Residential Food Waste Collection Pilot – Review and Analysis

Introduction
In early April, staff of the Resource Recovery Division initiated a 3-month pilot program to test the feasibility of collecting food waste separately from residential trash. 2,400 customers located throughout Alexandria were invited by letter to participate by separating food waste from regular trash for special collection. Participants received a 5-gallon storage container as well as a kitchen countertop collection basket with liners. The food waste was collected on a participant’s regular trash collection day curbside. 405 customers agreed to participate (17%).

Purpose of the Pilot
The pilot was intended to answer five questions:
1. Is there a ‘critical mass’ of residents from which to launch a new service?
2. Does separating food waste cause problems for the customer such as odors or pests?
3. If a customer initially agrees to separate food waste, will they stick with it?
4. Is curbside collection of food waste operationally feasible?
5. What environmental benefits and financial costs does food waste collection generate?

Measuring Results
During the Pilot, data was collected on actual costs, weights, participation and service issues. This information has been extrapolated to estimate the costs and benefits of making this service available to all 19,721 customers. At the conclusion of the Pilot, 327 participants completed a 14 question survey (attached).

Results and Discussion
Q1: Because only 17% of the 2,400 invitees signed up for special food waste collection, staff concludes that most residents don’t consider separating food waste as something they want to do. The City of Takoma Park, Maryland initiated food waste collection and is reporting a 40% participation rate. If a city-wide service were to be launched extensive education and motivational outreach would be required to engage the community in this new service.

Q2: Although 36% of participants reported that their collection buckets became smelly or disgusting, 99% reported no problems with pests (mice, bugs, etc.).

Q3: Most participants (93%) reported that they stayed with the program the entire 3 months. People who are into this sort of thing will stick with it.

Q4: Because food waste is 30% liquid, becomes smelly in a sealed container and attracts bugs in storage, there were numerous ‘behind the scenes’ collection issues that would need to be resolved before this service could go ‘city-wide’. Garbage has always been smelly, but isolating food waste from absorbent trash takes it to a whole other level. Spillage of liquid was a real problem and may pose storm-water management issues.

Q5a: Environmental benefits were relatively small when compared to taking food waste with regular trash to a Waste-to-Energy Facility. If the Pilot’s tonnage numbers are extrapolated to a city-wide program, the new program would generate 577 tons of food waste a year. Composting
these tons rather than burning them for electricity is equivalent to eliminating greenhouse gas emissions from 4 cars for a year (based on U.S. EPA’s Waste Reduction Model). Just diverting this material from a landfill to a waste-to-energy facility has already reduced emissions the equivalent of 105 cars.

The other significant benefit gained by composting food waste is the conserving of natural resources (soil nutrients) which can be used to amend depleted soil. But, because ingredients for natural soil amendments are not in short supply (think animal waste from farms), there is little demand for this ‘natural resource’.

Q5b: The cost of collecting food waste curbside is high compared to regular trash and recycling:

<table>
<thead>
<tr>
<th>Type of Curbside Collection Service</th>
<th>Cost per ton (collection + disposal)</th>
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<tbody>
<tr>
<td>Regular Trash</td>
<td>$117</td>
</tr>
<tr>
<td>Recycling</td>
<td>$83</td>
</tr>
<tr>
<td>Food Waste Only</td>
<td>$450</td>
</tr>
<tr>
<td>Farmers’ Market Food Waste Program (non-curbside)</td>
<td>$375</td>
</tr>
</tbody>
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The cost to expand the residential food waste pilot ‘city-wide’ is projected to be:

<table>
<thead>
<tr>
<th>Service Provider</th>
<th>Cost Per Year per Participating Household</th>
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</thead>
<tbody>
<tr>
<td>City-employed collection staff</td>
<td>$94</td>
</tr>
<tr>
<td>Private-sector contractor</td>
<td>$134</td>
</tr>
</tbody>
</table>

**Recommendations**

1. Do not initiate a curbside food waste collection service at this time
   a. Limited environmental benefit
   b. High cost
   c. Operational problems
   d. Food Waste cannot be combined with Yard Waste (for collection efficiency)

2. Change the orientation of the Farmers’ Market Food Waste Collection Program
   a. Partner with schools and community gardeners to compost collected food waste within the city as a learning and community-building activity.
   b. Promote reducing food waste rather than composting food waste;
   c. Adjust current year-round program to seasonal (April – November)
      i. Corresponds with the cycle of planting, tending and harvesting;
      ii. Eliminates staffing conflicts (‘set-up’ crews also perform snow removal)