced municipal solid waste by 55 percent in the first eight weeks of the program, compared with the same period in the previous year. That reduction was greater than the 44 percent Waterville had projected.

PAYT in Waterville is also outpacing the city's financial projections. With \$27,000 in disposal savings in eight weeks, the program is projected to save \$175,000 in its first year.

Another example of PAYT's power is the City of Sanford, which first adopted bag-based PAYT in mid-2010 and saw its solid waste tonnage drop immediately and dramatically. However, voters not yet able to see the program's long-term value repealed the program just four months after it began – and tonnage shot back up. Sanford residents voted the program back in by referendum in 2013, and its tonnage dropped again. In the first three months of the new program, solid waste tonnage dropped by 42 percent, the recycling rate nearly doubled and the city saved more than \$28,000 in disposal costs. Since then, the positive results have continued.

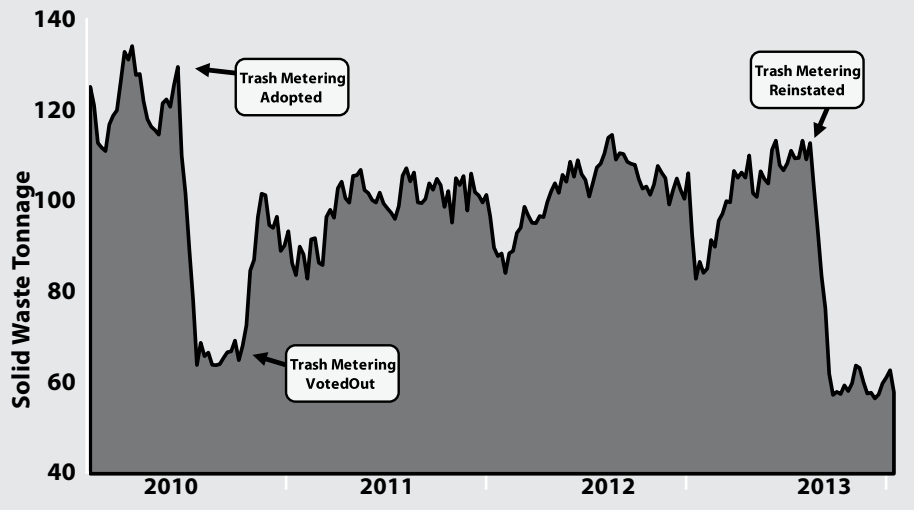
## Eliot begins

The Town of Eliot began a bag-based PAYT program in 2013. As with Sanford and most other towns its solid waste tonnage dropped right away: In the program's first four months, Eliot cut its trash by 57 percent and saved \$9,000 in disposal costs.

The recent success that Sanford, Eliot and dozens of other Maine towns and cities have seen with PAYT over the years shows that the program can help others as well. To project roughly what PAYT could mean for a given municipality, a community can apply the average performance from other PAYT communities.

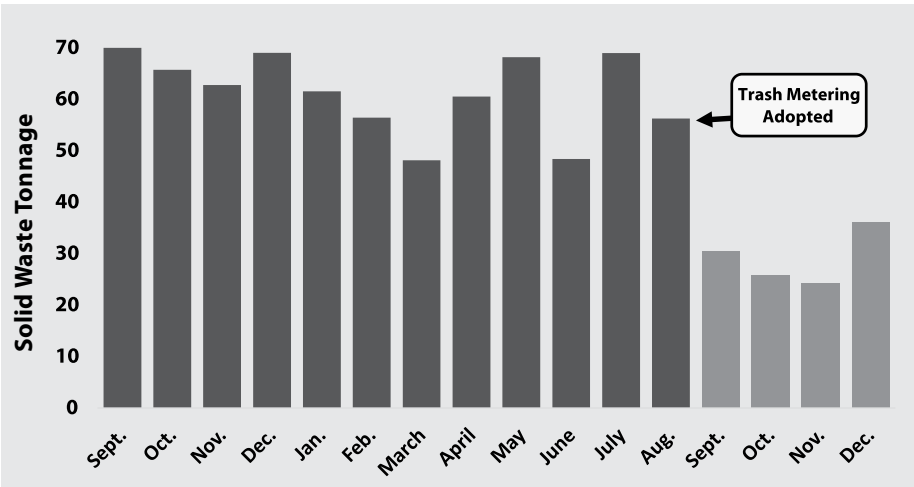
Using that model, we can see that PAYT in Maine could have a profound

## SANFORD SOLID WASTE TONNAGE, 2010 - 2014



Source: Sanford Public Works Department

## SURVEY RESULTS ELIOT



Source: Eliot Public Works Department

## SAVINGS ESTIMATES

	Annual Disposal Savings	Annual Program Revenue	Annual Net Financial Impact
<b>Statewide</b>	\$5.2 million	\$16.5 million	<b>\$21.7 million</b>
<b>25,000-resident city</b>	\$251,000	\$793,000	<b>\$1.04 million</b>
<b>12,500-resident town</b>	\$125,000	\$397,000	<b>\$522,000</b>
<b>5,000-resident town</b>	\$51,000	\$159,000	<b>\$210,000</b>

Source: WasteZero

## ENVIRONMENTAL ESTIMATES

	Greenhouse Gas Reduction (in Metric Tons CO2)	Equivalent to...	Energy Savings (in MMBTUs)	Equivalent to...	
<b>Statewide</b>	377,000	Emissions from 74,000 cars	3.1 million	Energy used to power 28,000 homes	Energy produced by 389,000 rooftop solar arrays
<b>25,000- resident city</b>	7,100	Emissions from 1,400 cars	59,000	Energy used to power 520 homes	Energy produced by 7,300 rooftop solar arrays
<b>12,500- resident town</b>	3,500	Emissions from 690 cars	29,000	Energy used to power 260 homes	Energy produce by 3,600 rooftop solar arrays
<b>5,000- resident town</b>	1,400	Emissions from 280 cars	12,000	Energy used to power 100 homes	Energy produced by 1,500 rooftop solar arrays

Source: WasteZero

effect on the finances of Maine's towns and cities. If every city and town in Maine had a bag-based PAYT program, and reduced solid waste volume by the 44 percent average of all the other programs like it in the U.S., the annual financial impact would be an estimated \$28 million, saving \$6 million in disposal costs due to reduced waste and generating \$22 million in revenue from the sale of PAYT bags.

At the individual municipality level, a city with 25,000 residents that collects its trash at the curbside could expect an annual net financial impact of \$1.04 million from PAYT, made up of \$251,000 in disposal savings and \$793,000 in revenue. For a town of 12,500, the annual impact would be \$522,000 – \$125,000 in disposal savings and \$397,000 in revenue. Even a 5,000-resident town could see \$210,000 in impact each year, with \$51,000 saved in disposal and revenue of \$159,000. Needless to say, this is money that municipalities can use in many productive ways: for education, public safety, parks, greenways, transit and many other purposes.

In addition to the financial benefits, PAYT could do dramatic good for the environment. Using the same calculations as above, statewide PAYT in Maine would cut greenhouse gas emissions by 134,000 metric tons of CO2 equivalent. That's the same as taking 26,000 cars off the road every year. And in terms of energy savings, state-

wide PAYT would conserve 1.1 million BTUs, enough energy to power 9,900 residential homes in a year, or the amount created by 139,000 rooftop solar arrays.

We're often told that environmental and financial solutions are an "either/or" choice: What's good for the

environment will hurt the economy, and what's good for the economy will hurt the environment. But one-third of Mainers know from personal experience that that's not the case, that by cutting trash nearly in half, pay-as-you-throw programs do good for both the economy and the environment. ■

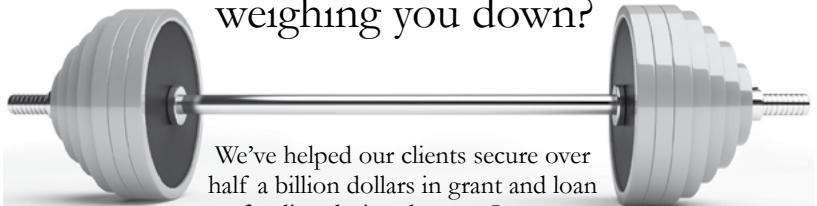
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