Howard County Curbside Food Scrap Collection And Processing Facility

June 21, 2013
Why Food Scraps?

• 27.6% of trash is food scraps
• Trash disposal cost risen by $10 a ton
• Reduce GHG
• Reduce garbage disposal use
• Returns nutrients to soil
• Phone survey 63% likely to participate
Food Scraps

Howard County Experience

• Mini-Pilot (34 homes)
  • August 2010 to January 2011
• Full Scale Pilot (over 1000 homes)
  • September 2011 and on-going
• Pilot Processing facility started March 2013
Types of material collected

- Fruit and vegetable scraps (fresh or cooked)
- Egg shells
- Bread, pasta, beans, grains and nuts
- Coffee grounds, filters and tea bags (no foil or foil-backed products)
- Paper towels and napkins with food residue on them
- Uncoated paper plates
- Pizza boxes (remove any non-food items)
- Paper egg cartons or paper bags
Average weekly setout rate was 76%, overall 100% participation rate (overall participation rate was expected to be high)
- One family dropped out
- Estimated 3.9 tons of food scrap and yard trim diverted
- Approximately 23% of the residential trash in the mini pilot area was food scraps
Mini Pilot Volunteer Observations Outdoor

- Suggested program start in winter (fruit flies)
- Baking soda helped control odors in cart.
- One family started out worried about odor problems but worked it out.
- Some regularly washing both bins and carts but couldn’t wash cart once weather got cold and outdoor faucet was turned off.
What would be your biggest motivator to participate in food scrap recycling?

![Bar Chart]

<table>
<thead>
<tr>
<th>Non-Listed / Other Responses</th>
<th>Uncertain / Don’t know</th>
<th>Would need more info</th>
<th>Already doing it at home</th>
<th>All of the above</th>
<th>An easy way to buy or sell compost created</th>
<th>Use it to feed animals</th>
<th>Creation of new jobs</th>
<th>An animal-proof container</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of mentions</td>
<td>12</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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</tbody>
</table>

Table 3 – Other non-listed motivators to participate in Food Scraps Recycling program.
How would you prefer to collect your material?

56% County-provided container, 30% Bio-degradable bags, 14% Container of choice

Figure 23 - Size container believed needed for food scrap collection. Participants were told a standard trash can is 30 Gallons.
What is your biggest concern about food scrap recycling?

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of mentions</td>
<td>10</td>
<td>11</td>
<td>2</td>
<td>2</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 2 – Other non-listed reasons for concern with food scrap recycling program.
Full Scale Collection Pilot – Sept 2011

- Pilot area open to 5,000 houses
- Variety of house styles – SF, TH, MHP, no condos
- No new collection vehicle - Weekly curbside collection by the yard trim truck – year-round
- Voluntary program with >1,000 homes in program
- Volunteers received:
  - 35 gallon green cart with custom IML
  - Booklet with troubleshooting, FAQs, and tips to reduce food scraps
  - Acceptable/Unacceptable magnet
Food Scrap Booklet

Bureau of Environmental Services
Howard County, Maryland

Howard County Environmental Services
Recycling Division
6751 Columbia Gateway Drive, Suite 514
Columbia, Maryland 21046
410-313-6444
www.HowardCountyRecycles.org

Adding the correct items to the cart is the key to success.
If you come across an item that you have a question about, please
e-mail or call us and we will be happy to help you.

Accepted
- Fruit and vegetable scraps (fresh or cooked)
- Bread, pasta, rice, grains, cereal
- Cakes, pies, cookies, baked goods
- Egg shells
- Nuts, beans and seeds (including nuts/shells)
- Coffee grounds, filters, tea bags (no foil or foil-backed products)
- Corn cobs and husks
- Herbs
- Paper towels and napkins containing food residue
- Uncored paper plates
- Pizza boxes (remove any non-food items)
- Ice cream containers
- Paper egg cartons and paper bags
- Houseplants, cut flowers
- Toothpicks, popsicle sticks, chopsticks
- Small quantities of grass and leaves

Not Accepted
- Meat, fish, shellfish (including bones or shells)
- Dairy products (cheese, butter, ice cream, etc.)
- Fats, oils, grease
- Facial tissues
- Pet waste
- Diapers
- Plastic-coated paper plates or bowls
- Plastics of any kind, including biodegradable plastics
- Milk cartons: Recycle with your regular recycling
- Wax paper or cardboard, aluminum foil or plastic wrap
  (please recycle cardboard and clean aluminum foil in your
  blue bin or cart)
- Plastic plant pots and other curbside recyclables
- Styrofoam (place in the trash)
- Wrappers, compostable snack bags
## Full Scale Collection Pilot Costs

<table>
<thead>
<tr>
<th>Description</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print 5,000 food scrap return mailer round 1</td>
<td>$2,447.32</td>
</tr>
<tr>
<td>Mail 5,000 food scrap return mailer round 1</td>
<td>$2,226.40</td>
</tr>
<tr>
<td>Purchased 4,000 plastic bags for brochures on carts</td>
<td>$116.00</td>
</tr>
<tr>
<td>Print 4,300 food scrap return mailer round 2</td>
<td>$1,246.19</td>
</tr>
<tr>
<td>Mail 4,300 food scrap return mailer round 2</td>
<td>$1,878.36</td>
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<tr>
<td>Return cost of both sets of postcards</td>
<td>$351.52</td>
</tr>
<tr>
<td>500 promotional food scrap mini carts</td>
<td>$1,555.66</td>
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<tr>
<td>Food for public meeting</td>
<td>$67.15</td>
</tr>
<tr>
<td>5,000 magnets 3.75&quot;x5.25&quot;</td>
<td>$2,196.50</td>
</tr>
<tr>
<td>Design food scrap booklet</td>
<td>$847.50</td>
</tr>
<tr>
<td>Print 2,500 food scrap booklets</td>
<td>$798.00</td>
</tr>
<tr>
<td>Coroplast sign of acceptable items 35&quot;x28&quot;</td>
<td>$53.77</td>
</tr>
<tr>
<td>Oops stickers, Post-It Labels 3.33&quot; x 4&quot;</td>
<td>$9.79</td>
</tr>
<tr>
<td>Print 1,100 How Low Can you Go? contest information quarter page sheets</td>
<td>$277.48</td>
</tr>
<tr>
<td><strong>Total Outreach cost</strong></td>
<td><strong>$14,071.64</strong></td>
</tr>
<tr>
<td>35 gallon carts, IMLs, delivery and assembly</td>
<td>$42,590.90</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$56,662.54</strong></td>
</tr>
</tbody>
</table>
Where are we now?

• Over 1,000 homes or 20% of homes in program

• Averaging 9.44 pounds of food scraps per home

• Pilot Area averaging 205 tons per year

• Over 40% setting out weekly

• 82% overall participation rate

• Represents 25% of the trash of those participating
Where are we now

• Budgeted for expansion into another Route
• Exploring Options to reduce plastic bags
• Focus Group
  – Why are residents:
    • Bagging grass clippings
    • Using plastic bags for yard trim
  – Barriers to:
    • Using paper bags and rigid containers
    • Joining the food scraps program
What needs are we meeting?
- Reduce waste and increase recycling
• Recycle Yard Trim
  Residential, Commercial, Government
• Food Scrap
  – Residential, No Commercial/Distribution,
    No Restaurant, No Institutional
• Material Produced
  – Mulch, Compost, Topsoil, Specialty Mixes
Compost Facility Location

• Alpha Ridge Landfill due to
  – Existing operating site (County property, staff and equipment present)
  – Utilities exist (scales, water, sewer, electric, fiber optic)
  – Centrally located (lower transportation distances)
  – Shorter Transportation distances
  – Existing wood waste operations
Compost Facility Design Issues

- Stormwater
- Process Water
- Permitting
- Technology selection
- Space
Facility Summary

- Six covered piles – 26’ wide, 68’ long, 9’ high
- Capacity of 1500 cy per month
- Negative aeration; treating odors via biofilter
- 45 days under aeration
- Temperatures >150º F for 3-10 days
- Pilot will have perforated pipes on slab
Site Layout

Howard County - Maryland

Process liquid supply, lined by ECS, manhole cover by others

Block wall, 6' high, designed and supplied by others

9' high curb, designed and supplied by others

2' high curb, designed and supplied by others

In-floor trench drains, by ECS

1' offset to prevent material compaction

Duct concrete drain

Below grade pipe drainage system, by ECS

Aeration/drainage section

Perforated aeration pipe not shown

Aeration fan

Fan and communications control skid, requires 3 TN HVAC and fiber-optic communication supplied by others

Hose bib for filter irrigation supplied by others

Embedded cover anchors, 125 per zone, tie

Perforated hose pipe

Aisle

Stormwater drain, designed and supplied by others

AC Composter Plan View

In-floor drain trenches, by ECS
Covers

60 ft covers weigh 200 lbs
120 ft covers weigh 400 lbs
Stormwater

- Stormwater cannot contact feedstock
- Stormwater must meet ESD standards (Environmental Site Design)
Surface water Permit Issues

- NPDES Construction Activity
  - New inspection forms

- NPDES Industrial Activity
  - General or Individual permit required
  - In case of ARL – Individual Industrial NPDES with Stormwater endorsement
  - Update Stormwater Pollution Prevention Plan
Process Water

• Process water will be segregated from storm water
• Process water will be collected and re-used (preferably) or sent to WWTP (not-preferred)
• Pre-treatment permit required before connecting to sewer.
Water needed

• At 45% moisture, up to 4,500 gallons of water is needed per pile to raise moisture to 60%.

• Recycle sump only holds 1,600 gallons.

• May 2013, Surface Water Appropriation Permit applied for
Air Permits and Issues

• ODOR, ODOR, ODOR
• Odor Study

No permit limits per se, but site shall be maintained to prevent air pollution or nuisances

• Large grinders on site for more than 72 hours are permanent sources, and require “Permit to Construct” and inclusion in Title V permit. (new for Howard Co.)
BioFilters
Other Local Permits

- Grading Permit
- Plumbing Permit
- Electrical Permit
Plastic Bags

- Residents use a lot of plastic bags
- 2 loader buckets of plastic per load
- Methods need to be chosen to remove from compost
Other Stuff

• Composting Operations Plan before design approval
• Internet connection is required for remote monitoring of system.
• Revised our Natural Wood Waste Processing Plan
What’s next

• Expand County-wide collections
• In-County processing full-scale with building
• Digester at WWTP for commercial and residential to produce electricity and compost
Questions?

www.HowardCountyMD.gov/foodscraps.htm

www.HowardCountyRecycles.org

http://www/howardcountymd.gov/PilotCompost.htm

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jdannis@howardcountymd.gov
• http://peninsula-compost.com/process/index.html