

CUTTING TRASH IN HALF



How New Hampshire Towns and Cities Can Secure Their Financial Future With Pay-as-You-Throw

by George Bald and John Campbell

The solid waste system in New Hampshire and across the U.S. is straining towns' and cities' limited financial resources while putting the natural environment at great risk. That's the bad news. But as a growing number of New Hampshire communities are experiencing, there's good news as well: because the solid waste system is so large, even small changes can make a big difference—and can put municipalities on track for far greater financial and environmental results.

Trashing America

Trash's financial cost is stunning. U.S. cities and towns spend \$100 billion each year to manage municipal solid waste, and the wasted energy due to our failure to recycle costs another \$100 billion—a total of \$200 billion in avoidable costs for solid waste. In addition, every year we miss out on \$100 billion in opportunities for additional revenue from increased manufacturing using recycled goods, \$50 billion in revenue from recyclable materials thrown in landfills and incinerators, and \$34 billion in payroll from more recycling-related jobs. Those missed opportunities for revenue total \$184 billion. Altogether, the avoidable costs and unrealized revenue in solid waste make trash a \$384 billion problem for the U.S. economy, every year.

Solid waste is no less costly for the environment. The damage goes beyond the direct risks that landfills and incinerators pose to soil, water, and air quality. All of the garbage that is thrown away in the U.S. each year produces 275 million metric tons of carbon dioxide equivalent. That's an amount equal to the emissions from one out of every five passenger

vehicles in the country. All that trash also wastes an annual 3.5 quadrillion BTUs of energy—enough energy to power a quarter of all U.S. homes for a full year.

The Benefits of Unit-Based Pricing for Solid Waste

To lessen solid waste's financial and environmental toll, cities and towns across the country are exploring new strategies to decrease the amount of trash that they produce. Realizing that there is no way to significantly reduce solid waste without engaging residents as partners at the household level, more and more of these communities are instituting unit-based pricing for garbage, also known as "pay-as-you-throw" systems.

With pay-as-you-throw (or PAYT), municipalities simply change how their residents pay for trash. Instead of paying for solid waste services via a flat fee or as part of property taxes, people in pay-as-you-throw communities pay a variable rate based on how much they throw away. As a result, they have a strong incentive to throw away less and recycle more.

Giving solid waste a variable-rate pricing structure is a common-sense solution that brings this utility in line with the payment model for other utilities, such as water and electricity. This model encourages people to use a valuable resource more responsibly, provides greater individual accountability, and better aligns outcomes with municipal goals such as lower solid waste disposal spending, greater revenue generation, and increased operational efficiency.

There are several different types of pay-as-you-throw:

- Cash or punch-card systems, where people are charged a set amount for each bag they throw away, usually at a transfer station
- Variable-rate carts, which give people a choice among multiple different sizes of trash cans, with the largest being the most expensive
- Overflow programs, where people pay for each bag of trash that does not fit into their cart
- Sticker or tag programs, where people attach pre-paid stickers or tags to each bag of trash they throw away
- Bag programs, where people cover the cost of their municipal solid waste services by paying a small amount for each bag of garbage they throw away

Each of these types of programs offers at least a degree of waste reduction, but some can have limited effectiveness due to ineffective pricing structures, weak incentives at the household level, and enforcement challenges. None have proven as effective at reducing solid waste as bag-based PAYT, the version used by the majority of pay-as-you-throw communities in New Hampshire.

With bag-based pay-as-you-throw, people dispose of their trash in special city or town garbage bags in recognizable colors, imprinted with a municipal seal. The bags cost more than traditional trash bags (often \$1 or \$2, depending on size), because by buying them residents are not only paying for the bag, but also pre-paying to cover the cost of collection and disposal—a simple and fair solid waste payment system that better aligns what people spend with how much of the service they use.

Bag-based PAYT makes people aware of the true cost of their garbage every time they have something to dispose of. It leads them to think twice about throwing away items that have value outside the trash can, whether it is through reuse, recycling, composting, charitable donations, or source reductions. As a result, bag-based PAYT has been proven to cut trash volumes by an average of 44%, allowing cities and towns to reduce taxes and lessening the environmental toll of garbage.

Increasing Popularity Throughout New England

Pay-as-you-throw is firmly rooted throughout the New England region, and growing rapidly. Adoption is particularly widespread and growing in Massachusetts, where the state reports that 143 municipalities—fully 41% of the state's towns and cities—use PAYT to keep their solid waste tonnage low. These communities range from large and diverse cities such as Worcester, the second-largest city in New Eng-

land, which has had a PAYT program since 1993, to small towns such as Wellfleet on Cape Cod, which began its program in 2013.

Maine is also seeing significant growth. Nearly one-third (32%) of Maine residents currently live in one of the state's 131 pay-as-you-throw communities, and 71% of those people use bags for their PAYT. Portland, the state's largest city, has had a successful PAYT program in place since 1999. More recently, the central Maine city of Waterville adopted a program last September, and they have seen a 54% reduction in MSW tonnage in that time.

In Vermont, some are calling a new measure known as Act 148 the “pay-as-you-throw law,” because it requires all towns and cities in the state to implement unit-based pricing for solid waste by July 1, 2015.

One other New England state is seriously considering following Vermont's lead and also adopting state-wide pay-as-you-throw. The Rhode Island Resource Recovery Corporation (RIRRC), the semi-public entity that operates the landfill that is used by all but one of the state's towns and cities, has said publicly that it is considering accepting only waste in pay-as-you-throw bags. RIRRC hopes this move would dramatically extend the life of the landfill and better cover their operating costs. A decision is expected as early as this year.

Widespread Adoption in New Hampshire

Like its New England neighbors, New Hampshire has seen widespread adoption of pay-as-you-throw. Currently, 26% of New Hampshire residents living in communities with population greater than 5,000—256,000 individuals—have pay-as-you-throw. Of those, 58% (or 149,000) are in PAYT bag programs, 27% (or 68,000) are in PAYT sticker, tag, or punch card programs, and 15% (38,000) are in overflow programs.

Somersworth, the home town of one of the authors of this article (George Bald), has had a successful pay-as-you-throw program since 1992. The program offers curbside trash and recycling collection.

Concord, New Hampshire's third-largest city, marked five years of pay-as-you-throw last July. After several decades of relatively low tipping fees, the state capital was facing a new contract starting with fiscal year 2010 that would have dramatically increased solid waste spending by as much as \$900,000 each year. Concord City Councilor Keith Nyhan told the Concord *Monitor* last year, “It was going to be a roughly 3% tax increase just to maintain the same services that were going to be delivered relative to solid waste.” So

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rather than accept a nearly million-dollar increase in solid waste spending, the city opted to reduce its waste by introducing a pay-as-you-throw program in July 2009.

When Concord rolled out the program, it offered residents two different sizes of purple bags: 30 gallons for \$2.00 per bag, and 15 gallons for \$1.00 per bag. The city offers weekly curbside solid waste and single-stream recycling collection for residences with seven or fewer units.

The city saw positive results as soon as the program began. In FY2009, Concord residents disposed of 14,722 tons of MSW; in FY2010, the first year of the program, that figure dropped by 44%, to 8,311. Five years in, MSW remains down; the average annual tonnage between FY2010 and FY2014 is 43% lower than the tonnage in FY2009, the year before the program.

And while MSW was dropping, recycling went up. Concord's recycling tonnage has more than doubled, from 2,291 tons in FY2009 to 4,855 in FY2014.

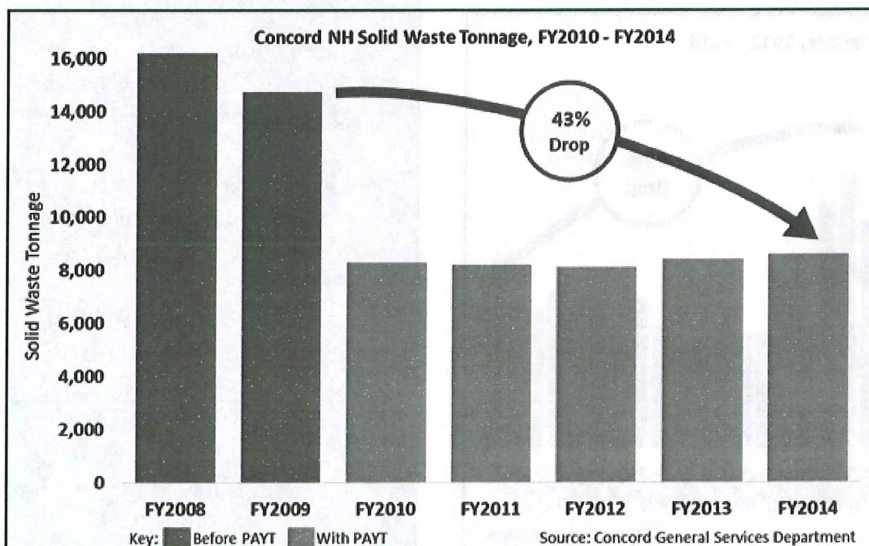
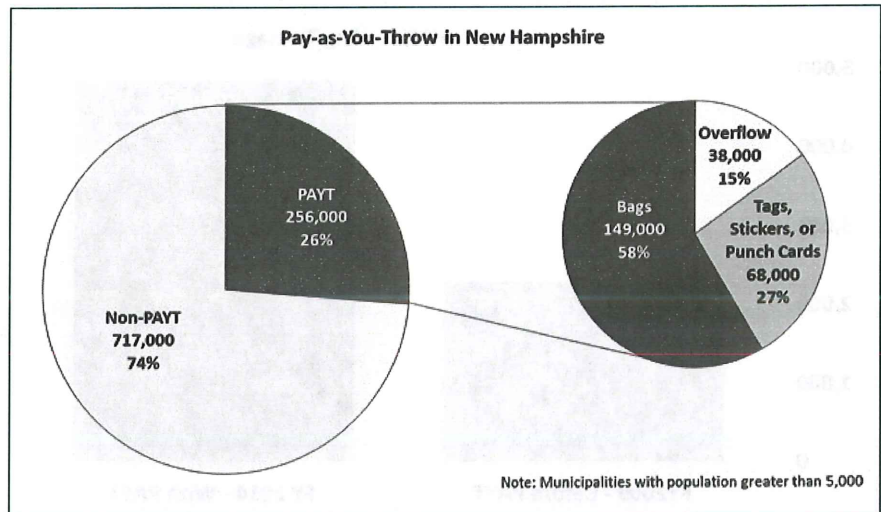
Concord's waste reduction with PAYT has had an extremely positive financial

impact. According to the city's General Services Department, the city's solid waste fund anticipated an annual general fund transfer of about \$2.9 million before PAYT. Now, that figure is just \$991,930—a decrease of almost \$2 million per year.

Pay-as-you-throw in Concord has had a profound effect on the city's sustainability profile. Using EPA's Waste Reduction Model (WARM) to estimate the program's environmental impact, we can see that each year, Concord's PAYT program reduces greenhouse gas emissions by 12,000 metric tons of carbon dioxide equivalent—an amount equal to the emissions from 2,400 passenger vehicles. In addition,

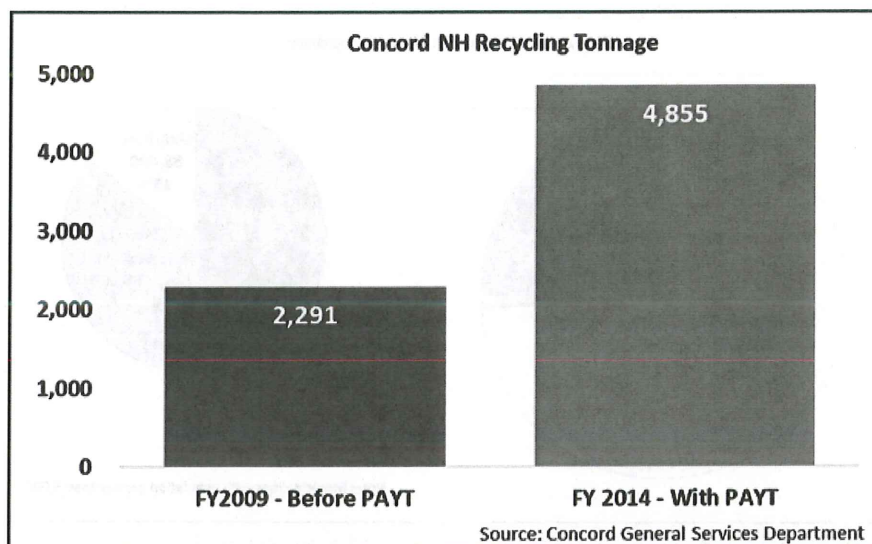
the energy savings from increased recycling (100,126 BTUs) is the same as the annual energy production of 12,000 rooftop solar arrays.

On the other end of the population spectrum from Concord, the small town of Tilton has also seen great success with—and significant public support for—its two-year-old purple-bag



Pay-as-You-Throw in Concord

- ✓ 43% Municipal Solid Waste Reduction
- ✓ 112% Increase in Recycling Tonnage
- ✓ \$2 Million Annual Financial Impact
- ✓ Greenhouse Gas Savings Equal to Taking 2,400 Cars Off the Road Every Year
- ✓ Energy Savings Equal to Annual Energy Production of 12,000 Rooftop Solar Arrays
- ✓ Weekly Curbside Trash and Single-Stream Recycling Collection
- ✓ Program Initiated July 2009



pay-as-you-throw program. The program was shepherded through a multi-year approval process, which included a few temporary setbacks and several rounds of extensive public input, with the strong support of the Tilton Recycling Committee and its chair, Marge Bonneville. Tilton Finance Director Tim Pearson says the 3,500-resident town was ultimately motivated to adopt PAYT for financial, environmental, and fairness reasons.

The program offers 15-gallon bags for \$1 each and 33-gallon bags for \$1.50 each. The town has weekly curbside trash collection, and they began offering bi-weekly curbside single-stream recycling when PAYT began.

Tilton has reduced its MSW tonnage dramatically with pay-as-you-throw. In 2014, residents disposed of just 622 tons of garbage, compared with 1,306 tons in 2012, the last full year before the program began. That change represents a 52% decrease. Moreover, this town that had no curbside recycling before PAYT had a recycling rate of 38% in 2014.

On the financial front, the town reports saving \$35,872 in reduced tipping fee spending in the program's first 18 months.

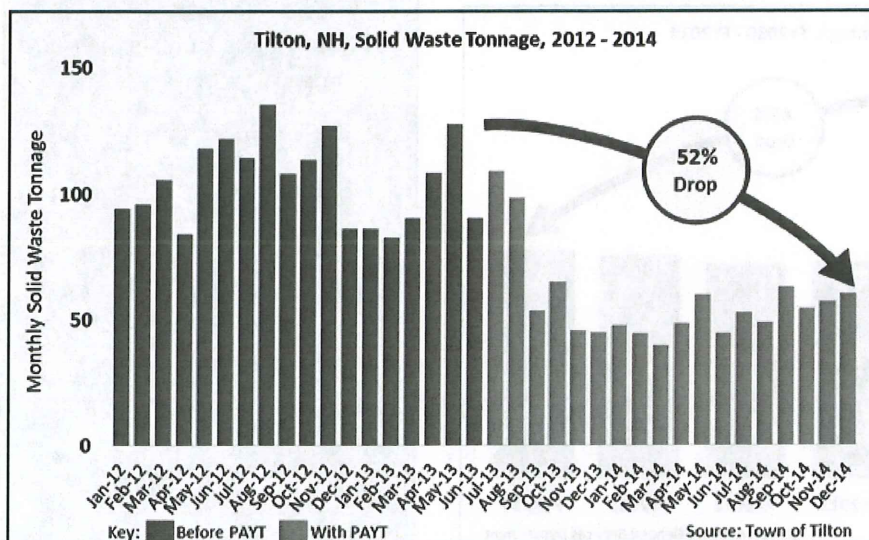
The environmental impact of the reduced disposal volume from pay-as-you-throw, even in a small town like

Tilton, is also significant: the greenhouse gas equivalent of taking 250 passenger vehicles off the road each year (1,300 metric tons of CO₂ equivalent), and energy savings equal to the annual output of 1,300 rooftop solar arrays (11,000 BTUs).

The success of pay-as-you-throw in Tilton was not lost on the town's residents. A petition warrant article asking to rescind the program was submitted for the spring 2014 town meeting, just six months after it began. But when the town meeting moderator asked for a petitioner or anybody else to speak in favor of the proposal, nobody stood up, and debate was halted. The measure to end PAYT in Tilton was then soundly defeated in a 79-22 vote.

Pay-as-You-Throw in Tilton

- ✓ 52% Municipal Solid Waste Reduction
- ✓ Recycling Rate Increase From 13% to 36%
- ✓ \$36,000 Reduction in Disposal Spending in First 18 Months
- ✓ Greenhouse Gas Savings Equal to Taking 250 Cars Off the Road Every Year
- ✓ Energy Savings Equal to Annual Energy Production of 1,300 Rooftop Solar Arrays
- ✓ Weekly Curbside Trash Collection and Bi-Weekly Curbside Single-Stream Recycling Collection
- ✓ Program Initiated July 2013



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Strong Public Support

Tilton's residents are not alone in supporting PAYT. In a 2014 survey of nearly 1,000 residents of 11 pay-as-you-throw communities around the country, including some in New Hampshire, the firm Public Policy Polling found that 79% of respondents have a favorable opinion about PAYT. Indeed, an outright majority—52%—have a very favorable opinion.

Residents overwhelmingly see the program as easy to participate in, with 74% saying they do not consider PAYT difficult to do. Fully 89% said they thought their program was performing either as well as or better than they expected.

Notably, on what is perhaps the ultimate measure of public satisfaction—whether having pay-as-you-throw makes residents more or less likely to vote for the officials who implemented it—people responded that municipal leaders do not face electoral repercussions for bringing in PAYT. More than three-quarters said they are either more likely to vote for those leaders or that it does not make a difference to them. Indeed, more people said they would vote for leaders who brought in PAYT than said they would vote against them, showing it to be a political positive for elected officials.

A Common-Sense Solution

The financial and environmental costs of garbage are so extraordinarily high that few serious observers believe that doing nothing to reduce it is still a viable option. As more than one-quarter of New Hampshire residents now know—and more are learning each year—one of the most powerful ways to reduce those costs is to give individuals incentives for waste reduction at the household level: a common-sense solution that does significant good for municipal budgets and the environment at the same time.

George Bald, a resident of Somersworth, was Mayor of Somersworth for six years, and he served for 10 years in Rochester as both City Manager and Director of Economic Development. He served for more than a decade as Commissioner of the New Hampshire Department of Resources and Economic Development,

and he was involved with the Pease Re-development effort in Portsmouth. In 2013, he served as the Interim Director of HealthTrust. He serves on the Board of the Pease Development Authority and Granite Bank.

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.



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CUTTING WASTE AND SAVING MONEY IN NEW HAMPSHIRE'S CAPITAL CITY

IN THE PROGRAM'S FIRST FIVE YEARS, THE CITY SAW:

43%

decrease in solid waste tonnage

36%

recycling rate
(up from 13% before PAYT)

\$2 Million

annual decrease in transfer to city's solid waste fund

42,400 POPULATION

\$53,000
MEDIAN HOUSEHOLD INCOME

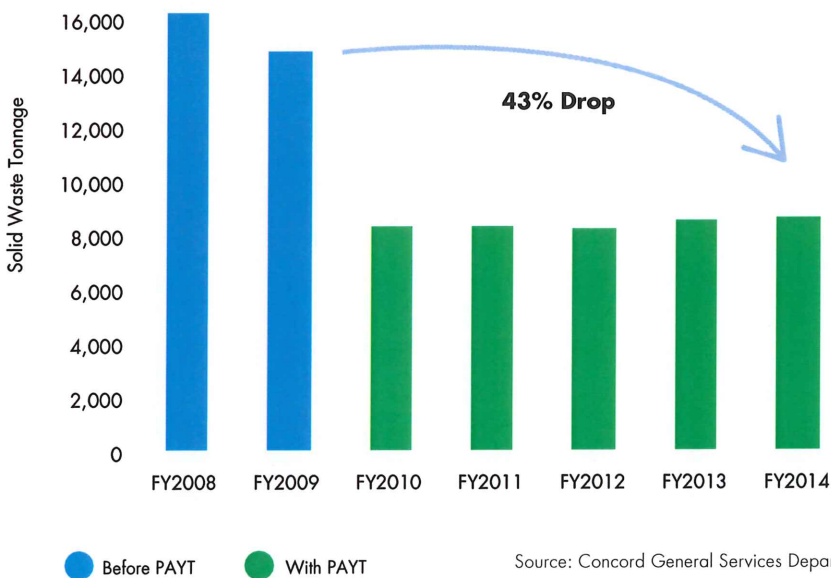
BAG-BASED PAYT WITH CURBSIDE TRASH AND SINGLE-STREAM RECYCLING COLLECTION

Facing a dramatic increase in tipping fees, the city of Concord, N.H., began a pay-as-you-throw program in July 2009.

Over the first five years of the program, residential solid waste tonnage decreased by almost half, and the recycling rate more than doubled.

The city's public works leadership reports that there has been no increase in illegal dumping since the program began.

CONCORD NH SOLID WASTE TONNAGE



Source: Concord General Services Department