

MEMORANDUM

TO: Lance Norris, Public Works Director

FROM: Harv Howard, Solid Waste/Fleet Maintenance Services Superintendent
Jason Damweber, Administrative Analyst

SUBJECT: Pay-As-You-Throw

DATE: January 10, 2010

PURPOSE

This report presents updated information regarding a “pay-as-you-throw” (PAYT) refuse collection system. Specifically, the memo provides a description of the system, methods of implementation and administration, desired goals and objectives, and a number of potential issues to be considered when deciding whether or not a PAYT system would be a feasible alternative to the current refuse collection system. Additionally, the memo provides information on recent developments in ongoing discussions between the Town of Chapel Hill and Orange County related to PAYT as a refuse collection option.

BACKGROUND

In November 1995, the Council was presented with a memo detailing a unit-pricing, or “pay-as-you-throw” (PAYT), refuse collection system. The memo concluded that it is possible a PAYT system would be successful in Chapel Hill, and suggested a sequential list of decision points for the Council’s consideration. The memo also noted that there would likely be a number of challenges to overcome for successful implementation of such a system. The Council decided to table the memo for further consideration.

In June 1999, the Council adopted a resolution establishing an advisory group to work on community involvement in the study of and possible implementation of PAYT refuse collection. The group met several times to discuss PAYT as a refuse collection option and identify key issues.

In December 2000, the Town Manager submitted a memorandum to the Council that reaffirmed a long-term waste reduction goal of 61% per capita by 2006 as determined by Orange County and its three Town governments, as well as options for the Council’s consideration of a PAYT refuse collection system. The memo also included a resolution requesting the BOCC to advise the Town whether the County could accommodate increases in recycling should the Town adopt a PAYT system.

While several discussions regarding the various PAYT options and the use of PAYT as a means of increasing recycling occurred between the Town and County following the December 2000 memorandum, no definitive conclusions were reached nor actions taken. However, even without a PAYT system, the Town’s solid waste diversion rate has, to date, increased to 55%. The

increased diversion rate resulted in part from the expansion of the County's recycling program to include mixed paper and cardboard.

DISCUSSION

This discussion outlines the fundamental elements and goals of a PAYT system, addresses some key issues for the Council to consider and provides information on recent developments in discussions between the Town and County regarding PAYT as a refuse collection option. Much of the information herein, which has been updated where appropriate, has been provided to previous Councils in earlier memoranda.

“Pay as You Throw”

What is Pay As You Throw?

Traditionally, residents pay for waste collection through property taxes or fixed fees, regardless of the amount of trash generated and disposed. Pay as you throw, also known as unit pricing or variable rate pricing, is a system whereby residents are charged for the collection of municipal solid waste based on the amount they throw away.

Goals

While specific goals and objectives of PAYT are determined based on local conditions and considerations, typically the system is instituted for the interrelated purposes of environmental, and in some cases economic, sustainability.

From an environmental perspective, PAYT has the potential to increase recycling and reduce waste due, in part, to the waste reduction incentive created by PAYT. A reduction in waste and increased recycling mean that fewer natural resources need to be extracted and greenhouse gases associated with manufacture, distribution, use and disposal of products are reduced. Additionally, as waste reduction goals are achieved, the use of landfills for the disposal of waste will decrease. According to the U.S. Environmental Protection Agency (U.S. EPA), communities with PAYT programs in place have reported reductions in waste amounts ranging from 25 to 35 percent, on average, which can lead to lower disposal costs and savings in waste transportation expenses. We think it is unlikely that the Town of Chapel Hill would realize similar waste reductions from current levels because of the Town's already high diversion rate.

Methods of Paying As You Throw

There are two basic methods for implementing PAYT, one based on volume and the other based on weight:

- Volume-based:

Residents or consumers are charged for waste collection according to volume generated. This is typically implemented either by number and/or variable sizes of containers placed for collection or by use of special trash bags (or tags or stickers for

trash bags) that are purchased. This method has the relative advantage of being less costly to set up and operate.

- Containers, Tags and Bags

One advantage of a container system is that revenues are fairly stable and relatively easy to forecast. Additionally, containers can be labeled with addresses or unique indicators, which can help ensure household compliance with PAYT policies. However, with a container system customers may have less of an incentive to reduce waste since there is no incentive not to fill containers already purchased. Additionally, containers can be “stuffed” to excessive volumes, regardless of size. Containers also require relatively complex billing systems, which must be created and administered. Experience in other communities also shows that some restrictions might be required on the frequency with which residents would be allowed to change containers. Such restrictions might be necessary to ensure that residents adhere to the subscription level selected.

Advantages of a tag system include ease of administration and less costly implementation. Tags could be acquired from Town outlets and/or retail outlets without creation of a billing system. Tags can also be used for other materials, such as bulky items. They can be made to be readily identifiable to the collector and are arguably easiest for residents to use. Some disadvantages of a tag system include the possibility of counterfeiting and the possibility of tags becoming dislodged from bags placed for collection.

Advantages of a bag system are similar to those of a tag system. Bags could be sold at retail outlets and would not require a billing system. Bags could be provided so as to be readily identifiable (e. g., a different color or with a printed logo or message) and are not subject to counterfeiting. A disadvantage of bags is that they can be “overstuffed,” as customers will have an incentive to fill bags with as much refuse as possible. Overstuffing increases the likelihood that bags will become torn, which could lead to increased litter. Another argument against bags is that they compete with commercially produced bags, which some citizens and retailers could object to.

- Weight-based:

Under such systems, refuse is weighed curbside and the resident or consumer is billed for service per pound of refuse set out for collection. On-board computers record weights by household and customers are billed accordingly. Radio frequency tags are affixed to the containers to identify households for billing purposes.

The primary advantage of this system relates to savings that residents can achieve by reducing their household’s waste stream. Because the amount of refuse placed for collection can be measured more precisely, every pound of waste reduction can be accompanied by a reduction in user costs. There are technical issues reported with

weight-based systems. These included the sensitivity of scales to weather and debris associated with refuse collection, problems with weighing on uneven ground and problems with having weighing devices certified for billing purposes. For these reasons, while certified scale systems are currently available in the US, the weight-based method in practice is extremely rare.

Implementing the System

The implementation process for PAYT must include several steps, some of which are sequential, while others may occur simultaneously. For purposes of discussion, implementation activities are noted as separate and distinct; in reality, the process for designing and implementing PAYT is on-going and consists of interrelated components. Also, it would be essential for Town staff to conduct an in-depth fiscal analysis to determine likely costs prior to implementation. The following are some suggested steps the Town might take should we implement a PAYT system:

- Broad public outreach, education and participation is essential for a successful program. The Town would need to identify their waste management needs and gather public opinion about service options, relative costs, and advantages and disadvantages, so that policies are likely to be followed. Public support requires acceptance of unit pricing and sufficient detailed information to ensure participation.
- Set programs goals and objectives based on the Town's diversion goals, as well as a means of tracking and measuring progress towards goals.
- Determine elements of the program to be implemented. If the Town opts for weight-based services, we would need to begin acquiring the appropriate equipment, retraining Solid Waste Management staff and developing a billing administration system. If a volume-based system is selected, then a choice would have to be made between containers and bags, tags or stickers. Methods of distribution and payment would have to be determined and arrangements would have to be made with retailers.
- Legal provisions likely would be necessary in order to implement a new system. Ordinances either may have to be amended or new ones adopted.

Issues for Consideration

We believe that the Council may wish to consider some additional issues in determining whether a PAYT system is a refuse collection alternative for the Town. These issues include, but are not limited to, fees and cost recovery, equity, relief from fees for low-income families and the effect of PAYT on waste volumes.

Fees/Cost Recovery

Some or all of the costs associated with refuse collection and disposal could be recouped through a fee for service. A variable fee, in which a resident pays a different rate depending upon usage, is at the heart of a PAYT system. Under this kind of system, a resident would pay for some

portion of his or her cost of collection and/or disposal. Disposal costs (currently tipping fees at the Orange Regional Landfill) are usually considered the variable portion of total costs for refuse collection, because they are the costs most affected by the quantity of waste produced, and they can change according to the practices of the producers of the waste.

Most of the costs of collection are fixed. In other words, labor, equipment and operating expenses are not greatly affected by marginal differences in the amount of waste requiring collection. The largest portion of collection cost incurred results from waste collection transportation expenses. According to our research, the actual amount of waste collected does not significantly affect collection cost.

- Basis for Fees

State law would have an impact on some elements of a PAYT system. For example, fees for service must be set so as to recover only those costs associated with the specific service. If the Town were to set a fee for the variable cost associated with residential refuse, such a fee would have to be set consistent with the cost of disposal of residential refuse, or the variable cost of such service. If, on the other hand, the Town were to set a fee to recover all costs associated with residential refuse service, then the fee could include both costs for collection (i.e., fixed costs) and a cost for disposal.

We think a fee based on disposal cost recovery alone might be insufficient to encourage waste diversion. The Town's disposal costs for residential waste in FY 2009 were about \$890,000. If that amount were equally distributed among approximately 11,500 residential pick-up points from which we collect, the annual cost per household would be about \$77. Total costs for residential collection (including disposal) last year were about \$3.5 million. Distributing this amount over 11,500 households would equal about \$305 per household per year.

A fee that would recover both collection and disposal costs could be set at a high enough level as to serve as an incentive to waste diversion if a fee could be created that would give the producer some control over the unit of cost for which the fee was being charged and if such a fee could meet the legal requirements for creating a fee, as we understand them.

- Effects of Using Fees on Revenues and Taxes

If we attempted to recover all or a significant portion of collection costs through the fee, we would need to carefully analyze the results of the fee during budget cycles to assure that sufficient revenues are generated to cover the operational costs, especially those related to collection. If experience demonstrates that fees do not cover our costs, then we would have to raise the fees or find other funds to make up the difference.

A related issue might be whether or not the Council might wish to consider an offset to the ad valorem tax rate for Town residents if such a fee for service were set. If fee revenues do not cover operating costs, then general fund tax revenues would be the likely

source to cover any deficit. Accordingly, we would need to consider the actual resource requirements annually, probably through the budget process.

- Fee Relief to Low-Income Families

The Council may wish to offer relief to low income families accustomed to paying for refuse service through property taxes who may have difficulty affording refuse collection under a PAYT system. This would require developing a program to determine those eligible for relief from PAYT fees. If the Council wishes to pursue this type of program, we could provide additional information about possible options.

A related issue is that of rental properties and the relative burden on renters in a PAYT system. In a system in which the property owner pays for solid waste services through the property tax, the owner bears the direct burden of paying for said services. In a fee-based system, the property occupant as user bears the burden. This may exacerbate the issue of the relative burden of a fee-based system on lower income residents who are not owner-occupants.

Equity

A theme common to all successful programs is a general public perception that the fee based program is fair. Under the system in which local taxes are used, each resident pays the same tax regardless of the amount of waste he/she generates. Under some variable rate pricing systems, all users pay a common basic fixed fee for collection and variable rates for disposal depending on quantities of waste generated.

One issue of equity relates to the question “Is it fair for the resident who generates far less waste to subsidize those who generate more?” Proponents of PAYT argue that this should be a central focus of such programs, and that the answer should clearly be no. Opponents of PAYT often cite other aspects related to equity, such as family size, as cause for concern. For example, single people and families with two or more wage earners either may produce less waste or will generate some waste away from home (e.g., traveling, eating out, etc.).

Multi-family Housing

Closely related to the issue of equity, and another common challenge for unit pricing programs nationwide, has been incorporating multi-family residential structures into the PAYT system. Part of the reason for this is that economic incentives are less direct when waste is collected from residents per building, rather than per unit, as is often the case with such structures. In the Town of Chapel Hill, multi-family housing complexes, which use dumpsters requiring collection with commercial equipment, are considered residential. Disposal of waste in dumpsters, which the Town empties using large “frontloading” trucks, makes it extremely difficult to identify the source of, and to weigh, individual bags. As such, there could be a “disconnect” between the amount of garbage each household disposes of and the fee charged per household.

Commercial Collection

Another issue related to PAYT is commercial solid waste collection. A comprehensive PAYT system would include commercial customers that use either weight or volume as the basis for establishing rates. Under weight-based unit pricing businesses are charged according to pounds of waste disposed in dumpsters. Key issues with commercial collection involve technology (how to measure, record weights) and enforcement (how to prevent abuse, illegal dumping, etc.). Volume-based systems use variable sizes of dumpsters, or variable rates depending on an historical analysis of usage (e.g., low, medium or high), or a combination. Regardless of the system selected, an administrative structure must be established to handle billing and collection of payments from businesses.

It should be noted that the Town of Chapel Hill currently conducts commercial solid waste operations using a volume-based based PAYT pricing system. Businesses and other non-residential organizations serviced by the Town pay an annual fee for solid waste collection. The fee is based on the number of dumpsters, and in some cases roll-carts, used for disposal of solid waste. Because commercial solid waste operations already use a PAYT system, we do not believe implementing a Town-wide PAYT system would result in increased commercial recycling.

Integration with Other Complementary Programs

The most successful PAYT programs exist in areas where other solid waste options exist, including recycling, yard waste and bulky item collections. One of the goals of a comprehensive PAYT system might be coordination of such programs for handling solid waste. If the Town opts for a PAYT system, we would need to determine how solid waste, yard waste and bulky item collection would be affected, and further, we would need to engage the County in discussions regarding the potential impacts on recycling (more information regarding impact on recycling is provide below).

Enforcement

Experience in other communities suggests that once policies are established for unit pricing services, enforcement becomes essential. Voluntary compliance is effective only to the extent that consumers are willing to abide by applicable rules and regulations. Even if violators are few and instances of non-compliance are relatively infrequent, the overall program may be undermined. The U.S. EPA recommends the use of sanctions ranging from letters requesting voluntary compliance to court action and fines or tax liens to ensure compliance. Inspections are needed and penalties usually are assessed when alleged violations occur.

Illegal Diversion

According to the U.S. EPA, the most frequently cited disadvantage of implementing a PAYT refuse collection system is the possibility of illegal diversion, which may be illegal dumping, incineration of solid waste, or other ways of disposing of trash without payment of applicable fees. The Agency's research indicates, however, that illegal diversion is more of a perceived

barrier than a real issue for communities with PAYT systems. In order to deter illegal diversion, communities with PAYT systems have implemented “fair but aggressive” enforcement policies at the same time as the PAYT program.

Ordinances and Procedures

In order to levy fees and enforce certain PAYT policies, it would be necessary to revise Town ordinances and procedures related to solid waste disposal.

Impact on Recycling

An important issue for consideration is how diverted materials would be handled. In order for PAYT to be successful, residents would need to be able to readily recycle materials they divert from the residential waste stream. Ideally, the recycling program could accommodate as much additional material as residents could place for collection. Given our previous experience with what works and what does not work in recycling, this “ideal” program would further allow for collection of materials in a way that is easy and convenient for residents.

In the past, Orange County staff suggested that an increase in recyclable tonnage might exceed their contractor’s capacity, given the current configuration of materials and methods. They have not been able to fully assess the possible methods by which additional materials could be accommodated, nor have they been able to provide an estimate of cost to provide the additional recycling services. However, Orange County staff recently indicated they believed that the expected increase would be marginal and would not likely cause any significant problems.

We believe this may be a critical issue for the possible success of a PAYT system. Given the current arrangement of the County’s administration of the recycling programs, the County would need to be able to provide a definitive answer regarding their ability to recycle additional materials generated through a PAYT system. Additionally, it would be important to know how that service might be provided including determining possible costs, if any, to the Town for any possible additional service.

Recent Developments Nationally and in Local Deliberations

In 2009, the U.S. EPA began advocating a municipal solid waste program called “SMART” (Saving Money and Reducing Trash), a supplement to PAYT that emphasizes economic incentives in order to motivate communities to reduce waste and increase recycling (in fact, much of the recent literature uses the acronyms SMART and PAYT interchangeably). A component of the SMART program is the “SMART BET” (Saving Money and Reducing Waste Benefit Evaluation Tool), which allows users to calculate the estimated greenhouse gas emissions and cost savings a community is likely to realize after implementing PAYT. We are currently gathering the data necessary to make this determination, much of which will come from County solid waste officials. Based on rough estimates, we expect to score favorably in greenhouse gas emissions due to our current waste reduction of 55%. We do not expect to show significant cost savings by implementing a PAYT/SMART program.

On a local level, though some renewed interest in PAYT has been expressed recently, there have not been any major developments arising from discussions about PAYT as a viable and worthwhile option for the Town or County. In November 2009 members of the Orange County Solid Waste Advisory Board (SWAB), comprised of representatives from Orange County and its three Towns, discussed the issue of PAYT as it pertained to convenience centers as a potential longer term funding option. The apparent consensus of the group was that there is little support at this time or in the immediate future for recommending PAYT as a refuse disposal option at convenience centers. Discussions regarding the County's capacity to handle increased recycling resulting from PAYT are still ongoing and no definitive conclusions have been reached at this time, though it does not appear the potential diversion would have a significant impact on the County's ability to handle increased recycling.

On December 7, 2009, the Orange County Board of County Commissioners voted to authorize staff to proceed with amending an interlocal agreement between Orange County and the City of Durham that formalizes short-term, and possibly long-term, arrangements to have Orange County-generated municipal solid waste delivered to the City's transfer station in Durham, located near Interstate 85. It is unclear at this time how this decision will affect the manner in which the Town currently disposes of its solid waste, or whether there will be any impact on the County's recycling operations.

SUMMARY

While PAYT has grown in popularity nationwide as a solid waste disposal option, research indicates that little has changed in the last 15 years in terms of the way the system is implemented or administered, or the potential benefits and issues related to the system. The case for PAYT, as stated in the November 1995 staff memorandum to the Council, also has changed little. We still believe that a PAYT refuse collection could be successfully implemented in Chapel Hill, that the process would have to be implemented over a time period sufficient to allow for proper planning and design, and that involvement of the public and coordination with other services must occur in order to ensure an integrated, rational and successful approach to solid waste management. However, because of the Town's already high diversion rate, we do not believe we would realize the same degree of waste reduction or increases in recycling as many other communities if PAYT was implemented.

Furthermore, the effects of the County's recent decision to haul solid waste to the Durham Transfer Station remain to be seen, and as such, the Town's approach to solid waste management in the future and the County's ability to absorb increased recycling resulting from PAYT are unclear at this time.