

# TOWN OF BARNSTABLE

## *Renewable Energy Commission*

### Solid Waste Disposal Alternatives Report on Findings

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## **Executive Summary**

In the spring of 2011 the Renewable Energy Commission (REC or the Commission) and the Comprehensive Financial Advisory Committee (CFAC) were asked to review options (and those options' associated costs) for reducing the town's residential solid waste stream. This charge was given in consideration of the December 31, 2014 expiration of the SEMASS/Covanta contract to dispose of the town's residential solid waste, and the expected new substantially increased contract price for disposal.

The Commission examined four separate options and considered the advantages and disadvantages of each. The options included: Maintain the status quo and simply renegotiating a new contract with SEMASS at the market rate, close the transfer station to residential solid waste disposal and recycling; institute a Pay-As-You-Throw (PAYT) program for all residential transfer station customers, and finally, implement a town-wide curbside solid waste and recycling disposal program with a PAYT component.

As part of its due diligence process REC researched what other cities and towns in Massachusetts and around the country had done to reduce their communities' solid waste and increase recycling rates. The commission looked at all the different ways recycling had been increased, from simply increasing outreach and education about the benefits of recycling all the way to requiring mandatory recycling.

After many months of research and consideration, reviewing data from other communities, talking with solid waste managers in other towns, and listening to experts from Mass DEP, the Commission determined that the most effective and equitable way to reduce the town's residents' solid waste stream would be to implement a town wide solid waste and recycling curbside collection program with a PAYT component. As a second best alternative option, the Commission is recommending that a PAYT program be instituted at the residential transfer station for all residential solid waste and recycling customers.

## Section 1 Introduction and Purpose of Review

### 1.1 Introduction

As is true for all Cape towns (excluding Bourne, which has its own landfill, and Brewster which recently renegotiated a new contract with SEMASS/Covanta), Barnstable will soon be facing a major increase in disposal costs for its residents' solid waste. As a result of the expiration, at the end of 2014, of the town's contract with SEMASS/Covanta, Inc. (located in Rochester, MA) to dispose of its solid waste, it is expected, based on current market rates<sup>1</sup>, that the tipping fees to dispose of the town's solid waste will substantially increase, perhaps more than doubling.

Concerned about this potential steep increase in disposal costs, the President of the Town Council, in a letter dated March 24<sup>th</sup>, 2011 to the town's Comprehensive Financial Advisory Committee (CFAC), requested CFAC and the Renewable Energy Commission:

***“... to review and analyze the current cost of Barnstable's solid waste program, projecting the cost after 2015 based upon the assumption that the current SEMASS contract will renew with similar terms and conditions. In addition, the Renewable Energy Commission (REC) is respectively challenged with reviewing and analyzing solid waste options for the town, including town-wide recycling in comparison with contracting with SEMASS.”***

Subsequent to receipt of the letter, the two groups established the following protocol for their joint effort:

- 1. CFAC will be responsible for a review and analysis of the cost of Barnstable's current solid waste program as well as a projection of probable future costs associated with the program after 2015. The post-2015 analysis is in the nature of a “base line” analysis; i.e., it assumes that the current contract will be renewed with SEMASS on terms and conditions similar to what is believed to be the current SEMASS offer to Cape Cod communities to renew existing contracts.*
- 2. The Renewable Energy Commission (REC) will review and analyze solid waste program options for the Town of Barnstable, including recycling, with a view of determining the advantages and disadvantages of the set of options compared to the advantages and disadvantages of the “base line” option of simply continuing to contract with SEMASS.*
- 3. Upon the issuance of the report describing alternative solid waste program options, CFAC will be responsible for analyzing and projecting costs for each of the alternatives.*

When the Commission began its analysis of the various solid waste reduction options in the spring of 2011, it became quite obvious very quickly that the best way to reduce the town's solid waste stream disposal costs would be to increase recycling.

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<sup>1</sup> According to a report issued by CDM Consultants, commissioned by the Barnstable County Commissioners (see [Appendix A](#)), the estimated market rate tipping fees upon expiration of the SEAMASS contract to be in the range of \$80-\$90 per ton (Town of Brewster recently renegotiated with Covanta at \$70 per ton).

## 1.2 Recycling Benefits

While increasing recycling is good for town residents' bottom line by reducing disposal costs, it's also very good in the following significant other ways:

1. **Good for the Economy**  
American companies rely on recycling programs to provide raw materials they need to make new products.
2. **Creates Jobs**  
Recycling in the United States is a 236 billion dollars per year industry. More than 56,000 recycling and reuse enterprises employ 1.1 million workers nationwide.
3. **Reduces Waste**  
The average American discards 7.5 pounds of garbage everyday. Unfortunately, most of the material goes into landfills.
4. **Good for the Environment**  
Recycling conserves energy, preserves natural resources, and keeps waste from piling up in landfills.
5. **Saves Energy**  
Recycling offers significant energy savings over manufacturing with virgin materials.
6. **Reduces Climate Change Impacts**  
Recycling prevents the release of millions of metric tons of carbon equivalent into the air.
7. **Reduces Water Pollution**  
Making goods from recycled materials generates far less water pollution than manufacturing from virgin materials.
8. **Protects Wildlife**  
Using recycled materials reduces the need to damage forests, wetlands, rivers, and other natural habitats.
9. **Creates New Products**  
"Closing the loop" by recycling and buying recycled products reduces the amount of waste going into landfills and being incinerated at waste-to-energy facilities and helps sustain recycling programs.

Unfortunately, with a historic average of between 16 and 18 percent, Barnstable has one of the lowest town-wide (including both transfer station users and subscribers of private trash hauling services) recycling rates in the region. This low rate is caused in large part by the fact that approximately two-thirds of Barnstable's households use private trash haulers (For a list of currently licensed private trash haulers see [Appendix E](#)). Because recycling is voluntary, and because the trash haulers charge more to recycle, it is estimated the recycling rate for subscription trash hauler service is only about 10%. The recycling rate for the one third of town residents who use the transfer station is significantly better, with a five-year average rate of 33%.<sup>2</sup> But still, that 33% is below average when compared to other communities whose residents also drop off their trash at their town's transfer station/recycling center (See Mass DEP CY 2010 Solid Waste and Recycling Survey, [Appendix B](#)).

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<sup>2</sup> The actual recycling rate is somewhat less than 33%, due to the fact that a number of residents bring their recycled materials to the transfer station, but don't purchase a sticker or dispose of their solid waste at the RTS.

## **1.3 Energy Use Savings and Climate Impact**

### **Energy Savings from recycled materials**

The U.S. EPA has studied the greenhouse gas (GHG) emissions associated with managing ten types of waste material: office paper, newspaper, corrugated cardboard, aluminum, steel, plastic (HDPE, LDPE, and PET), food scraps, and yard waste. The EPA research considered waste management options including waste prevention, recycling, composting, incineration, and land filling. The research indicates that, in terms of climate benefits, waste prevention is the best management option. Recycling is the next best approach to reducing GHG emissions.

EPA estimates that increasing our national recycling rate from its current level of 27 percent to 35 percent would reduce GHG emissions by 11.4 million metric tons of carbon equivalent (MTCE, the basic unit of measure for GHG) over land-filling the same material.

Waste prevention also makes an important difference: by reducing our waste by just five percent, we could reduce GHG emissions by another 10.2 million MTCE. Together, these levels of recycling and waste reduction slash emissions by more than 20 million MTCE – an amount equal to the average annual emissions from the electricity consumption of roughly 12 million households.

### **Energy Savings from reduced vehicle trips to transfer station**

One of the greatest areas of energy savings (and cost savings for the gasoline and diesel fuel not used) that would result from a town-wide curbside trash pick-up program would be in the reduced number of vehicle trips to the transfer station.

As the “2011 Transfer Station Sticker Holder Locations,” map on page 14 shows, the 9,151 households who use the transfer station to drop off their trash and recyclables are located in every corner of the town. While the heaviest concentration of sticker holders resides in Centerville and Marstons Mills, there are also many sticker holders who live in Hyannis, Osterville, Barnstable/West Barnstable, and Cotuit. It’s impossible to calculate the exact number of vehicle trips and vehicle trip miles that would be avoided if a curbside pick-up program were implemented, but it is reasonable to assume that a substantial number of trips to the transfer station would not occur, thus resulting in thousands of vehicle miles not traveled, causing a substantial savings in gasoline and diesel not used, and many tons of greenhouse gas emissions avoided.

## **1.4 Assumptions Used**

The figures and data used in this report are based on the best available information and estimates. Recycling increase and waste reduction estimates used in the curbside and transfer station Pay-As-You-Throw (PAYT) discussions are based on results actually experienced in other communities. Expected disposal cost increase estimates if the town continues with SEMASS/Covanta after 2015, are based on an analysis of the present market rates for MSW



disposal. Most of the state databases reviewed by REC for its work are populated with data and information sent along by the cities and towns.

The research and work the Commission did for this report is preliminary in nature. Based on which, if any, solid waste reduction recommendation the town council chooses to pursue, DPW staff, and others, will need to do substantial further due diligence with regard to potential program specifics. In particular, with respect to the town-wide “curbside” and recycling trash pick-up option, the actual costs and program specifics can’t be firmly established until after potential contract language is drafted, and an RFP is issued.

## **1.5 Renewable Energy Commission’s Goals**

As the Commission considered the possible solid waste reduction options, its members were guided by the desire to meet the following goals:

- Achieve the Solid Waste Division Mission “to provide the citizens of Barnstable with an environmentally sound, cost-effective means of disposing of or recycling municipal solid waste at reasonable market rates that support all solid waste disposal and recycling costs,” and
- Recommend option(s) that will achieve the highest degree of town-wide energy use reduction.

## **1.6 Acknowledgements and Sources of Information**

The Commission reviewed and considered the following sources of data and information:

Cape Cod Commission, CDM Report, *Evaluation of Future Disposal Alternatives for Municipal Solid Waste*, April 2010; Town of Barnstable, *Pay-As-You-Throw Pilot Program Evaluation, Final Report*, January 2004, (Prepared by MassDEP); Town of Barnstable, Department of Public Works, Solid Waste Division, “Curbside Collection Research,” February, 1993; interviews with and questionnaire sent to current town-licensed private trash haulers; numerous state databases, U.S. E.P.A. PAYT website (<http://www.epa.gov/wastes/conservation/tools/payt/>); presentations by D.P.W. and Health officials from other towns (Sandwich and Attleboro); *Cost Analysis of Solid Waste Options For The Town of Barnstable*, Barnstable Comprehensive Financial Advisory Committee (CFAC) Subcommittee on Solid Waste, February 1, 2012; presentation by Mass DEP official; reviewed numerous case studies from towns that have instituted curbside and drop-off PAYT programs; and received input from Barnstable D.P.W. Solid Waste Division and Health Department Staff.

## **1.7 Summary of Systems Reviewed**

The following is a list of the different solid waste disposal and recycling options the Commission considered for recommendation to the town council. While maintaining the current system and closing the transfer station were reviewed by REC, only “Recommended Options 1 and 2” were seriously considered as being the best possible options for reducing the residents’ solid waste stream while also significantly reducing energy use town-wide.

### **1.7 A. Maintain current system.**

There would continue to be one sticker fee amount no matter whether a resident disposes of one bag of trash per week at the residential transfer station (RTS) or eight bags a week. The town uses a multi-stream recycling approach in which paper and cardboard are in one stream, plastics, tin and aluminum are in another, and clear and mixed glass are in two others. The town presently contracts, on a year to year basis, with a vendor to take the town's recycled materials. The vendor receives the value and benefit of the recycled products, while the town is relieved of the potential cost (and value) of disposing of the recyclables. The town, however, does retain all recycled metals which it sells at market rates. Based on the number of residential transfer station stickers sold, in FY 2010 9,151 households (out of roughly 24,500 total households) use the transfer station to dispose of their trash and recyclables. The FY2011 Residential Transfer Station and Recycling Budget was approximately \$1.5 million, all of which was funded (as an enterprise account) by the transfer station users.

### **1.7 B. Close transfer station.**

The least costly and simplest thing for the town to do would be to close the transfer station for solid waste disposal and recycling, and have residents fend for themselves using private trash haulers. Such an option would reduce the Solid Waste Division budget by approximately \$1 million, but would require residents to pay a great deal more to dispose of their waste using private haulers. The present cost for private trash collection (including recycling) is \$528-\$684, annually. According to the several local private trash haulers interviewed, they anticipate their disposal costs may increase with the 2015 SEMASS contract expiration. Even if closed for residential solid waste disposal and recycling, however, the transfer station would likely remain open for Construction and Demolition (C&D) disposal, bulky items and perhaps composting of yard waste.

### **1.7 C “Recommended Option 1” - Town-wide Curbside pickup of all solid waste and recyclables, with “Pay As You Throw” (PAYT) – with or without districts.**

This would involve weekly collection of all solid waste and recycled materials from all the town's residents. The experience of other communities shows that implementing a “Pay as You Throw” curbside pick-up and recycling program, with education and outreach to residents on the benefits of recycling, can reduce a community's solid waste stream by as much as 50%, or more. By maximizing recycling, and attaching a “unit-based” cost to the disposal of residents' trash, this system would reduce solid waste per household; and by doing a town-wide pick-up program with one (or fewer than the present seven) trash haulers, the town would maximize the energy and cost savings benefits that would accrue as a result of the increased economies of scale a town-wide program would allow.

### **1.7 D. “Recommended Option 2”- Pay As You Throw (PAYT) for transfer station users.**

With this option, the transfer station would stay open and operate as it presently does, and the only difference would be that people would have to buy special bags (or stickers) at local stores to use to dispose of their solid waste. Recycling would remain free. This program would not

cause significant changes in the current system except that a method for selling bags will have be set up and maintained. This is the system with the lowest costs and least change (excluding maintaining status quo) from the current system.

## **Section 2**

### **Background and Existing Solid Waste and Recycling Program**

#### **2.1 Existing Solid Waste and Recycling Program**

##### **2.1.1 General**

The Town Of Barnstable, under the Department of Public Works Solid Waste Division, operates a Residential Solid Waste Transfer Station (RTS) located at 45 Flint Street in Marstons Mills. Operating hours are Sunday through Saturday 7:30 a.m. – 3:30 p.m. The Solid Waste Division is funded through an enterprise account; no general tax revenues support the operation of the Division. The RTS services Barnstable residents and residential property owners. Through an arrangement with the Town of Yarmouth, licensed commercial trash haulers operating in Barnstable dispose of SEMASS acceptable solid waste at the Yarmouth Transfer Station for a per ton tip fee.

##### **2.1.2 Commercial Recycling Ordinance**

The Town Council passed an ordinance in 2001 (see [Appendix C](#)) that places a condition on every license granted to trash haulers requiring the hauler to provide recycling services to customers at a “reasonable cost, optional to customers.” So presently, while trash haulers are required to make recycling services available to customers, in most cases the customer will have to pay more for those services.<sup>3</sup>

It should be pointed out that one glaring weakness in the present Recycling Ordinance is that there is *no requirement for data reporting* by the permitted haulers. As a result, the Town has no “hard” data regarding the amount of recycling the sixty-four percent of the residential households that use private trash haulers are doing. We do have town recycling estimates from Mass DEP for the years 1997 - 2008<sup>4</sup> (see [Appendix D](#)) that combines Barnstable’s transfer station recycling rate with the estimated recycling rate for private trash hauler customers for a consolidated town-wide recycling rate that has averaged between 16-18%. As a result of information volunteered by three of the private trash haulers, the Commission learned that the percentage of their customers who participated in the trash hauler recycling services was only about 10%.

##### **2.1.3 Current Program Specifics**

The cost for town’s Residential Transfer Station sticker recently increased from \$130 to \$140. Town residents and residential property owners who use the facility solely for recyclables are not

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<sup>3</sup> At least two of the private haulers licensed in Barnstable include recycling services in the cost of their solid waste pick-up services, while the majority charges extra to provide recycling services.

<sup>4</sup> Due to lack of funding and staff, Mass DEP no longer publishes town recycling rates.

required to purchase a transfer station sticker. However, they are required to pay the fees charged to all users for bulky items and recyclable items such as white goods, tires, propane tanks and CRTs.

Town Residents and property owners with or without a Solid Waste Sticker may dispose of the following items subject to product restrictions above at no cost:

Scrap Metal, Cast Iron, Motor oil, Leaves, Glass Containers, Cardboard, Oil Filters, Car Batteries, Newsprint, Cans, Grass Clippings, Anti-freeze, Plastic Containers, Used Clothing, and Christmas Trees until April 1<sup>st</sup>.

Commercial customers may dispose of leaves and grass clippings for a fee of \$50.00 per load for loads up to a one (1) ton. Large loads of mixed metal can be disposed of for a fee of \$35.00 per ton. Construction and Demolition materials such as demolition debris, building trash, and bulky items such as furniture, rugs, mattresses, etc. may be disposed of for a fee.

There is a per entry trash disposal fee (for non-sticker holders) of \$15.00 (with an 8-bag limit), and a per ton fee of \$100.00 for above that limit for customers who deliver bagged household trash for property owners and residents other than themselves.

#### 2.1.4 Current Solid Waste and Recycling Facts and Figures

##### FY11 Transfer Station Operating Costs/Budget:

NAME OF PROGRAM	AMOUNT BUDGETED	SOURCE OF REVENUE
Construction and Demolition	\$ 576,626	User fees
Recycling Costs	\$ 499,855	Sale of product; fund surplus
Recycling Revenue	<u>\$ 245,000</u>	
Net Recycling Costs	<b>\$ 254,855</b>	
<b>Recycling Costs p/ton:</b>	<b>\$254,855 ~ 4,888 tons = \$52.14 p/ton</b>	
Residential Transfer Station Costs	\$1,011,474	Sale of stickers, fund surplus
<b>TS Costs p/ton:</b>	<b>\$1,011,474 ~ 9496 = \$106.51 p/ton</b>	
Disposal Costs per ton MSW:		
SEMASS tipping fee:	\$37.51 x 9,496 = \$356,195	
Yarmouth TS Fee	1.00	
Trucking Fee to Yarmouth	<u>6.19</u>	
<b>Total MSW Disposal Costs p/ton:</b>	<b>\$44.70 x 9,496 = \$424,471</b>	
Packer Services	\$ 129,952	Fund Balance

Landfill Closure Monitoring & Loan Repayment	\$ 365,658	Fund Balance
Total FY11 Solid Waste Division Annual Budget	\$2,583,674	

FY 10 SEMASS Tipping Fee \$136,095 (without MTC grant due to expire at end of SEMASS contract, actual amount would have been closer to \$356,195)

Number of households who use transfer station (buy stickers): 9,151 36%

Number of households (approximate) who don't use transfer station: 15,849 64%  
Total Households (approx.) 25,000

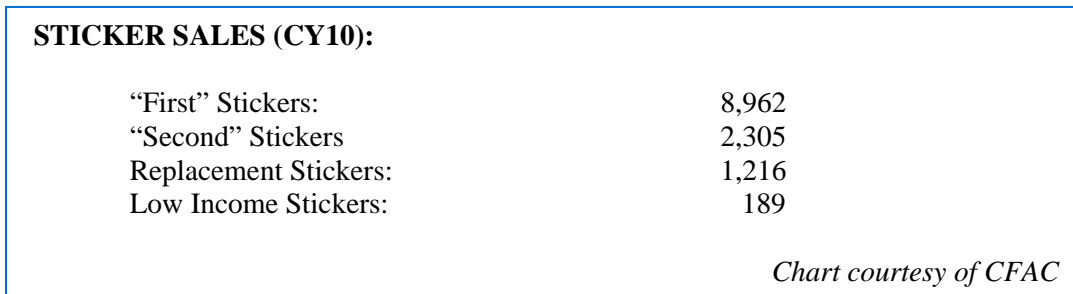
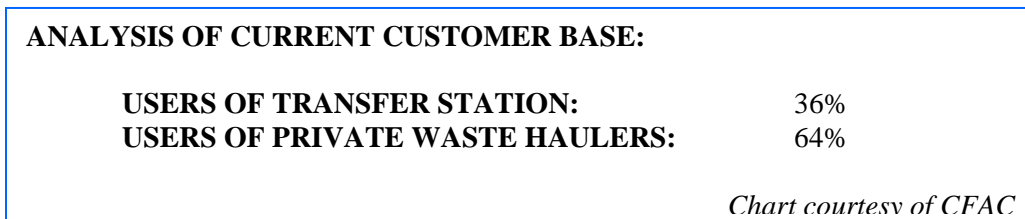
FY 10 Tons of S.W. disposed at transfer station: 9,496

Tons p/household: 9496 tons ~ 9151 households = 1.04 tons

FY 10 Tons of recycled materials at T.S.: 4,888 34% T.S. Recycling rate  
(five year average has been 32% - as previously noted, this number is inflated due to residents who don't dispose of solid waste or purchase stickers, but use TS for recycling)

### 2.1.5 Users of Marstons Mills Residential Transfer Station

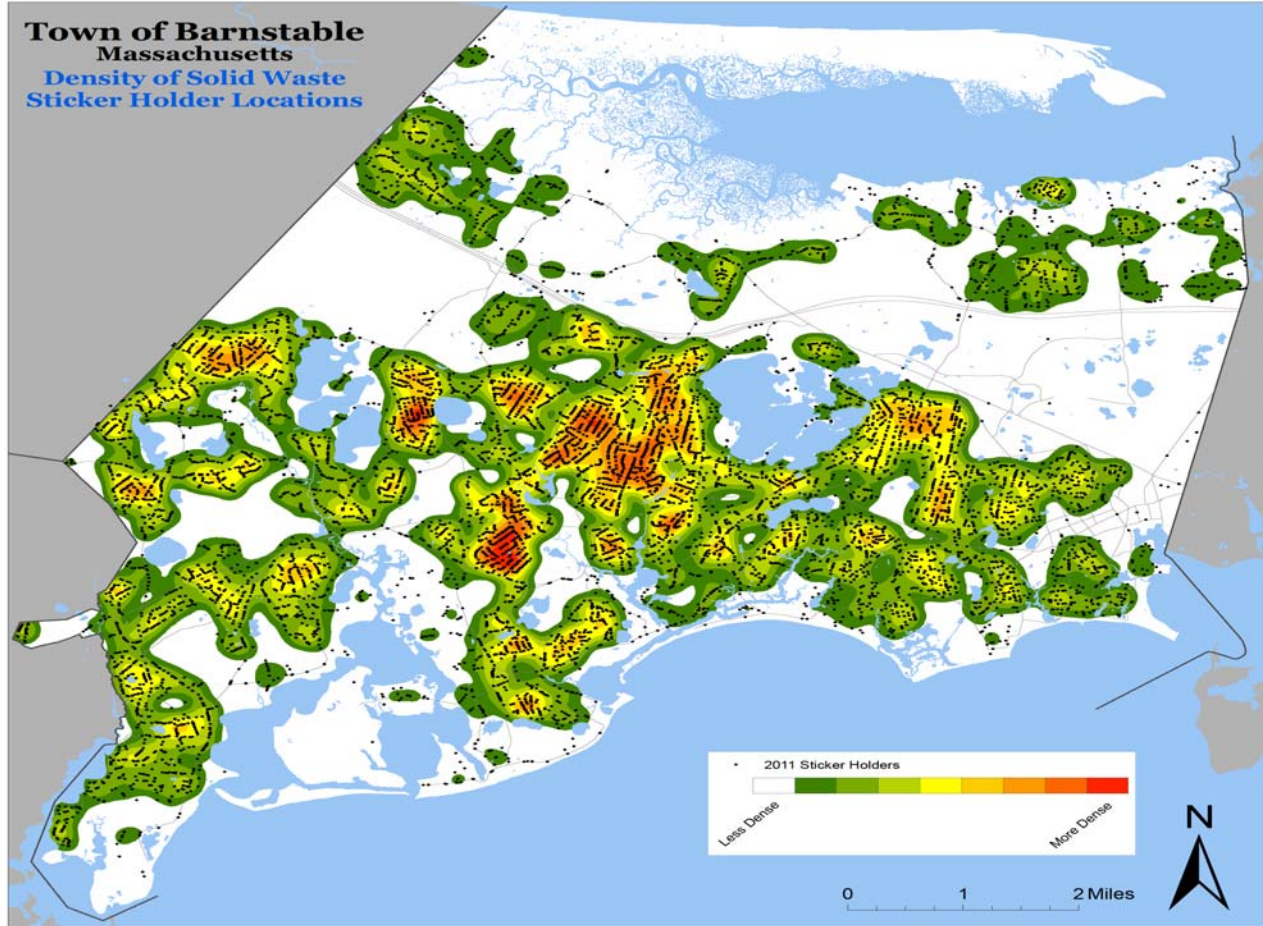
As noted above, for CY2010, 9,151 households (or approximately 36% of all households) purchased RTS stickers. Below are several charts, courtesy of CFAC's "Cost Analysis of Solid Waste Options" study:



Below is a map that shows the residential addresses of all RTS sticker holders. As the map graphically demonstrates, the sticker holders are most densely located in the villages Centerville

and Marstons Mills, but are also found throughout the town. This map makes clear that many of the town's residents are driving a substantial distance to the transfer station to drop-off their trash and recyclables.

### 2011 Transfer Station Sticker Holder Locations



#### 2.1.6 Residents/Households that use Private Trash Haulers

It is thought that the great majority of the 64% of Barnstable households that don't use the transfer station have chosen to subscribe to private trash haulers to dispose of their solid waste and recyclables. But the actual number of households that use private haulers is unknown at this time because the town's trash hauler permit regulations don't have any reporting requirements.

The Chart below describes the make-up of all Town of Barnstable residential dwellings, and therefore the estimated number of residential units that would be included in a town-wide curbside pick-up program for trash disposal and recycling services.

**ASSESSMENT CLASSIFICATION REPORT – RESIDENTIAL UNITS IN BARNSTABLE:**

<b>Property Type/Code</b>	<b>Parcel Count</b>	<b>Household Multiplier</b>	<b>Adjusted Total</b>
101 – Single Family	20,671	1.0	20,671
102 – Condos	1,702	1.0	1,702
103 – Mobile & Multi-Homes	585	1.3	778
104 – 2 Family Homes	265	2.0	470
105 – 3 Family Homes	29	3.0	87
111-126 – Apartments	137	6.0	<u>822</u>
<b>TOTAL</b>			<b>24,530 households</b>

It is unclear if the household estimate should be further adjusted (lower) to account for seasonality and adjusted again (higher) for the increase in household population in the summertime. For the purposes of this analysis we are assuming that the two adjustments will tend to cancel each other out. Note also, a 1994 study of the Town solid waste program determined that the number of households then served was 23,370.

*Chart courtesy of CFAC*

**2.1.7 Recycling Rate for Residential Transfer Station**

As the chart below shows, the recycling rate for RTS users has averaged 30% - 34% over the last several years. As noted in Footnote 2, this rate is not an accurate representation of the transfer station recycling rate, and is an inflated figure due to those who only drop off their recyclables and not their solid waste.

<b>YEAR</b>	<b>SOLID WASTE TONNAGE</b>	<b>RECYCLED TONNAGE</b>	<b>TOTAL TONNAGE</b>	<b>PER-CENT RECYCLED</b>
FY05	9,926	4,432	14,358	31%
FY06	10,184	4,444	14,628	30%
FY07	10,141	4,983	15,124	33%
FY08	9,630	4,867	14,497	34%
FY09	9,452	4,744	14,196	33%
FY10	9,496	4,888	14,384	34%

*Chart courtesy of CFAC*

While a 30% to 34% recycling rate is certainly better than that achieved by the private haulers, it is only average when compared to other Cape and regional cities and towns that utilize transfer station/drop-off area solid waste disposal and recycling systems, as demonstrated in Mass DEP CY 2010 Solid Waste and Recycling Survey, (see [Appendix B](#)), and in the below chart, “Cape town recycling rates.”

## 2.1.8 Recycling Rate for Customers of Private Trash Haulers

While it is true the town has no firm numbers on what the recycling rate is among the 66% of the town's residents who use private trash haulers, anecdotal evidence relayed by two of the private haulers (Pina Sanitation and Macomber's Sanitary Refuse) suggests that only approximately 10% of their customers choose to pay the higher prices required by the trash haulers to obtain recycling services. While it can't be documented, anecdotal evidence relayed to REC members by residents makes clear that some of the private customers who don't pay the additional fee to recycle with their trash hauler, still drop off their recyclable materials at no cost at the RTS.

Another source of information regarding what the recycling rate is among private trash hauler customers is provided by MassDEP which maintains databases for "Municipal Residential Recycling Rates" for Fiscal Years 1997-2001 and Calendar Years 2002-2008 (see Appendix D). According to that data, Barnstable's town-wide recycling rate (including RTS users and private customers) averaged only 16%. Since actual data from the private haulers was not available, the state used average per capita solid waste and recycling inputs.

### Cape town recycling rates

MA Municipal Residential Recycling Rates:	
Nantucket:	91%
Truro:	45%
Harwich:	41%
Chatham:	39%
Eastham:	37%
Falmouth:	37%
Provincetown:	36%
Yarmouth:	36%
Wellfleet:	33%
Bourne:	30%
Dennis:	30%
Sandwich:	28%
Mashpee:	22%
Brewster:	17%
<b>Barnstable:</b>	<b>16%</b>

Source: MassDEP 2008 calendar year

Looking at the state's data, when comparing Barnstable to other towns where the known total residential transfer station tonnage is added to the residential subscription hauler disposal tonnage estimates, Barnstable's 16% recycling rate is extremely low. The recycling rate is as low as it is because so many of the town's households use private haulers where recycling is not only



not required, but because of the added cost most private trash haulers charge to recycle, there is actually a disincentive to recycle.

### **2.1.9 Destination of Municipal Solid Waste and Recyclables**

Solid Waste collected at the RTS for disposal is transported via the Yarmouth-Barnstable rail transfer station to the SEMASS/Covanta waste-to-energy facility in Rochester, Massachusetts. Barnstable has a long-term trash disposal contract with SEMASS that expires at the end of 2014. The Town currently pays a per ton disposal fee to SEMASS of \$37.51 in addition to paying a host fee of \$1.00 per ton to the Town of Yarmouth (Yarmouth-Barnstable Transfer Station), and a fee of \$6.19 per ton (for a total “disposal and transportation cost” of \$44.70 per ton) to have the trash trucked from the Marstons Mills transfer station to the Yarmouth Transfer Station, and then onto the SEMASS incinerator in Rochester.

**What Happens to Recyclables:** Currently, the town contracts out on a yearly basis with a vendor who, at no cost to the town, disposes of all recyclables, excluding metals, which the town retains and sells at market rates.

While acknowledging that recyclables are commodities and their value fluctuates, the Commission believes there may be opportunities to enhance the value/revenues the town receives for its recyclables by issuing a yearly Request for Proposals from prospective vendors.

#### **2.1.10 Board of Health Permits Private Trash Haulers**

The Board of Health (BOH) is the permitting authority for licensing trash haulers, and requires that the haulers be permitted on a yearly basis. Under Barnstable General Code Chapter 202, Article II, section 202-6 (See [Appendix C](#)), the BOH, “as a condition of every license granted...shall require that the licensee provide a service at reasonable cost, *optional* (italics added) to customers, of recycling waste.” In the majority of towns REC looked at, the respective Boards of Health were responsible for writing the recycling and solid waste regulations. In Barnstable, the pattern is reversed and it has been the town council that has adopted previous solid waste and recycling ordinances.

### **2.2 State “Waste Ban”**

In 1990, the Massachusetts Department of Environmental Protection (MassDEP) introduced its first bans on land-filling and combustion of easy-to-recycle and toxic materials. Additional "waste bans" have been phased in over time.

Pursuant to the Department of Environmental Protection requirements of 310 CMR 19.000, the following materials are banned from disposal with Construction & Demolition and Municipal Household Trash:

Asphalt, Paving, Brick, Concrete, Batteries, Glass Containers, Metal, Recyclable Paper Recyclable Plastics, White Goods, CRT’s- TV’s, Monitors, Tires, Yard Waste- Leaves, clean gypsum wallboard, treated and untreated wood waste.

Under the state waste ban, the town, as a solid waste generator and operator of a waste facility, is prohibited from accepting banned materials, and is required to ensure that those banned materials are separated from the solid waste stream. Obviously, enforcement of the ban has been inconsistent and haphazard, at best. But based on recent statements from Mass DEP, it is expected the state will be stepping up efforts to get towns to increase waste reduction, while doing more to enforce the waste ban, especially at places such as the SEMASS trash-to-energy facility.

## **2.3 Past Town Efforts**

Over the past several decades, the town has on a number of occasions examined the issue of how best to make the collection and disposal of the town's residents' solid waste and recyclables more cost effective and energy efficient.

### **2.3.1 1992 D.P.W. Recommendation for Town-wide Curbside Pick-up**

In 1992, the town's D.P.W. staff prepared an analysis Memorandum and set of recommendations regarding the implementation of a town-wide residential curbside solid waste and recycling pick-up program (see [Appendix F](#)). The desire to pursue a town-wide curbside option at the time was driven partly by the need to develop a revenue stream that could be used to help defray the costs associated with capping and managing the town's landfill. Other reasons mentioned to move towards a "curbside" program included: to "meet State mandates for waste reduction..." and "to provide Barnstable residents with the most economical and environmentally sound method of solid waste disposal."

Similar to the present REC effort, the 1992 D.P.W. analysis considered three scenarios for the curbside collection of solid waste and then costed them out. The scenarios – all of which involved closing the transfer station - included: 1.) "Contract the service to one or more commercial haulers to collect and dispose of the solid waste from all residents..." 2.) "Franchise the service to one or more collection firms giving them an exclusive right to provide services in a specified area for a given period of time, with set rates and competitively bid," and 3.) "Allow residents to choose any licensed commercial hauler based on the free market." Scenario 3 essentially would have removed the town from the business of residential solid waste disposal and recycling.

The final recommendation was that the town should implement a "contracted" curbside collection program. Further recommendations included: that the town be divided into three sectors, said sectors to be "divided by population density to enhance economies of scale for the collection service;" that a flat fee be charged for each sector, fees based on location and density of development; that the collection be weekly; that participation be optional, and that the system be a user fee-based system.

Unfortunately, largely because of concerns raised by the town's licensed trash haulers that they wouldn't be able to compete with the larger haulers and by some of the residential transfer station users who feared losing "their" transfer station, the Town Council never moved forward with the D.P.W. recommendations.

### **2.3.2 2002-04 Pay-As-You-Throw Pilot Program Evaluation**

The town first began discussing Pay-As-You-Throw in 1999. In 2002, the town council created the Pay-As-You-Throw (PAYT) Ad Hoc Committee to research the feasibility of PAYT, and in January 2003 Barnstable began a PAYT Pilot Program. Two hundred out of a total 7,400 transfer station users participated in the six-month program. The purpose of the pilot was to collect information that could assist the Town in the decision whether or not to implement PAYT for all transfer station sticker holders.

The PAYT sticker fee for the participating volunteers was set at \$40 (down from the then \$110 fee), and participants were required to purchase the special trash bags for \$1 a piece (30-33 gallon bags).

Following the conclusion of the Pilot Program, 117 (out of the 200 total) participants responded to an “evaluation survey.” The survey was designed to allow before and after PAYT comparisons of recycling and waste disposal habits, and also included questions related to persons per household, number of bags disposed per week, and bag size options.

A substantial majority of the respondents agreed that, “they recycled more, disposed less, and were more aware of what could be recycled since PAYT than before the Pilot.”

Of the survey respondents, 43% responded that they brought one trash bag a week to the RTS, 21% brought in ½ bags per week, and 9% reported bringing in two bags a week. Regarding the choice of bag size, 82% preferred the 30-33-gallon size bag.

An overwhelming number of participants agreed that PAYT was easy to use, and several noted that no one at the RTS monitored them to see if they were using PAYT bags, and said “they felt there needed to be closer monitoring if the program was implemented full-scale.”

The work of the Pilot Program was concluded in the summer, and a Final Report was issued in January 2004 (see [Appendix G](#)).

In October 2003, the Town Council passed a non-binding Resolve recommending “implementation of Pay-As-You-Throw on January 1, 2005 for all sticker holders if the figures are justified.” For reasons that remain unclear, the town council never moved forward with PAYT implementation.

## **2.4 Ongoing Regional Efforts**

The Cape Cod Commission is currently involved in a collaborative effort with many Cape Cod towns - Barnstable is a member of the collaborative – titled the Cape Cod Solid Waste Advisory Committee, to explore whether there are any feasible collective approaches to disposing of the region’s solid waste that may be more cost effective for the region’s communities than if each town sought to negotiate its own new contract with SEMASS/Covanta, or some other entity.

Regardless of what comes out of the Cape Cod Commission's efforts, the town residents' trash and recyclables will still need to be collected – either at the curbside or dropped off at the RTS.

## **2.5 Fee Based versus Property Tax**

As was noted above, the town has for many years employed a fee-based enterprise account system, funded entirely by the RTS users, to pay for the costs associated with solid waste disposal and recycling.

While a shrinking minority of Massachusetts cities and towns still fund their waste disposal primarily through a broad-base property tax (Falmouth and Bourne are two examples), over two thirds of Massachusetts municipalities have some form of trash fees to pay for their trash and recycling programs. The trend is to treat trash collection and disposal the same way a utility operates. Like water and electricity, the users pay only for what they use – or in the case of waste disposal, for the trash they dispose of.

A few of the advantages of continuing to maintain the current fee-based system are:

- Conforms to current user fee policy
- No requirement for Prop 2 ½ levy expansion
- Maximizes opportunities for waste stream control and enhanced waste reduction

For the reasons stated above, REC recommends continuing the present user fee-based policy.

## **2.6 Survey of Cape Cod Towns**

A majority of communities on Cape Cod give residents the choice of a transfer station sticker or hiring a private commercial hauler to collect residential waste at the curbside. The Town of Falmouth is the exception by contracting curbside collection town wide. Both Provincetown and Bourne provide a municipal curbside collection service. All of the Cape towns dispose of their solid waste at SEMASS with the exception of Bourne that disposes of its solid waste at its municipal landfill.

Among the Cape towns, Chatham, Dennis, Brewster, Wellfleet, Mashpee, and Falmouth are all at various stages in the process of looking at PAYT, as least as an option. The Town of Sandwich has had a PAYT program in place for a little over a year for the approximately two-thirds of its households that use the transfer station. According to DPW Director Paul Tilton, the program has been operating with great success.

## **Section 3**

### **Analysis of Solid Waste Reduction Options**

#### **3.1 Maintain the Status Quo**

Simply doing nothing other than renegotiating a contract with SEMASS/Covanta at what ever the new market rate turns out to be would be the “simplest” option for the town. The Commission is convinced, however, that such an option would not serve the residents well.

Clearly the cost of solid waste disposal will be increasing from the present \$37.51 per ton to perhaps \$70, or higher. If the town fails to implement some kind of program to increase recycling, residents will be faced with disposal costs more than twice what they would otherwise be.

Below is a list of “pros and cons” for maintaining the status quo.

**PROS:**

- Simple and convenient – no changes

**CONS:**

- Present town-wide recycling rate (including residents who use private haulers) is one of lowest in state. Maintaining the status quo will do nothing to improve that rate.
- MSW disposal costs expected to at least double with expiration of Covanta/SEMASS contact
- Energy Inefficient: up to one-third of households drive vehicles to the transfer station clogging roads and burning gas, while multiple private haulers criss-cross the town picking up trash from the other 64 % of households

### **3.2 Close the Transfer Station**

While the Commission discussed and considered the value of closing the transfer station to residential solid waste disposal and recycling, there was unanimous opinion by the Commission members that doing so would not be in the town’s or its residents’ best interests, either from an environmental or financial perspective. At any rate, even if the RTS were closed for solid waste disposal and recycling, it would likely remain open for C&D disposal, yard waste, and bulky items.

Below is a list of “pros and cons” for closing the RTS to solid waste disposal and recycling.

**PROS:**

- Convenient for Town
- Reduce MassDEP compliance Issues
- Reduces overall traffic around transfer station

**CONS:**

- Households would have to use private haulers (annual trash & recycling pick-up costs presently \$528-\$684, and expected to go higher with the SEMASS contract expiration)
- Potential increase in illegal disposal
- Town would have no recycling unless required of private haulers
- Transfer Station staff would have to be laid off or re-assigned

### 3.3 Pay-As-You-Throw generally

#### 3.3.1 What is Pay-As-You-Throw (PAYT)?

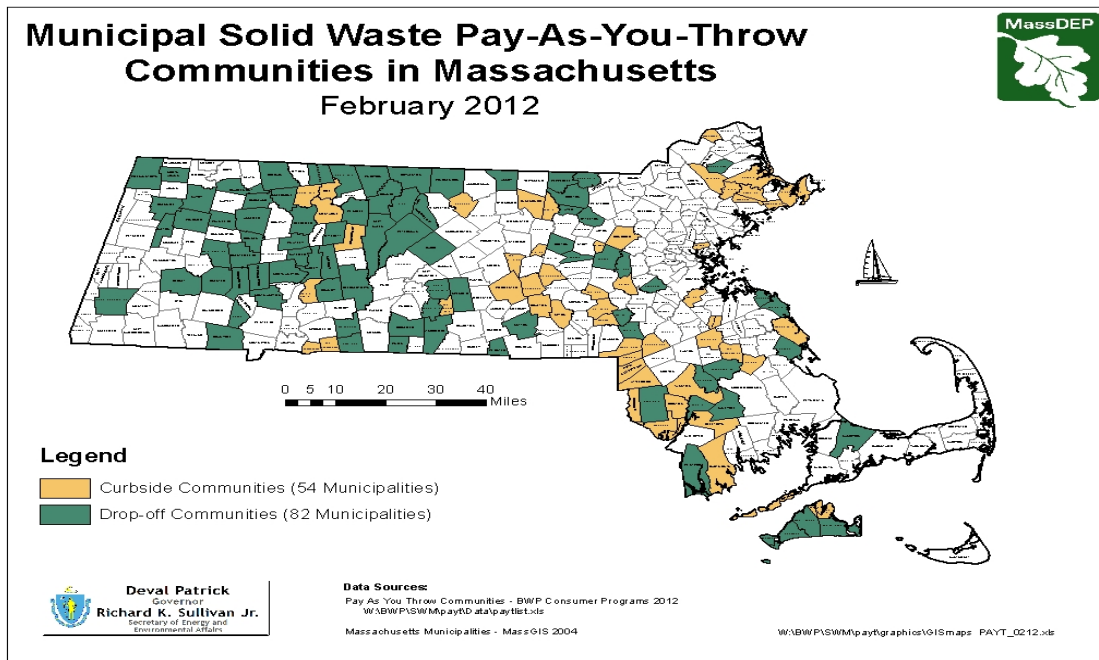
Pay-As-You-Throw, also known as “Save-as-You-Throw,” “SMART” for Save Money And Reduce Trash, unit-based or variable-rate pricing, and “metered” solid waste disposal, is a system in which residents pay for each unit (or bag) of waste discarded rather than paying a fixed fee per residential household, as the town presently requires. As residents pay directly for waste disposal services, they have a financial incentive to reduce waste through recycling, composting and source reduction. And residents that recycle more are rewarded by having to pay less to dispose of their trash.

According to a study released last year by New York-based Green Waste Solutions and the U.S. Environmental Protection Agency (EPA) titled, “Unit-Based Garbage Charges Create Positive Economic and Environmental Impact,” local governments with PAYT programs produce 467 pounds of landfilled trash per capita per year, compared with 918 pounds of landfilled trash per capita per year in non-PAYT communities. In Massachusetts, cities and towns with PAYT programs produce approximately .56 tons of trash per household compared to 1.13 tons for non-PAYT communities.

#### 3.3.2 How does PAYT work?

As of February, there were 136 cities and towns in Massachusetts that have started PAYT programs of various kinds (see [Appendix H](#) and map below for list of all current PAYT communities).

Some towns have adopted a program that works with curbside collection, while others have programs for transfer stations and drop-off areas. Many programs work with retailers to make stickers and/or bags available to the public in convenient locations.



### 3.3.3 Types of Programs

There are three varieties of PAYT programs currently in use in Massachusetts. The systems are not mutually exclusive and can be combined to meet a community's needs. The three systems are:

- **Imprinted Trash Bags.** Residents purchase colored plastic bags imprinted with the name or seal of the municipality. The price of each bag covers both the cost of the bag itself and part of the cost of waste collection, transportation and disposal. Under a curbside pick-up program, waste haulers are instructed to pick up only the specially marked trash bags. For PAYT at the transfer station, staff would also restrict disposal to only imprinted bags.
- **Stickers.** Residents purchase specially marked labels or tags and affix them to trash bags or barrels of their own choosing. Different colored stickers or different quantities may be purchased according to the volume of waste being disposed.
- **Barrel or Wheeled Cart.** This version of a PAYT program is similar to the imprinted trash bag option. Instead of purchasing bags, residents dispose of their waste into specially marked containers with a fixed pick-up charge for each one.

### 3.3.4 PAYT PROS

- **Equity/ Fairness.** Since garbage is paid for by the unit instead of unlimited service, people who generate less waste will no longer subsidize the cost of those who generate larger amounts of waste. Just as the town pays by the ton to dispose of its residents' MSW, so too should residents pay by the amount of waste they create.
- **Increased Recycling, Composting and Waste Reduction.** Pay-As-You-Throw provides an incentive to reduce waste and increase recycling. Communities that implement pay-as-you-throw programs report a 20-50% reduction in the amount of waste disposed, depending on what degree of waste reduction the town has already achieved. In addition, recycling rates often increase dramatically, sometimes reaching double or triple what they had been previously.<sup>5</sup>

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<sup>5</sup> Recycling rate versus waste reduction: In most PAYT communities, the percentage of solid waste reduction is greater than the recycling rate increase. This is do to the fact that much of the waste reduction occurs as a result of: More leaf, yard waste, grass and food composting, more donations to charity, some people bring trash to friends and relatives in non-PAYT community, some people change buying habits – insuring that packaging (for example) is recycled, some may switch to private haulers, etc.

The table below shows *Recycling Rates for Municipalities before and after PAYT*, while the next table shows the significant increases in per capita *waste reduction* after PAYT is implemented.

**After Implementing  
PAYT**

MUNICIPALITY	Start Date	Program	Before PAYT	Year 1	Year 2	Year <sup>6</sup> 3
Brockton	October 2001	Curbside	13%	30%	N/A	N/A
Cohasset	July 2001	Drop-Off	30%	44%	N/A	N/A
East Brookfield	August 2001	Curbside	29%	39%	N/A	N/A
Holliston	October 1999	Curbside	29%	N/A	49%	42%
Medway	July 2000	Curbside	44%	58%	45%	N/A
Needham	June 1998	Drop-Off	37%	50%	47%	54%
North Attleborough	September 1998	Curbside	28%	55%	39%	38%
Shutesbury	July 2000	Curbside	25%	52%	51%	N/A
Topsfield	November 1998	Curbside	28%	40%	40%	46%
<p>Recycling Rates = waste diversion over waste generation. Data taken from DEP Municipal Recycling Data Sheets</p>						

<sup>6</sup> \* These communities started programs recently therefore they have no data for year 3 and sometimes for year 2.



**Percent Change in Per Capita Waste Disposal for Municipalities After Implementing PAYT.**

MUNICIPALITY	Start Date	Program	Percent Change in Per Capita Disposal	
			Year 1	Year 2 <sup>7</sup>
Brockton	October 2001	Curbside	-31%	N/A *
Cohasset	July 2001	Drop-Off	-25%	N/A *
East Brookfield	August 2001	Curbside	-26%	N/A *
Holliston	October 1999	Curbside	N/A *	-31%
Medway	July 2000	Curbside	-26%	-20%
Needham	June 1998	Drop-Off	-41%	-37%
North Attleborough	September 1998	Curbside	-44%	-35%
Shutesbury	July 2000	Curbside	1%	-20%
Topsfield	November 1998	Curbside	-15%	-20%

- **Improved Environmental Quality.** By diverting waste from disposal, PAYT programs extend the life of landfills, decrease air pollution from trash incinerators, and reduce the need for new disposal facilities. With more reuse, recycling and composting, natural and finite natural resources are preserved.
- **Economy and Cost Savings.** Every ton recycled saves the town in reduced tipping, shipping and processing fees. By reducing waste, communities often find their overall municipal solid waste management costs decline as well. With the waste tipping fees going up in 2015, increasing recycling and reducing trash is one sure way to reduce costs for the town and its residents.
- **Residents can control their solid waste disposal costs.** By recycling more, residents produce less waste thereby decreasing their costs for disposal.

<sup>7</sup> Year 2 percentage change for tons per capita of waste disposed was calculated as a cumulative change from the program's base year (before unit-based pricing).

\* These communities started programs recently therefore they have no data for year 2.

### 3.3.5 PAYT CONS

- **Resistance to change.** Residents are used to paying only one fee for waste disposal. Paying for bags is new, and may appear like a new tax or fee.
- **Logistics.** PAYT will require setting up a system to sell bags to residents. Particularly with the program's start-up, it will be very important to make sure plenty of bags are available at a large number of locations.
- **Potential Increase in Illegal Dumping.** A number of solid waste managers have expressed a fear that residents may resort to illegal dumping in commercial waste bins or public trash cans if charged a fee for waste disposal. A review of the experience of other PAYT communities around the state indicates that increased illegal dumping is NOT a problem in most communities. Sandwich, for example, has reported no increase in illegal dumping.
- **Higher Administrative Costs.** With any new program, additional staff time may be needed for planning, start-up and education. However, these costs are generally recovered in the long run through savings associated with increased recycling and reduced waste disposal. Also there are a number of grants available from Mass DEP to help with the start up costs associated with the purchase of recycling bins, etc.

### 3.3.6 Covering Municipal Costs

As stated previously, PAYT programs generally involve a two-tiered pricing system that combines a flat fee and a unit-based fee. The flat fee provides revenue stability to a municipal program and ensures that the fixed costs of trash collection are covered. The additional unit-based fee provides financial incentive for residents to recycle and compost more.

With any new program, issues will arise that need to be considered and addressed before implementation. Most prominent among them are likely to be:

- **Public Perception that the Fee is a Tax.** It is possible that residents may perceive the unit-based pricing program as a new tax. To avoid this perception, Barnstable should endeavor to make the program as revenue-neutral as possible by reducing the current enterprise fund user fee by the amount that unit-based PAYT bag fees are expected to generate. As a result, residents will be less likely to view PAYT fees as taxes.
- **Adverse Effects on Low-Income Households.** Because PAYT fees for trash service represent a higher percentage of a low-income family's income, steps should be taken to minimize the impact on these households. Just as electric, gas, and water utilities provide special rates for low-income users, a PAYT program may also include lowered rates for residents who demonstrate hardship.
- **Higher Administrative Costs.** Like most new programs, additional staff time may be needed for planning and start-up. However, these costs are generally recovered in the short term through Mass DEP grants, and in the long run through savings associated with increased recycling and reduced waste disposal.

### 3.3.7 Building Public Support

Public acceptance and support are the most important components of a successful unit-based pricing program. Key players from the municipal government and from the community at large must be involved from the beginning of the planning process.

Taking the time and committing the resources to build support within both the government and community will minimize confusion about the program from the beginning. Here are a few suggestions about how the town might gather support in the community:

- **Sell the Program to Key Decision Makers.** Begin by gaining the support of local officials. Prepare briefing documents that analyze costs and address potential concerns, and develop a number of program options from which decision makers can choose. Once support among key decision makers has been established, build community awareness and support for the program.
- **Gather Public Input.** Community awareness and support is a key to the ultimate success of PAYT programs. Without public support, a PAYT program has less chance of being accepted. After all, the citizens make the program work by following the rules. Comments should be solicited from the public to help identify misperceptions about the program and reasons for opposition, and to inform program planners of current public opinion. Public meetings also are important for providing an additional avenue for residents to voice their concerns and raise issues.
- **Educate the Public.** The final step in the process of building local support for unit-based pricing is to address the public's concerns and misperceptions. Provide program specifics and offer information on waste reduction and recycling. If residents believe the pricing structure is arbitrary and are unaware of ways to reduce their costs, the program is less likely to succeed.

**3.3.8 Start-up costs:** In general, the largest cost associated with PAYT is the initial bag order since the town has to pay the bag vendor for production and delivery and then wait for bag sales revenue to come in (which goes to the town, minus the actual cost of the bag).

Other start-up costs for a drop-off PAYT program could include:

- Printed education materials to publicize the program
- Temporary additional personnel at the transfer station during the start-up phase to assist residents with the new system
- Purchase of recycling bins to provide to residents for transport of recyclables from home to TS
- Purchase of compost bins to provide at low or no cost to residents to facilitate home composting
- Signage at transfer station

Keep in mind that the start-up costs are one-time expenses and the savings from trash reduction are realized each year. In other words, the savings far outweigh the start-up costs. In addition, as previously mentioned, MassDEP grants are available to assist in paying for much of the PAYT program start-up costs.

### **3.4 Recommended Option 1 - Town-Wide Curbside Trash Pick-Up and Recycling Program w/PAYT (with and without districts/sectors)**

**Curbside Program Description:** While the curbside pick-up program's specifics would need to be fleshed out by Solid Waste Division staff through an RFP process, like curbside trash and recycling pick-up programs in other cities and towns, Barnstable's program would include weekly pick-up of all participating residents' household trash, and either weekly or bi-weekly pick-up of recyclable materials. It is anticipated that the program would serve residential dwellings with up to six or fewer units, though some towns pick up from dwellings with eight units.

It is anticipated that "bulky" items would also be picked up, but either limited to one item per week per household, or if that is not possible, perhaps picked up several times per year. Below is a list of the advantages and disadvantages of moving to a town-wide curbside pick-up program that makes clear the value of transitioning from being a drop-off to a curbside community.

#### **CURBSIDE PROS:**

- Equity and fairness
- Convenience for residents: no more trips to the transfer station
- Cost savings from reduction in tipping fees
- Increased recycling
- Fewer vehicle trip miles-less energy used
- Reduction in GHG emissions
- Fewer trash hauler trucks traversing neighborhoods
- Ease of transition – Already 2/3 households use private trash haulers
- Less illegal dumping in conservation lands and along roadsides
- Would reduce disposal costs for households that presently use private haulers
- Would increase composting of food and yard waste
- Current system and residential transfer station is inefficient and costs residents more than it should
- Allows town to access up to \$150,000 in MassDEP grants and funding

#### **CURBSIDE CONS:**

- More barrels/bags on side of road
- Some residents who presently use transfer station may be opposed
- If a single curbside collection vendor is selected, smaller local vendors may be harmed

- The costs per household of providing curb-side trash pick-up are likely to be marginally higher than for transfer station drop-off

### **With or Without Districts**

As in the case of the 1993 D.P.W. recommendation, REC is recommending that three sectors be established, divided by population density to enhance economies of scale for the collection service, and that a flat fee be charged for each sector, fees based on location and density of development. The idea is that more sectors would enhance the likelihood of local haulers being awarded a contract. Frankly, however, if a different cost per household structure were established in each district or sector it could very well create confusion and displeasure for residents depending on which district they resided in.

### **“Preferred Vendor” model**

Another possible option would be to do what was done in the Town of Easton where, after an RFP process was completed, a “town-preferred vendor” was selected. In that case, residents could choose the preferred vendor or stay with their current private hauler. The expectation being that because of the better services and lower price, a substantial majority of residents would choose the vendor selected by the town.

### **Plymouth and Easton – Two Curbside Examples**

The Town of Plymouth is considering moving from being a drop-off to a curbside pick-up community and has recently issued an RFP seeking responsive bids. The town is looking to go to a 64 gallon wheeled cart for both trash and recycling, with a PAYT option for additional bags/barrels. Approximately half of the town’s 18,500 households currently utilize the town’s three transfer stations, while the other half uses private haulers. The RFP sought pricing on 18,500 households served (hhs) but states that pricing will be negotiated based on the actual number of households subscribing, and before finalizing the Contract Agreement. One of the biggest challenges the town faces is determining how many households the program will be serving. The RFP requested that the selected contractor assist with the notification to all residents announcing the program with the goal of increasing participation.

The Town of Easton has developed a town-wide curbside trash and recycling collection program.

An RFP was developed and released and Waste Management was selected as the town-sponsored vendor – with service beginning July 2007. Residents pay a fee of \$260 for weekly automated collection of trash with 64-gallon wheeled carts and biweekly collection of recyclables. An Enterprise Account was set-up by the town to administer financing for the program. The Board of Health passed regulations that require all private haulers to provide collection of recyclables in compliance with 310 CMR 19.017, at one integrated price for residents.

Approximately one half (48%) of all eligible 1-3 family households (2,600 of about 5,400 total) participate in the town-sponsored program. When designing the program, Town officials

expressed the importance of residents' ability to choose from more than one vendor, therefore the ability to opt out of the town program was granted very easily. While all residents received a bill for services, they were also mailed an "opt out form" from the town should they decide to use a private contractor.

### **3.5 Recommended Option 2 - Pay-As-You-Throw (PAYT) for Existing Transfer Station Users:**

As was described earlier, implementing a PAYT program for those who currently dispose of their trash at the RTS would involve less complexity than transitioning to a town-wide curbside pick-up program. The primary task would be setting up a method to sell and distribute the authorized bags (or stickers) to the residents. Like a PAYT curbside program, the key benefits of a PAYT program for the transfer station users are its essential fairness and the solid waste reductions that would result. Though on the down-side, the town wouldn't receive the substantial environmental/energy reduction benefits that a town-wide curbside pick-up program would allow.

Below is a list of "pros and cons" for implementing PAYT at the RTS:

#### **PROS**

- Equity: Each user is charged only for trash disposed of
- Residents can control their solid waste disposal costs
- Increased recycling
- Economy and cost savings
- Minimal changes from current system
- Increased composting of food and yard waste
- PAYT has proven record – 136 PAYT communities in MA
  - \*Chatham, Dennis, Brewster, Wellfleet, Mashpee, and Falmouth are all considering PAYT.
- Allows town to access MassDEP grants and funding

#### **CONS**

- Residents are used to paying one fee for waste disposal
- PAYT requires setting up a system to sell bags or stickers to residents
- Potential adverse effect on low-income households
- Concern some residents may switch to private haulers
- Continues inefficiencies of a third of residents driving to TS

The Town of Sandwich successfully implemented a PAYT program for the two-thirds of the town's residents that use their transfer station. Below is a snap-shot of the results to date.

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## Town of Sandwich Results

- PAYT started at transfer station July 1, 2011
- 42% trash reduction for first year
- Commingling (cans, bottles, plastics) – Up 74%
- Fiber (paper, cardboard) – Up 20%
- Recycling rate – 54% (29% prior to PAYT)
- Traffic volume – Down 19%
- \$120,000 savings/year @ \$58 P/T D&T
- Town adopted hauler regulations mandating bundled pricing (trash and recycling combined)

### 3.6 Case Studies for Curbside and Drop-off Communities

The table below presents a sampling of Massachusetts curbside pick-up and drop-off communities showing details of each community's PAYT program. As a general rule, the "fee amount" shown is designed to cover the fixed costs of the town's program while the bag/sticker cost is to pay for the "variable" costs associated with the disposal of trash.

The great majority of the PAYT communities use the "Bag" option (versus a "sticker"), and generally provide residents with two or three different sized bags to choose from, with a different fee for each bag size.

Most PAYT towns use a "fee system" to fund their programs, though some use a combination of a fee and their property tax, while there are still several that rely only on general fund taxes to fund their programs. Relying on property taxes to fund the disposal of a community's MSW is becoming less and less the norm, with more communities going to an enterprise-type funding method.

For more in depth case studies and details regarding the *curbside* communities of Ashland, Attleboro, Hamilton, Malden and Wrentham, and the *drop-off* communities of Duxbury, Needham and Sandwich, see [Appendix I](#).

## Curbside and Drop-off Municipalities With "Pay-As-You-Throw" Programs - February 2012

Town/City	Start Date	Population	# Households	# HHs participating	Type of Residences Served	Bags, Stickers, other?	1st Option Dollar Amount	1st Option Unit Type	2nd Option Dollar Amount	2nd Option Unit Type	Property tax or fee?	Fee Amount
<b>Curbside Communities</b>												
Attleboro	7/1/2005	41,103	13,590	13,520	1-8	Bags	\$1.50	33-gal, <25 lbs			Fee	\$180.00
Ashland	7/1/2006	16,000	5,752	5,574	1-4	Bags	\$1.30	33-gal, <50 lbs	\$0.75	14-gal	Fee	\$138 (\$48 Srs)
Dartmouth	10/1/2007	33,833	10,660	10,165	All	Bags	\$2.00	33-gal	\$1.00	14-gal	Fee	\$80.00
Foxborough	10/1/1997	16,658	4,775	3,673	1-3	Bags & Stickers	\$1.25	45-gal	\$0.60	15-gal	Fee	\$180.00
Gardner	1/1/2005	20,908	8,282	7,500	1-6	Bags & Stickers	\$3.50	33-gal			Fee	\$180.00
Malden	10/6/2008	56,340	22,496	17,783	1-6	Bags	\$2.00	33-gal	\$1.00	15-gal	Tax	
Marshfield	7/9/2007	25,000	9,700	9,600	1-3	Bags & Stickers	\$2.00	33-gal, \$20 sticker TS			Fee	\$275.00
Medway	7/1/2000	14,000	4,377	4,100		Bags	\$1.50	33-gal, <50 lbs	\$0.75	15-gal, <25 lbs	Fee	\$250.00
N. Attleboro	7/1/1998	27,966	10,957	8,091	1-4	Bags & Stickers	\$1.50	30-gal, <20lbs	\$1.00	15-gal, <15 lbs	Fee	\$225.00
Shrewsbury	8/4/2008	33,456	9,876	9,876	1-4	Bags	\$1.50	33-gal	\$0.75	15-gal	Tax	
Wrentham	7/1/2004	10,556	3,851	3,851	1-8	Bags	\$2.00	34-gal, <40 lbs			Tax and Fee	\$20.00
<b>Drop-off Communities</b>												
Athol	2/20/2008	11,299	4,824	500	All	Bags	\$2.25	33-gal			Fee	\$30.00
Amherst	9/1/1996	34,874	9,174	5,000		Stickers	\$3.00	33-gal			Fee	\$50.00
Bridgewater	1/1/1997	25,185	10,400	2,800		Bags	\$3.00	30 lbs.	\$1.50	15 lbs.	Fee	\$30.00
Duxbury	4/2/2008	15,248	5,700	4,400	1-3	Bags	\$1.50	33-gal	\$1.00	13-gal	Tax and Fee	\$25.00
Needham	6/1/1998	30,397	9,636	7,243	All	Bags	\$1.50	30-gal, <25 lbs	\$0.75	15-gal, <12 lbs	Tax and Fee	\$60.00
Sandwich	7/1/2011	20,675	7,500	5,500	All	Bags	\$1.20	30-gal	\$0.60	15-gal	Tax and Fee	\$55.00

### 3.7 PAYT Choices to be made:

**A. Vendor Services vs. Hiring Staff:** One the key initial decisions that the town would need to make would be whether to contract with a private vendor, such as Waste Zero, to handle the procurement, sale and accounting associated with the PAYT bags. Most PAYT communities have chosen to go with a private vendor rather than handle the work in-house.

### B. Bag vs. Tag

#### Bag Systems

Under a bag system, households pay a fee by purchasing “official” distinctively marked, standard-sized trash bags, typically ranging from 10 to 33 gallons in capacity. Residents purchase bags from municipal offices and/or retail stores. Only trash in “official” bags is collected.

#### **BAG PROS**

- Residents find bag systems easy to understand. They just need to buy bags, which they need anyway, instead of a sticker plus a bag.
- Volume limits are more easily assured with bags than with stickers.



- Bag systems offer the potential for a stronger waste reduction incentive when small sized bags are used. This flexibility with smaller bag sizes benefits low-volume users, such as senior citizens.
- Bag collection tends to be faster and more efficient than sticker systems and subscription systems because bags are easy to see and remove.
- Items that are not in compliance are more easily noticed.
- Bag systems provide the opportunity to offset costs by selling advertising on “official” bags.

## **BAG CONS**

- Bags are more expensive to produce than stickers.
- If bags are sold in municipal offices, extra staff time will need to be committed.
- Residents might view a requirement to buy and store bags as an inconvenience.
- There may be potential difficulty with retailers who may object to selling the bags and/or insist on a markup.
- Unlike cans, bags are not reused, adding to the amount of solid waste entering the waste stream.
- Residents using containers may object to having to switch to bags.
- The weight of bags after stuffing might be a problem unless weight restrictions are instituted and enforced.
- Bag systems have greater revenue uncertainty than subscription systems, since the number of bags residents purchase can fluctuate significantly.
- Animals can tear bags and scatter trash, or bags can tear during lifting.

**C. User fee and Bag /Sticker fee – In what proportion:** Rates accomplish two basic functions: recovering revenues, and creating incentives for customers to handle their solid waste as efficiently as possible. The process of determining what the user fee and bag/sticker cost/rates should be is a calculation based on anticipated trash to be disposed of, the number of expected bags sold (if using a bag system), the number of participating households and the total costs of program implementation. The goal would be to set the user fee as low as possible to meet the fixed cost obligations and then establish the required cost per bag fee to meet the variable trash disposal costs. There is quite a bit of flexibility in this process, with the expectation being that after the first year of operation, the user fee and cost per bag could be adjusted, if need be.

**D. Waste Reduction – First bag/barrel “free?”** One of the first decisions to be made is whether to offer the first bag/barrel free - included in the cost of the user fee amount, rather than requiring the resident to purchase their first bag. Particularly in some towns that fund their solid waste disposal program from taxes (as opposed to user fee enterprise-funded programs), there is a concern that adding a new PAYT bag fee will seem like an additional tax.

The Town of Attleboro allows the first barrel to be included in the cost of the user fee, and the Town of Falmouth, a curbside pick-up community which is looking to go to PAYT, has also proposed allowing the first barrel/bag to be included without an additional PAYT bag fee. While politically expedient, allowing the first bag/barrel to be included at no additional

cost substantially reduces the amount of potential waste reduction. In cities/towns that offer one free barrel or bag before residents are required to purchase PAYT bags, the average annual solid waste produced per household is **0.97 tons**, while in full PAYT communities, the household trash produced is only **0.56 tons**.

**E. Selection of businesses to sell official trash bags:** In PAYT communities that decide to go with a bag system, it will be necessary to select locations where PAYT bags may be purchased by residents. The number and types of stores chosen will obviously depend on how large the community is, both in population and geography.

The Town of Sandwich sells its PAYT bags at 14 different retail locations, including gas stations, liquor stores, hardware, convenience and grocery stores. Barnstable would certainly need more locations than Sandwich. The goal would be to make the process of obtaining the bags as convenient as possible for residents.

It has been the experience of Massachusetts PAYT cities and towns that retailers have been receptive to selling the PAYT bags without a mark-up, and the retailers have actually reported noticing an increase of foot traffic from customers who come in to buy the bags and then also bought other items.

### **3.8 Recommended New Board of Health Regulations**

Whether the town decides to pursue PAYT, or not, the Commission recommends that the BOH trash hauler permitting regulations be amended to increase recycling by leveling the playing field with the private trash haulers in order to remove the financial disincentive for residents who privately contract to have their trash picked up. To that end, the regulations should be amended to require:

1. That trash collection and recyclable collection service be offered at a single “bundled” price to residential customers or as part of an integrated waste management service that includes both trash collection and recyclables collection - residents subscribing for private waste collection shall not have the option of paying for trash collection service only, at a lower price, and,
2. That all permitted private trash hauler businesses submit monthly reports listing the residential tonnage of refuse and recyclables that has been collected, as well as where the recyclables are being disposed of. The monthly reports, whenever possible, shall include copies of weight slips or vendor receipts to support the tonnage documented.

Both of these proposed regulation changes would enhance the chances for success of any PAYT program, and adoption of the “bundled” pricing structure, in particular, would make the town eligible for MassDEP grants that would pay for much of the start up costs for implementing any new PAYT program.

### **3.9 Costs/Potential Savings of Curbside Pick-up and Drop-off PAYT Programs**

As requested in the town council charge to REC, the Commission’s focus has been on looking at the different trash reduction options and leaving the cost calculation analysis to CFAC. However using CFAC’s “Cost Analysis of Solid Waste Options for the Town of Barnstable” report, and looking at all the solid waste disposal and recycling costs data reported by both PAYT and non-

PAYT communities reported to MassDEP, the Commission does offer the following observations. The one important caveat is that the most accurate costing analysis for the town, especially for any curbside program, won't be possible until an RFP is prepared, issued and responded to by prospective vendors.

### **Costs/Potential Savings for PAYT Curbside trash and recycling pick-up program**

Based on a recent survey of the seven trash haulers currently licensed to pick up trash and recycling product in the town, the annual costs (for trash and recycling pick-up services combined) per household range from a low of \$528 to a high of \$684.

According to CFAC's analysis, the estimated cost per household for a town-wide curbside pick-up program using the present MassDEP reported town recycling rate of 16% would be \$283.60. With a 33% recycling rate (the current rate average for transfer station customers) the annual costs per household would be \$259.85. And if the recycling rate under a PAYT curbside program were 50% (a reasonable projection based on the results found in other curbside PAYT communities), the cost would be only **\$236.09**.

After reviewing the MassDEP "Database of Massachusetts PAYT Communities – February 2012" (see [Appendix H](#)), it seems possible that the costs to Barnstable households with a PAYT curbside trash pick-up program could be even less than those estimated by CFAC. As the data in the Appendix show, the annual cost ranges in the PAYT communities run from a low of \$138 to a high of \$275 (excluding bag/sticker fees). The approximate average was for all PAYT curbside communities was in the \$215- \$235 range. In Attleboro, the fee amount was \$180, and because their program included the first barrel "free," most households didn't need to purchase any additional bags.

Even in a non-PAYT curbside town such as Falmouth, the costs of trash and recycling collection per household are substantially less than what the two-thirds of Barnstable households are presently paying private haulers for collection services. Based on a total solid waste budget of \$2,694,669, serving 21,000 households, the per-household cost in Falmouth is only \$128.33.

Clearly, because of the economies of scale of having one hauler (or simply fewer haulers with specific assigned routes) that has greater route density and a larger customer base to absorb fixed costs, town-wide curbside pick-up communities can offer their residents trash disposal and recycling services for a lower cost than that presently available to Barnstable residents whose multiple trash haulers each inefficiently go into all sectors of the town, duplicating each others' routes to pick-up their customers' trash and recyclables.

In addition to the cost saving benefits that accrue from the economies of scale of having one trash hauler picking up trash, is the trash reduction per household cost savings that would result from a PAYT program. It is estimated that if all Barnstable's 25,000 households were included in a curbside program the annual solid waste produced (based on state household averages of approximately one ton per household) would be approximately 25,000 tons. If that annual trash amount were reduced to .56 tons per household (average in PAYT communities), the yearly cost savings for solid waste disposal (based on the current market rate of \$70 per ton) would be

somewhere in the range of \$770,000 annually. It is this kind of potential trash disposal cost savings that makes a PAYT program so attractive.

### **Costs/Potential Savings for PAYT Transfer Station Drop-off program**

If a PAYT program were to be implemented just for the transfer station users, a similar kind of trash disposal costs savings could be realized. In FY 2010, the 9,151 sticker holders disposed of 9,496 tons of solid waste at the transfer station for an average of 1.04 tons per household. If that 1.04 tons could be reduced to the state-wide PAYT average of .56 tons, the waste disposal cost savings for transfer station customers would be \$325,902 (9,496 tons x .44% = 4,178 tons x \$78 (\$70 tipping fee plus \$8 Yarmouth Transfer Station and Trucking fee assumed from CFAC Report). Reducing the disposal costs in that amount would obviously allow the town to keep sticker costs at a lower rate than they would otherwise be without a PAYT program in place.

## **Section 4 Other Issues**

### **4.1 Hybrid Curbside/Transfers Station System: Keeping transfer station open part time with town-wide curbside program**

It is the view of the Commission that if a town-wide PAYT curbside pick-up program were implemented that the transfer station would still need to be kept open, but in a much reduced capacity. This would be necessary to accommodate the continued need for drop-off of some bulky items, yard waste, C&D waste, and hazardous materials, as well as to provide for those residents whose homes are on private roads that may not be passable for trash hauler trucks (there are actually very few residences that would fall into this category), and for those wishing to opt out of the curbside program.

It is the expectation of the Commission that because of the convenience of a curbside program and the fact that according to the CFAC analysis the estimated cost per household of a curbside PAYT program might be only \$3.87 more per year (\$236.09 (with 50% recycling rate) vs. \$232.22 (with current 33% recycling rate)) than it would be for transfer station customers if the town simply renegotiated with SEMASS/Covanta, that the great majority of Barnstable households would choose to subscribe to a town-wide curbside pick-up program.

### **4.2 Solid waste disposal contracts exempted from competitive bidding laws**

According to M.G.L. c.30B, §1(b), “solid waste and recycling contracts” are exempt from the standard municipal competitive bidding procurement requirements. This fact provides the town with an opportunity to “negotiate” with potential vendors in a more flexible and potentially beneficial manner than would otherwise be available.

## **4.3 “Single Stream” versus Dual or Multi-Stream Recycling**

### **Single Stream Recycling Overview**

Single stream, or fully commingled recycling (SSR) (such as utilized in the Town of Mashpee), is a system in which all paper fibers and containers are collected in the same bin instead of being sorted into separate commodities in separate bins (source separated) such as newspaper, cardboard, plastic, glass, etc. Some Material Recovery Facilities (MRFs) were built for dual-stream recycling and have been retrofitted for single stream as popularity increases, while others were specifically built to handle single stream collection.

### **Single Stream Pros**

- Increases recycling rates
- Simplified and more convenient for participants
- Reduced collection costs at municipal end by using single compartment trucks
- Transportation costs are reduced with compacted single stream recyclables all going to the same place
- Reduced solid waste disposal costs
- Reduce size of recycling area footprint at transfer station

### **Single Stream Cons**

- Initial capital costs of set-up
- Increased costs for sorting and processing at MRF
- Because of contamination some recyclables may be land-filled, or not utilized for highest possible end-use
- Up to 40% of glass from single stream could end up in landfills, with 20% used for low-end applications
- Single stream can produce residual rates of between 14% to 27% (when including mixed glass)
- Communities with container deposit laws get yields of 98% of glass available for use by bottle makers

### **“Multi Stream” Recycling Overview**

Dual-stream or multi-stream recycling collection programs, such as Barnstable’s, require participants to place each recyclable material in the appropriate collection bin when they first discard the item. Separate containers collect glass, metal, plastic, newsprint, and magazines etc.

### **Multi Stream Pros:**

- Reduces Solid Waste disposal costs
- Lower levels of contamination at the source
- Higher quality materials
- Non-contaminated material worth more in the marketplace

- Lower costs to process recovered paper
- Less material sent to China for processing because the United States uses the clean material
- Single stream recycling does not take textiles out of the solid waste stream whereas multi- stream setups can accommodate this material which translates into 5.3% (EPA figure) of the current waste stream
- Source-separated habits are already in place for the one-third of the town residents who use the RTS.
- More sophisticated source-separated material collection is a much easier sell to those who understand and practice it (e.g. composting, textiles, toxic waste)
- Good dual stream programs can be around 2-3% residuals (as compared to single stream with 14-27% residuals which means the material is too contaminated to be resold and therefore must be land-filled. This translates into more bulk being transported to a MRF, handled and then re-transported to a landfill which translates into higher fuel costs and higher carbon emissions.)

### **Multi Stream Cons**

- May lead to multiple contracts - e.g. local Non Profits may bid on bottles; another bid on paper; another bid on textiles.
- Separate containers needed for paper and glass/plastic/metal – at least two
- Greater manpower and costs required at the transfer station associated with more sorting and greater number of containers

**Single Stream vs. Dual Stream:** A town may not save money converting to single stream at a transfer station, unless the town's hauling costs to get recyclables to market are very high. The savings would come from installing a compactor for single stream materials and saving on transportation. Provincetown did an in depth study of this issue that showed compaction of single stream recyclables would save them money, even with the capital outlay required to install equipment and long-haul containers. But they are further from markets than Barnstable is.

According to Mass DEP, the majority of towns now starting or using curbside pick-up programs are including either single or dual-stream recycling pick-up. Anecdotal information derived from other cities and towns that have converted from multi-stream to dual or single stream recycling, WITH a wheeled cart, shows that it saves on collection costs and diverts more material from disposal because the cart offers convenience and capacity.

After much discussion of this topic, the Commission was unable to achieve a consensus on this issue and is not, therefore, making a recommendation at this time to move to single stream recycling.

## **Section 5**

### **Conclusion and Suggested Next Steps for the Town Council**

#### **5.1 Conclusion**

For drop-off and curbside communities alike, PAYT programs have been shown to be the most effective, equitable, and cost effective method of reducing a town's solid waste stream and increasing its recycling rate. With its relative ease of implementation and proven successful track record, this model is quickly becoming widely accepted throughout Massachusetts and the country. Successfully implementing such a program in Barnstable will be determined by how effectively the public is made aware of how the program works, how it's fairer, and how it can save them money.

The expiration of the SEMASS/Covanta solid waste disposal contract with the town at the end of 2014 and the continuing need for increased recycling present a perfect storm of opportunity to change, in a substantial way, the method used to collect and dispose of the town's residents' solid waste and recyclables. The Commission believes that a PAYT program is the best way to accomplish that goal.

#### **5.2 Suggested Next Steps for the Town Council**

If the Town Council agrees that there is merit in proceeding with a further analysis of the benefits of implementing a PAYT program in Barnstable for either town-wide curbside trash pick-up or just for the transfer station customers, REC would urge the following next steps be pursued.

- Direct staff to explore through an RFP, RFI or RFQ process the expected costs and appropriate bid specifications necessary to implement the proposed recommendations
- Direct REC and Staff to do outreach and seek community input regarding REC's proposed recommendations
- Direct staff to draft new Board of Health required regulations

## List of Appendices

Appendix A – Cape Cod Commission, CDM Report, *Evaluation of Future Disposal Alternatives for Municipal Solid Waste*, April 2010

Appendix B - Mass. DEP CY 2010 Solid Waste and Recycling Survey

Appendix C - Current Barnstable Solid Waste and Recycling Ordinances and Regulations

Appendix D - 1997-2008 Mass DEP Residential Recycling Rates

Appendix E – 2012 List of Barnstable Permitted Trash Haulers

Appendix F – Town of Barnstable, Department of Public Works, Solid Waste Division, “Curbside Collection Research,” February, 1993

Appendix G – Town of Barnstable, *Pay-As-You-Throw Pilot Program Evaluation, Final Report*, January 2004, (Prepared by MassDEP)

Appendix H – Database of Massachusetts PAYT Communities – February 2012

Appendix I – Curbside and Drop-off Communities Case Studies

Appendix J - U.S. E.P.A. “Pay-As-You-Throw Summer 2010 Bulletin

Appendix K – MassDEP Pay-As-You-Throw Implementation Guide, January 2004

Appendix L – Sandwich Pay-As-You-Throw Implementation Guide, April 2011

Appendix M - PAYT Bag Vendors on State Contract, February 2012

Appendix N - Massachusetts Communities with Single Stream Recycling

Appendix O - Town of Bourne RFP for Curbside Pick-up

Appendix P – Town of Easton RFP for Curbside Pick-up

Appendix Q – Town of Plymouth RFP for Curbside Pick-up