Total cost accounting for Solid Waste and Recycling

Re-Defining the way residents value trash
Re-Defining Trash

- What is PAYT?
What is PAYT?

- Utility
- Unit based charge
- Equitable
- “Financially incentivizes people to make the right choice” Jared Bloomenfeld,
  Director of Environment San Francisco Fortune Magazine
  2/10/07
PAYT Works...Coast to Coast

Worcester, MA
Pop. 172,648

San Francisco, CA
Pop. 776,733
What is PAYT

- 7000 U.S. Municipalities use a form of PAYT
  * Approximately 1500 are Unit-based (UBP)

- Minnesota, Washington, Oregon mandatory PAYT
  Iowa mandatory under 25% recycling

- 1997 Massachusetts DEP promotes UBP
  * Currently 120 communities participate
  * Projected 25 additional in 2008
What is *PAYT*?
PAYT – Redefining Trash

- What is PAYT

- Where is PAYT successful around the globe?
Overview United States 2006

United States Residential Per Capita Disposal

Connecticut 965
Per Capita Residential Disposal
### Burning Bucks
Communities try to save on trash costs by boosting recycling by residents

**Thursday, February 22, 2007**

#### Up in smoke
Per-capita figures in 2005 reflect a wide range in the pounds of trash thrown away by residents of the 20 area communities that are clients of the Wheelabrator incinerator; nearly half of the cities and towns use a pay-as-you-throw system to reduce disposal costs and encourage recycling.

<table>
<thead>
<tr>
<th>City</th>
<th>Per-capita (pounds)</th>
<th>Pay-as-you-throw</th>
<th>Flat fee or through taxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dover</td>
<td>817</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Franklin</td>
<td>786</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Holliston</td>
<td>561</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hopkinton</td>
<td>726</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Maynard</td>
<td>782</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medfield</td>
<td>923</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medway</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Millford</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natick</td>
<td>722</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needham</td>
<td>837</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Newton</td>
<td>786</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northborough</td>
<td>1077</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sherborn</td>
<td>1028</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shrewsbury</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Southborough</td>
<td>520</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upton</td>
<td>688</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weston</td>
<td>396</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worcester</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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*Note: The asterisks (*) indicate cities using a pay-as-you-throw system.*
Massachusetts Recycling Chart

Massachusetts Recycling % Per Municipality
PAYT vs Non-PAYT 2005
Massachusetts Income Distribution

Per Capita Income and PAYT

106 Massachusetts Towns

- Pounds Per Capita
- MEDIAN FAMILY INCOME

Average HH Income

0 10,000 20,000 30,000 40,000 50,000 60,000 70,000 80,000 90,000 100,000 110,000 120,000 130,000 140,000

0 100 200 300 400 500 600 700 800 900 1000

Pounds Per Capita
Before and After VGCF System

Municipal Solid Waste Disposal Before VGCF was 12,238 ton/day

Municipal Solid Waste Disposal After VGCF was 7,013 ton/day

42% decrease In MSW
## Collection Calendar 2001

### For Domestic Waste in the City of Zürich

- **What**: Combustible waste such as packaging, wood, small animal droppings, etc.
- **When/Where**: Weekly collection round as per the following plan. Except holidays.
- **How**: Put out in Züri-Sacks (waste bags with bag charge) or containers. Before 7:00 am on the day of collection please.

### Refuse

<table>
<thead>
<tr>
<th>Neighborhood</th>
<th>Day</th>
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<tbody>
<tr>
<td>Affoltern</td>
<td>Mon</td>
</tr>
<tr>
<td>Albisrieden</td>
<td>Tue</td>
</tr>
<tr>
<td>Altstetten</td>
<td>Fri</td>
</tr>
<tr>
<td>Alt-Wiedikon</td>
<td>Thu</td>
</tr>
<tr>
<td>City</td>
<td>Tue+Fri</td>
</tr>
<tr>
<td>Enge</td>
<td>Mon</td>
</tr>
<tr>
<td>Escher-Wyss</td>
<td>Wed</td>
</tr>
<tr>
<td>Fluntern</td>
<td>Tue</td>
</tr>
<tr>
<td>Friesenberg</td>
<td>Tue</td>
</tr>
</tbody>
</table>

### Quarters

<table>
<thead>
<tr>
<th>Neighborhood</th>
<th>Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gewerbeschule</td>
<td>Mon+Thu</td>
</tr>
<tr>
<td>Grünau</td>
<td>Wed</td>
</tr>
<tr>
<td>Hard</td>
<td>Wed</td>
</tr>
<tr>
<td>Hürligenen</td>
<td>Wed</td>
</tr>
<tr>
<td>Hirzenbach</td>
<td>Fri</td>
</tr>
<tr>
<td>Hochschulen</td>
<td>Tue+Fri</td>
</tr>
<tr>
<td>Höngg</td>
<td>Thu</td>
</tr>
<tr>
<td>Hopfingen</td>
<td>Wed</td>
</tr>
<tr>
<td>Langstrasse</td>
<td>Tue+Fri</td>
</tr>
</tbody>
</table>

### How

- **Bulky waste collection on request**: Tel. 01 645 77 77
- **Refuse-fired heating and power station Hagenholz**
- **Opening hours of the Hagenholz centre on Saturdays before official moving dates**: 24 and 31 Mar., 22. and 29 Sept. from 7:30 am to 2 pm.

### Compost

- **B Own compost heap**: Weekly collection round from 19/3 to 14/12/01.
- **A To order garden waste collection for non-compost in your own garden if possible**.

### Contact

- **Composting advice line**: Tel. 01 645 77 77 or www.kompostberatung.ch. No kitchen waste, no small animal droppings and cat litter. Put out in plastic.
Zürich, Switzerland

- Polluter Pays System
- The cost of Züri-sack is 4.25
- The average household uses one per week

41% decrease in MSW
Zürich Switzerland
New Zealand

‘Waste Minimization Bill’

40% of municipalities must achieve ‘Zero Waste’ by 2015

• All SWM Plans include PAYT

• Authorities predict a combined total 40,000 new jobs over the next 10 years in the Recycling Industry
Ontario Canada

Advanced Wet/Dry (UBP)
PAYT System

<table>
<thead>
<tr>
<th>Towns</th>
<th>Population</th>
<th>Diversion</th>
<th>PP/Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guelph</td>
<td>100,000</td>
<td>58%</td>
<td>457</td>
</tr>
<tr>
<td>Belleville</td>
<td>37,000</td>
<td>63%</td>
<td>403</td>
</tr>
<tr>
<td>Sidney</td>
<td>17,000</td>
<td>69%</td>
<td>337</td>
</tr>
<tr>
<td>Trenton</td>
<td>15,000</td>
<td>75%</td>
<td>272</td>
</tr>
</tbody>
</table>
East Hampton

Intensive MSW Recycling Pilot

Barry Commoner - 1988

Ordinary people using existing technology

- 100 families in 10 weeks
- ‘Pilot Test’ residents were able to divert 84% of household waste
- 4 components
  - Food/organic material
  - Paper
  - Mixed recyclables
  - Trash
PAYT Re-Defining Trash in New Hampshire
1999 EPA Report

‘Cutting the Waste Stream in Half’

- Features 18 Large US cities
- 15 used PAYT to meet their MSW Goals
- 3 used mandatory recycling and fines
PAYT – Redefining Trash

- What is PAYT?

- Where is PAYT successful?

- Why PAYT for Connecticut?
Why PAYT for Connecticut?

Waste Diverted
Overview for Connecticut Residential per capita Disposal

Source: Bio-Cycle/MA DEP /SES2005 Numbers

- US Average 1135 Lbs
- CT Average 965 Lbs
- MA PAYT average 512 Lbs

2005 Numbers
## Town of Marshfield, Massachusetts

Started PAYT July 9th 2007

### Comparison Trash and Recycling

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tons in</strong></td>
<td>1126.7</td>
<td>788.5</td>
<td>-30%</td>
<td>-42%</td>
<td>-47%</td>
</tr>
<tr>
<td><strong>Loads</strong></td>
<td>38</td>
<td>27</td>
<td>-29%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Curbside tons in</strong></td>
<td>891.8</td>
<td>665.3</td>
<td>-25%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Loads</strong></td>
<td>103</td>
<td>84</td>
<td>-18%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Swap Shop Trash</strong></td>
<td>22.7</td>
<td>6.9</td>
<td>-70%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Swap Shop Scrap</strong></td>
<td>5</td>
<td>4.8</td>
<td>-4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cardboard/Paper Tons</strong></td>
<td>158.2</td>
<td>214.8</td>
<td>36%</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td><strong>Commingled plastic/glass/metal</strong></td>
<td>60.75</td>
<td>90.04</td>
<td>48%</td>
<td>41%</td>
<td></td>
</tr>
</tbody>
</table>
MSW for the Town of Stafford, CT
Why PAYT for Connecticut?

Waste diverted

Tax $$ Saved for Residents
“Connecticut Constituents Save Tax $$$”

780,000 Tons Residential Waste Diverted @ $75/Ton

Transportation/Labor savings 10-33%

State of Connecticut PAYT Account

Fiscal Year 2008

State of Connecticut Residents

$54,666,000.00
Why PAYT for Connecticut?

- Waste Diverted
- Tax $$$ Saved
- Recycling Increased
Connecticut MSW

Connecticut Before PAYT
- Composted: 9%
- Recycled: 16%
- Landfilled/Incinerated: 76%

Connecticut After PAYT
- Composted: 15%
- Recycled: 25%
- Landfilled/Incinerated: 57%
- Source: 4%
Recycling Revenue for Municipalities

- **RIRRC $65/ton dual stream collection**
  * Based on PAYT additional Connecticut revenue would be approximately 18 million dollars

- **Springfield MRF $38.5/ton single collection**
  * Based on PAYT additional Connecticut revenue would be approximately 10 million dollars
Opportunity for Jobs in the Recycling Market

- 1.1 million jobs (2000)
- 236 Billion in gross sales
- Recycling Waste creates four jobs for every one job if the material was not recycled

*Policy brief for– Gov. Schwarzenegger 2006*
“The most important economic benefit occurs when the recovered materials are manufactured into finished products within the local community”
Does Recycling Pay Off? $$$

3 Golden Rules

- Quantity
- Quality
- Regularity

PAYT provides an increased, consistent stream of quality material
Why PAYT for Connecticut?

- Waste Diverted
- Tax $$$ Saved
- Recycling Increased
- GHG Decreased
PAYT Yields Personal GHG Reductions

- 6.6 MTCE per Capita 2005
- 4.4 MTCE Industry Agriculture (non-controllable)
- 2.2 MTCE Personal Choices (controllable)

Per Capita savings from PAYT equals .22 MTCE or 10% of personal carbon footprint or 3.2% of total GHG

EPA Report – achoate@isfi.com
Recycling saves energy

- 95% less energy aluminum
- 70% less energy plastic
- 40% less energy paper
Why PAYT for Connecticut?

- Waste Diverted
- Tax $$$ Saved
- Recycling Increased
- GHG Decreased
- Encourages upstream producer responsibility
PAYT encourages Industrial Responsibility without Legislative action

- **Green Dot**
- **Producer Take back**
- **Retailer Take back**
- **EPR (Extended Producer Responsibility)**
The Convenient Truth

- Adapts to any collection system
- Cheap to get started
- Reduces residential waste by 44%
- Saves 54 million dollars to taxpayers
- Increases the recyclable resource stream and stimulates local economy
- Reduces pollution/GHG
Its wasteful not to start today

- 48% Waste Reduction
- 48% Reduction in Disposal Cost
- Increased Source Reduction, Recycling and Composting
- Stimulates the economy
- Reduces GHG

Graph showing MSW/#PP/PY per state:
- Connecticut 965
- Warwick RI 750
- Massachusetts 512
- San Francisco, CA 440
- Worcester, MA 398
Total cost accounting for Solid Waste and Recycling

Re-Defining the way residents value trash

Thank You,

Kristen Brown
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843-241-3276
www.thewastesolution.com