OFFICE OF THE TOWN MANAGER

TO: SELECTBOARD

FROM: NEIL FULTON

SUBJECT: ACT 148 AND TRANSFER STATION

DATE: DECEMBER 17, 2014

The guidance from the Agency of Natural Resources (ANR) on complying with the requirements of the Pay-As-You Throw (PAYT) provisions of Act 148 suggests one of the following methods to comply:

- Imprinted Trash Bag
- Stickers
- Per Bag Punch Cards
- Containers or Cans
- Hybrid
- Weight-Based Systems

As part of the budget package I recommended changing to Imprinted Trash Bags as used successfully by Lyme, Canaan, Enfield, and many others. Also attached are some success stories from communities that have implemented a PAYT system.

I have had communications with ANR to determine if our current coupon system could be modified to comply with the intent of Act 148 and it can be. I now recommend that we have a hybrid system that includes the use of imprinted bags as approved by the Selectboard on December 3, 2014 and the use of a modified coupon system as preferred by some Transfer Station users at the choice of the Transfer Station user. The following describes the proposed modified coupon system:

- The cost would be $3.50 per 15 gallons or any portion thereof. ANR suggests that we post this number at the trash compactor. The cost for 30 gallons would be $7.00.
- That we have standard 30 gallon trash cans available at the Transfer Station to measure trash that is brought loose, in nonstandard containers or if there is a dispute about the size of a bag or how full a bag is.

The following table shows the proposed costs.

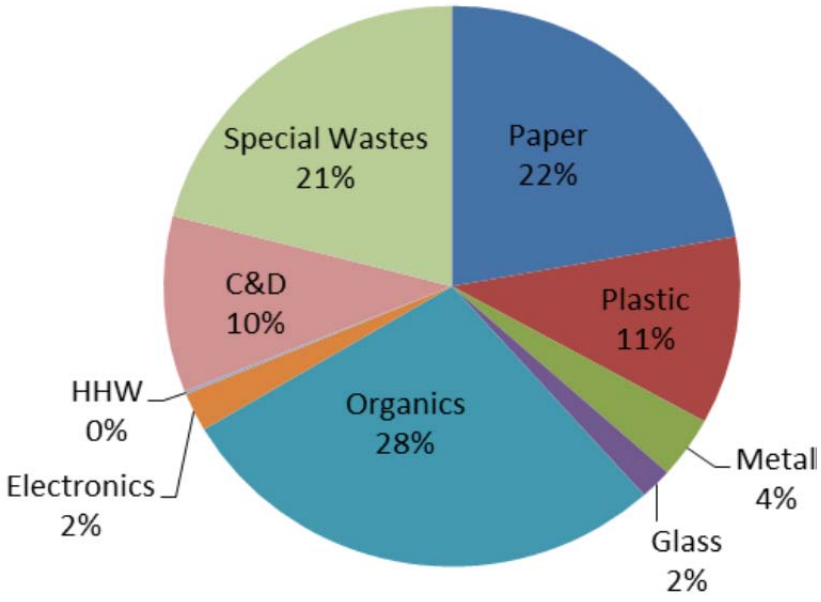
	Current	Proposed
Windshield Sticker	$15.00	$20.00
Coupon (30 Gallons)	$3.00	
Coupon (15 Gallons)		$3.50
Bags		
13 Gallon		$3.50
30 Gallon		$5.50

As mentioned previously, the following changes are mandated by Act 148:

- Effective July 1, 2014, cannot charge for taking mandated recyclables but may add the cost of handling recyclables to the cost of disposal of MSW.
- Effective July 1, 2015, prohibit the disposal of mandated recyclables in the trash compactor.
- The mandated recyclables are:
  - Metal: aluminum and steel cans, aluminum foil and pie plates
  - Glass: bottles and jars from foods and beverages
  - Plastics: #1 and #2 (PET and HDPE resin types) containers
  - Paper: corrugated cardboard, white and colored paper, newspaper, magazines, paper mail and envelopes, boxboard, and paper bags

Effective July 1, 2015 implement a variable rate pricing system, also known as PAYT, based on volume or weight.

DSM Environmental conducted a waste compensation study for ANR in 2012. They found the following composition by weight.



Special waste includes textiles/leather, diapers/sanitary products, carpet/padding, batteries, rubber, tires, furniture/bulky items and all other waste.

While the waste compensation found in the DSM study may not be fully representative of Norwich waste it still is informative. It appears that the prohibition of mandated recyclables from the trash compactor should reduce the amount of trash that comes into our compactor. We currently divert a little more than 50% and would like to increase the amount to 75%. That may not be possible until we have a method for handling organics.

We currently handle the following:

- Municipal Solid Waste – Compacted and transported by Casella to the Lebanon landfill.
- Mandated Recyclables – Compacted and transported by Casella to their Zero-Sort facility in Rutland for processing.
- Oil and Water Based Paints – Picked up by PaintCare.
- Fluorescent Bulbs – Are picked up by GUVSWD.
- Corrugated Cardboard – Picked up by Casella.
- Metals – Picked up by Casella.
- Tires – Picked up by Budzyn Tire
- Used Oil – Picked up by Safety Clean.
- E-Cycles and other Electronics – Picked up by Good Point.
- Products Containing Refrigerants – Refrigerant removed by Interstate Refrigerant Recovery and then disposed of as metals.
- Batteries (Except vehicle batteries) – Picked up by Casella.

We are working with Hanover, Lebanon, Hartford, GUVSWD and the Upper Valley Lake Sunapee Regional Planning Commission to develop a Household Hazardous Waste (HHW) facility that would be open at least once a week. Currently Norwich has a half-day collection at the Public Works facility approximately every other year. Adding the disposal of oil and water based paints to materials that could be disposed of at the Transfer Station has decreased the amount of HHW that needs to be disposed of in a new facility. Hartford has an unused facility that was constructed some years ago for HHW but has never been used. The waste compensation study found very small amounts of HHW in the waste steam because they are prohibited from being disposed of in the normal waste stream. We are currently developing the following information for a HHW collection facility:

- The cost to repair the facility so it could be used for collecting HHW.
- The annual operational cost for a HHW facility including disposal costs.
- The potential area served by a HHW facility in Hartford and the amount of HHW that may be generated.

The initial concept is that the initial costs of repairing the facility would be shared among the four towns and the operational costs would also be shared by the four towns. At the

end of a year the operational costs would be redistributed based on the amount of HHW generated by each town.

It would be helpful if $5,000 was added to the FY16 budget as a line item for Norwich's participation in the HHW project. It will be several months before we have a more accurate estimate of costs.

Act 148 phases in food scrap diversion: Larger food scrap generators are targeted to divert their food scraps if a certified facility is within 20 miles and phased-in by amount generated over time as follows:

- July 1, 2014 for generators of more than 104 tons/year (2 tons/week)
- July 1, 2015 for generators of more than 52 tons/year (1 ton/week)
- July 1, 2016 for generators of more than 26 tons/year (1/2 ton/week)
- July 1, 2017 for generators of more than 18 tons/year (~1/3 ton/week)

By 2020, all food scraps, including those from households, must be diverted with no exemption for distance.

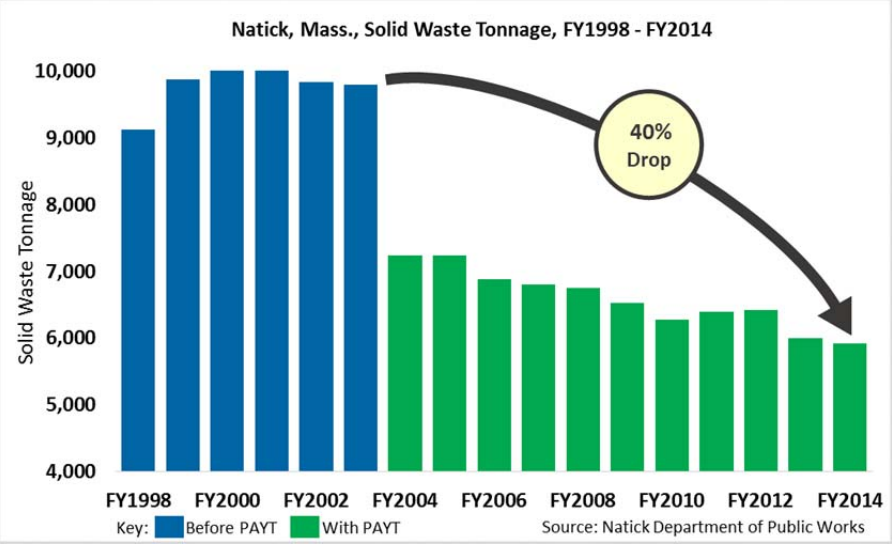
The waste compensation study found that organics were approximately 28% of the waste stream. We are working with Hanover, Lebanon, Hartford, GUVSWD and the Upper Valley Lake Sunapee Regional Planning Commission to develop a plan for handling organics.

Examples of PAYT Programs

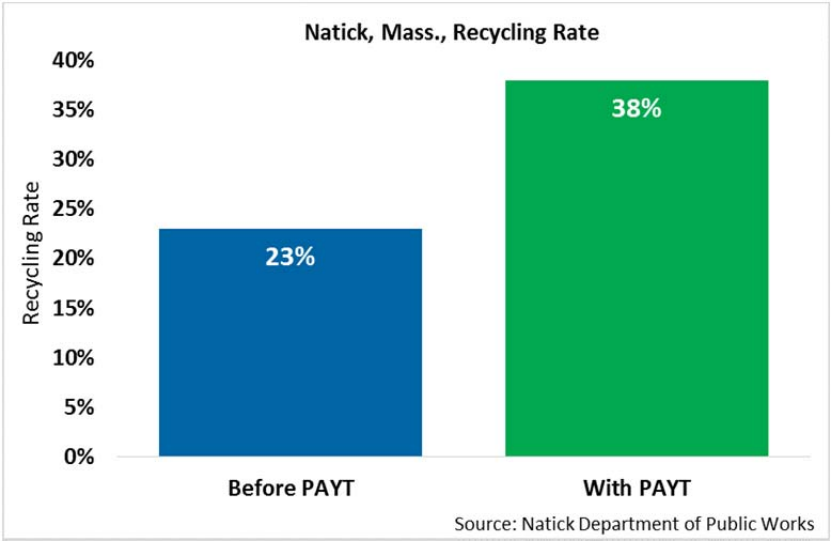
Natick MA

North Andover, MA – Dec. 5, 2014 – At the 11-year anniversary of its pay-as-you-throw (PAYT) waste reduction and recycling program, the town of Natick, Mass., has reduced its solid waste by 40%, dramatically increased its recycling rate, and saved $3.1 million in disposal fees, according to new figures released by the town's Department of Public Works.

The program began on July 1, 2003. Municipal solid waste (MSW) has decreased 40% since the program began—from 9,800 tons in Fiscal Year 2003 (the year before PAYT) to 5,923 tons in FY2014.



Natick's recycling rate has increased dramatically with PAYT, from 23% in the year before the program began to 38% last year.



The changes have had a profound impact on Natick's municipal finances. The town has saved an estimated $3.1 million in disposal fees across the 11 years that PAYT has been in place. "The savings from pay-as-you-throw have helped the town stabilize operating costs and avoid cutting services," Deputy Town Administrator - Operations Bill Chenard said.

There have also been meaningful environmental benefits to Natick's PAYT program. According to the U.S. Environmental Protection Agency's Waste Reduction Model (WARM), the amount of garbage that Natick has diverted from the waste-to-energy facility since 2004 has reduced greenhouse gases by an amount equal to the emissions from 13,000 cars during that period. In addition, the added recycling across the 11 years has saved the same amount of energy that would have been used to fully power 4,900 houses over that period.

About Natick's PAYT Program

Under the program, residents use official blue bags stamped with the Natick-specific information for weekly curbside collection. Being more aware of the cost of their garbage makes residents more likely to recycle and divert other productive materials from the waste stream.

The blue bags are available at retail outlets in and around Natick. They are available in two sizes—15-gallon ($10.00 per 10-bag roll) and 33-gallon ($17.50 per 10-bag roll). The town's bi-weekly single-stream recycling collection is free.

Plymouth, MA

On April 6, 2013, Town Meeting representatives voted to approve a new Save Money And Reduce Trash (SMART) curbside and transfer station Pay-As-You-Throw (PAYT) trash program. The program, which became fully operational January 2, 2014, offers residents the choice of continuing to dispose of their trash at the Manomet Transfer Station or joining the new automated curbside collection service with single stream recycling.

As of July 1, 2013, residents must place all their trash in the Plymouth official orange trash bags before disposing at the transfer station. Trash not placed in the designated orange bags will not be accepted. As of January 2, 2014, residents choosing curbside pickup services must also use the official orange trash bags.

The Plymouth orange trash bags are conveniently available in the following sizes and quantities at retail outlets throughout Plymouth:

- Small, 15-gallon PAYT bags are sold in packages of 8.
- Large, 30-gallon PAYT bags are sold in packages of 5.

Each package is $6.25, and no sales tax will be charged.

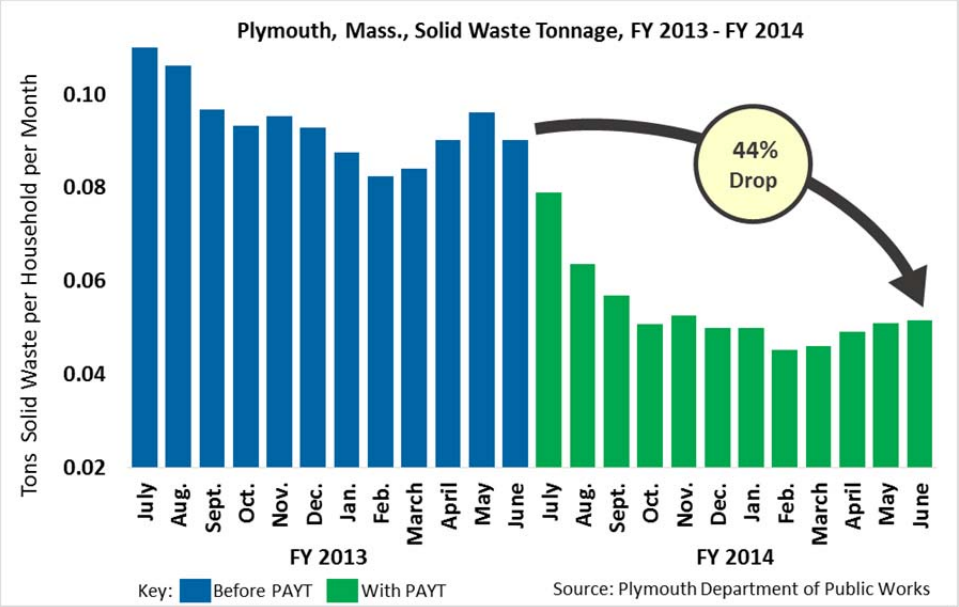
The PAYT bags are for solid waste only and not recyclable items. The PAYT program will allow the Town of Plymouth to significantly increase recycling and reduce the amount of trash it pays to dispose of, considerably reducing the cost of this service to residents. It will also create a

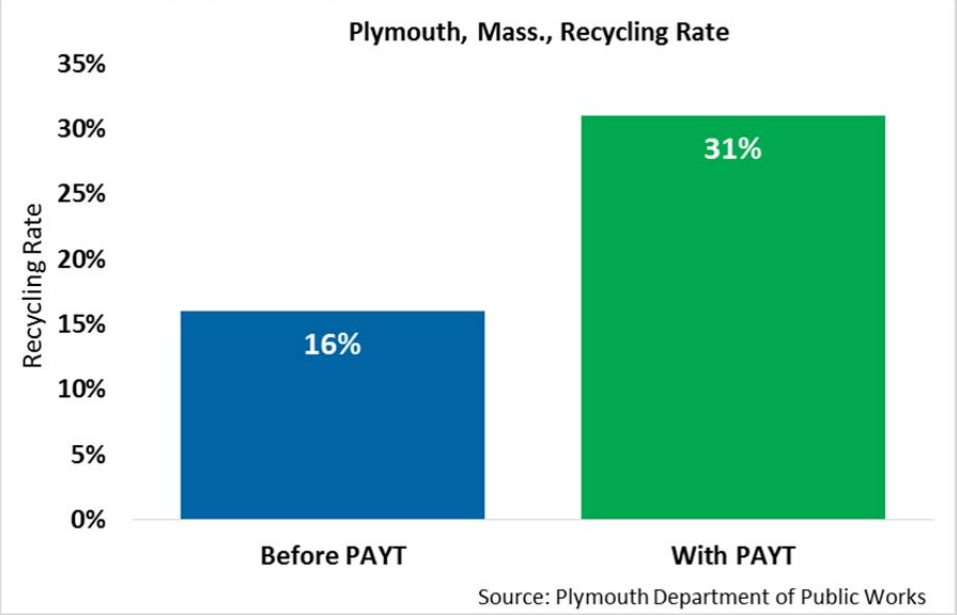
far more fair and efficient trash collection program for everyone. Residents who recycle will no longer subsidize trash collection for their neighbors-who may not recycle.

Remember, by recycling more you'll produce less trash, which means you'll use fewer trash bags. The SMART PAYT program lets you take control of your waste disposal costs!

Some of the information on this web page can also be accessed by calling **1-855-774-3571**. Basic information--including the list of stores where bags are available--is only a phone call away.

Program Statistics - Plymouth MA Successes





Ashland MA

"It's a commitment for the long-term sustainability of our planet. You have to always remind yourself that we are paying it forward for generations who have not even been born yet."
Anthony Schiavi, Ashland, Mass. town manager

In Ashland, Mass., talking trash has paid off for the city – and the planet. Thanks to its Pay-as-You-Throw (PAYT) approach to trash collection, Ashland has saved serious money, dramatically boosted recycling and kept hundreds of tons of greenhouse gases out of the air.

Here's how it works. Ashland's 16,000 residents pay a nominal annual fee for solid waste disposal per residence. But beyond that, trash pickup costs are directly the result of how much trash they generate. Trash is collected in city-approved bags that come in 14-gallon and 33-gallon sizes to accommodate households' different needs. Bags ($5.25 or $9 for a five-bag roll) are available at local stores. The more bags you buy and use, the higher your cost – a great incentive to control household waste and grow your recycling.

PAYT Aligns With City's Environmental Efforts

"Ashland is a green community, and this fits with our culture of environmental stewardship and responsibility for the future," says Anthony Schiavi, town manager. "We began the program in 2006, and in the last eight years, we have saved close to $1 million, reduced gas emissions equal to what 5,500 cars would produce, and saved enough energy to power 2,100 homes for that same period of time. Those are things you can't shake your head at.

"It's a commitment for the long-term sustainability of our planet. You have to always remind yourself that we are paying it forward for generations who have not even been born yet."

In addition to saving money and energy, Ashland's waste-management partner company, WasteZero, says the city's recycling tonnage has gone up 47 percent since the pay-as-you-throw system was instituted, and its recycling rate has gone from 17 percent to 34 percent. The city provides free recycling for residents and makes it easy for them to do.

"If you can make it easy for folks to do, keep it simple, they will recycle," Schiavi says. "We do single-stream recycling, so people don't have to sort their recycling and can just put it all in one bag."

PAYT Grows Around the Country

While the idea may seem novel, proponents point out that this is a utility service like water and electricity, which people pay for based on usage. PAYT systems, which can be based on variable rates for different-size trash containers, or which allow residents to tag their own bags with special stickers, have made big inroads around the country in recent years.

Thousands of communities, from Marietta, Ga. to Bloomington, Ill. to Pasadena, Calif. are successfully using PAYT systems, including 30 percent of the nation's largest cities. Still, PAYT is not always an easy sell. Charlotte, N.C. is looking at adopting it, among other solid-waste options, but finding it a complex issue.

"People with bigger families can't stand it," says Victoria O. Johnson, director of the city's solid waste management department. "It depends on where you are. When you talk about having people buy garbage bags that are $1 or $1.50 each, that can really eat into a person's budget. We're trying to be sensitive about that."

USEPA

Volume- vs. Weight-Based Programs

Communities considering pay-as-you-throw must determine whether they will charge residents for waste management services based on the volume or weight of their trash. The two program types have very different design and equipment requirements.

Most communities charge residents by volume, using either bags or cans (or tags or stickers indicating specific can or bag sizes) as their program's unit of measure. A small number of communities are trying weight-based programs, under which collection crews measure at the curb the amount of waste a household sets out for collection. Solid waste planners need to decide which approach to use, based on overall program goals, budget constraints, and other factors.

Volume-based programs

Under a volume-based system, residents are charged for waste collection based on the number and size of waste containers that they use. In some communities, households are charged directly for waste collection (usually through direct billing) based on the number of bags or cans set out at the curb. Others require their residents to purchase special trash bags, tags, or stickers that include the cost of waste collection in the purchase price. Communities basing their programs on trash volumes typically select a rate structure design that includes one of these two options.

Volume-based systems tend to be significantly less expensive to set up, operate, and administer than weight-based programs. In some communities, simple programs using bags, tags, or stickers have been implemented without requiring a large number of waste management changes or incurring major new expenses. As a result, the vast majority of pay-as-you-throw (PAYT) programs currently are based on volume.

One potential disadvantage of volume-based programs is trash compaction. Since residents pay based on the size of their containers, there is a temptation to try to fit as much trash as possible into each bag or can. This can make the task of picking up trash harder for collection crews. It also may reduce the waste reduction incentive for residents. To address this, many cities and towns have placed a weight limit per bag or can and enforce this limit during curbside collections.

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Weight-based programs

Under weight-based systems, waste is weighed at the curb and residents are billed for collection and disposal by the pound. Depending on the equipment used, the program can either require residents to use standard, municipally supplied cans or allow them to continue using their own cans. Weight-based systems offer the most direct incentive to reduce waste: every pound of trash that residents prevent, recycle, or compost results in direct savings. In addition, residents often easily understand this type of system and perceive it as fair.

Weight-based systems tend to be more expensive to implement and operate than a volume-based approach. Special equipment is required, including truck-mounted scales for weighing waste and some type of system (for example, bar-coding on waste cans) for recording this information and entering it into a computer. Residents then need to be billed for this service, which may increase a municipality's staffing needs.

As a result, very few communities have fully implemented weight-based PAYT systems. Currently, however, innovations in equipment to weigh and record data are beginning to make these systems more feasible for some communities. For example, bar codes or radio-frequency

identification tags are declining in price, scales can weigh cans on an incline or in motion, and computerized data collection and billing systems have been improved.

Maine Townsman

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.

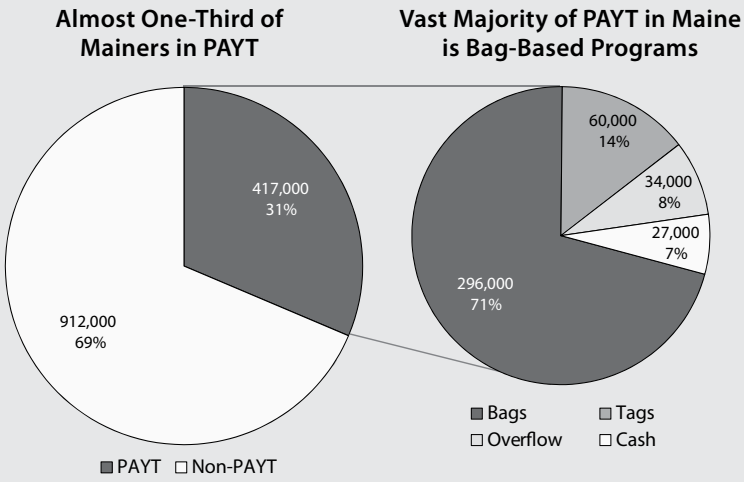
By George Campbell and John Campbell

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 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.

PAY-AS-YOU-THROW IN MAINE



Municipalities are increasingly moving from tag, overflow,and cash-based pay-as-you-throw to bag-based programs.

Source: WasteZero analysis

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.

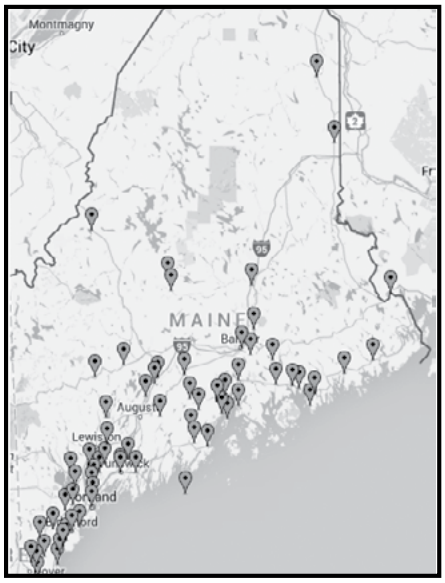
Pay-as-you-throw, or PAYT, can come in different forms:

- 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,

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.*

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.

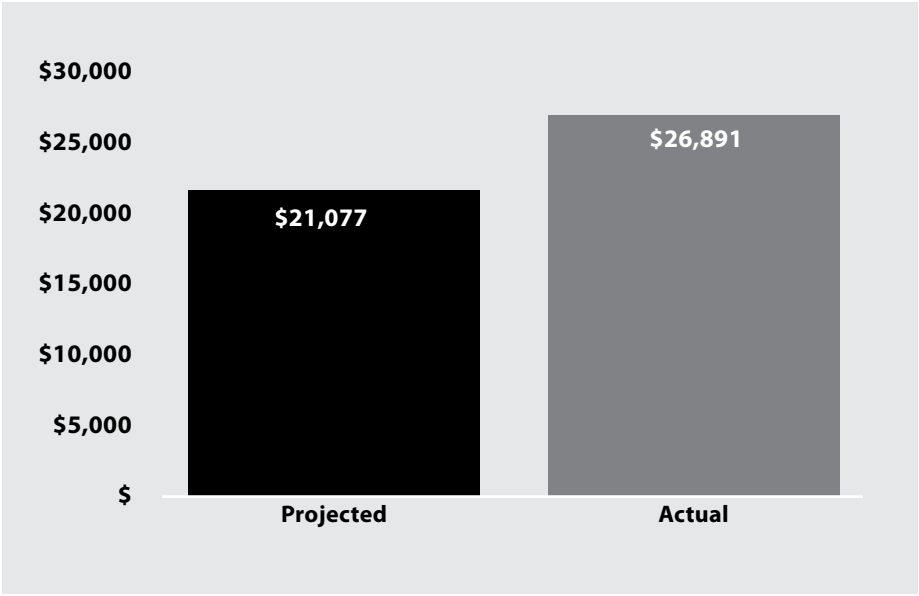
All of those systems reduce solid waste tonnage to some degree, but their effectiveness can be limited by ineffective pricing structures, weak incentives at the individual level and challenges with enforcement. As a result, none have proven to be as effective at waste reduction as the form of pay-as-you-throw 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 has been proven to cut trash volumes by an average of 44 percent, dramatically helping municipal finances and reducing garbage's environmental toll.

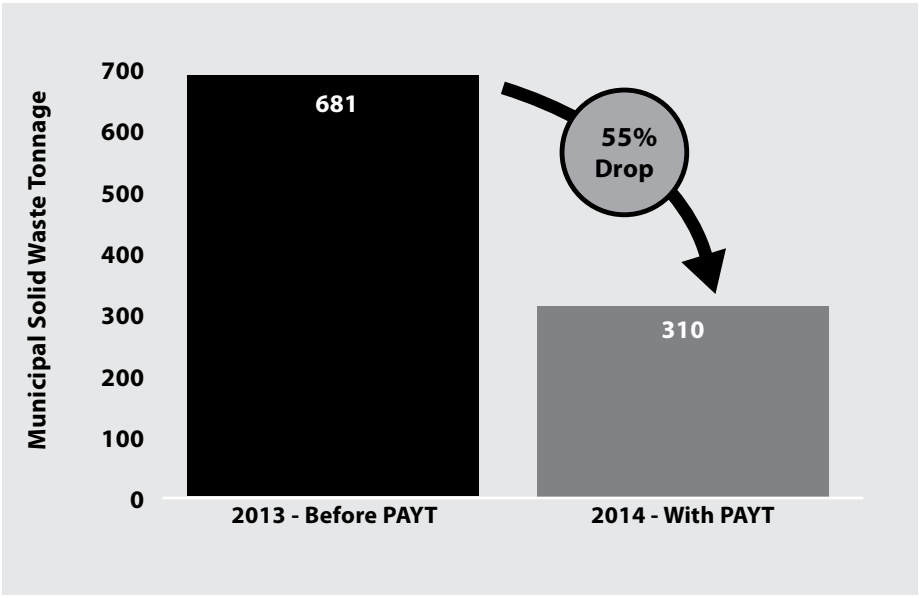
PAYT is changing cities and towns throughout Maine. Almost one-third of Mainers – 417,000, or 31percent – live in a PAYT community today. And 71 percent of that population takes part in bag-based PAYT. That number is growing. Just in the last few months, the City of Waterville and Town of Etna adopted 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.

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

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.

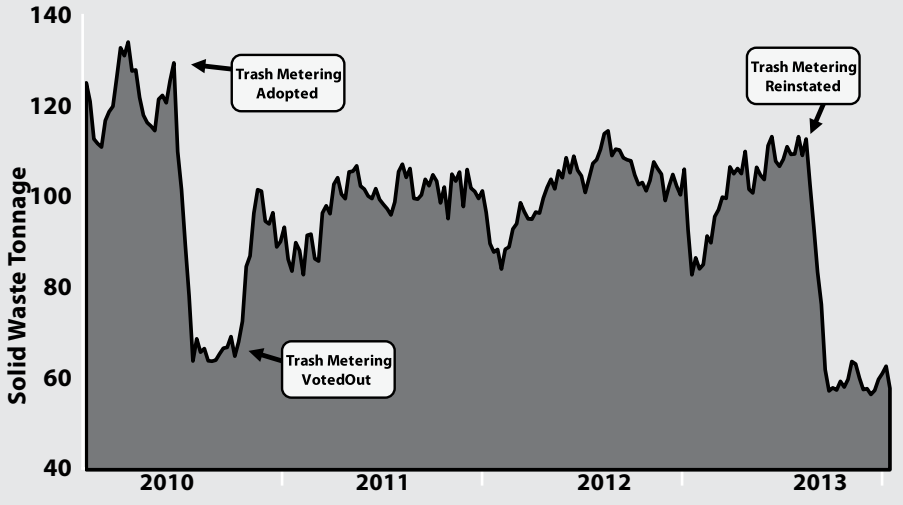
Eliot begins

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.

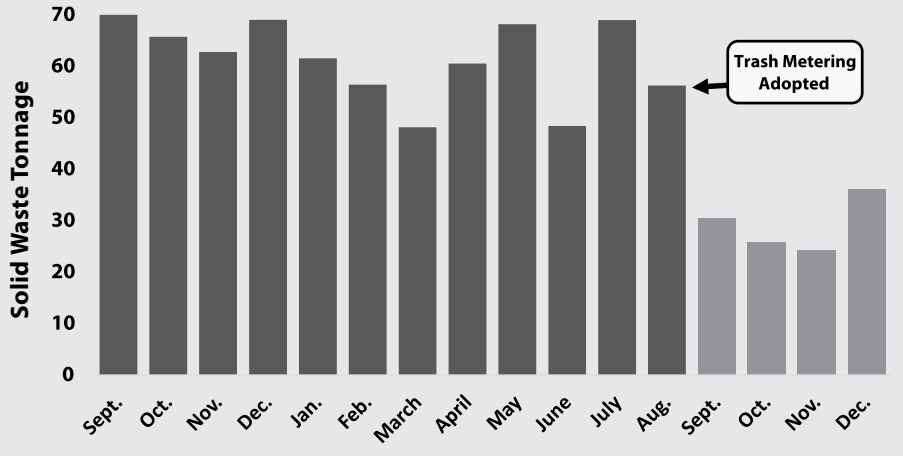
Using that model, we can see that PAYT in Maine could have a profound

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
Statewide	$5.2 million	$16.5 million	***$21.7 million***
25,000-resident city	$251,000	$793,000	***$1.04 million***
12,500-resident town	$125,000	$397,000	***$522,000***
5,000-resident town	$51,000	$159,000	***$210,000***

Source: WasteZero

ENVIRONMENTAL ESTIMATES

	Greenhouse Gas Reduction (in Metric Tons CO2)	Equivalent to...	Engergy Savings (in MMBTUs)	Equivalent to...	
Statewide	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
25,000-resident city	7,100	Emissions from 1,400 cars	59,000	Energy used to power 520 homes	Energy produced by 7,300 rooftop solar arrays
12,500-resident town	3,500	Emissions from 690 cars	29,000	Energy used to power 260 homes	Energy produce by 3,600 rooftop solar arrays
5,000-resident town	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, statewide 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. ■