

***City of Seattle***  
***1995 Home Organics Waste***  
***Management Survey***

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# I. Overview

## ***Background***

For the past 10 years, the Seattle Solid Waste Utility (SWU) has been a national leader in home organics waste management. Since 1986, when the first group of Master Composters were trained to provide residents with information and education on the benefits of backyard yard waste composting, the SWU has supported community education and bin distribution programs to make backyard composting practices simple and successful for residents.

Although the program has evolved over the years, core elements of the program still include:

- Master Composter volunteer program which educates residents to educate others,
- Compost Hotline which answers composting questions throughout the year,
- Demonstration sites which show various types of composting techniques in action, and
- Bin distribution and education which provides residents with education and tools for composting.

The compost bin distribution and education component has shifted during the course of the program from focusing on home delivery and home consultations (to at least 30% of participants) to centralized workshop/pick-up locations and education for all participants. From 1990 until 1994, the SWU offered residents yard waste composting bin delivery and educational services at no charge, and in 1993, added food waste composting bins to the program. In 1994, the SWU began charging a subsidized fee for both yard and food waste composters. By the end of 1995, approximately 23% of Seattle households (35,300) had received a yard waste compost bin and 4% (6,600) had received a food waste compost bin from the City.

In addition to yard and food waste backyard composting information, the SWU has expanded the scope of its education to include information on grasscycling and green gardening. In 1994 and 1995, mulching lawn mower performance trials were conducted and grasscycling education began. This education has gradually become more aggressive and in 1995 workshops on grasscycling and green gardening were included in the backyard composting bin distribution events.

Consistent with its mission to provide a menu of waste prevention and recycling service to its residents, the SWU's backyard composting

program complements other organics waste management programs. In 1989, SWU began the curbside yard waste collection program and participation quickly rose to over 60% of households—where it has remained since then. Residents can participate in both the curbside collection and backyard composting programs. The SWU has also begun examining the possibility of implementing a curbside food waste collection program. In 1994, the SWU conducted a curbside food waste collection pilot program on four garbage routes with 900 participants and the SWU continues to explore feasible options for city-wide food waste collection.

City of Seattle waste composition studies suggest that the SWU's multi-pronged approach to organic waste management is justified. A 1988/89 report indicated that yard waste (leaves, grass and prunings) comprised 19.2% of Seattle's single family residential waste stream. By 1990, that number dropped significantly to 2.2% (due to a disposal ban on yard waste and the introduction of curbside yard waste collection services).

Currently, yard waste makes up about 3.6% of Seattle's single family waste stream. Food, on the other hand, now accounts for almost 24% of the single family waste stream.

## ***Organics Survey***

The SWU's aggressive and multi-faceted approach to organics waste management was the subject of a survey conducted in 1995. Specifically, the SWU commissioned a survey to determine current organic waste management practices of Seattle city residents. The purpose of this survey was to identify ways for the SWU to improve the services it currently offers and to research ways the SWU might enhance both yard and food waste reduction and recycling. Another goal was to explore the overall market potential for increasing or expanding organic management programs.

The survey sampled 610 residents in single family dwellings within Seattle providing a 95% confidence level and a  $\pm 4\%$  margin of error. The majority of those surveyed (95%) have a yard and thus the opportunity to compost yard waste. The majority also have lawns (85%) and thus the ability to grasscycle. For the purpose of this study, it is assumed that all households have the opportunity to compost food waste since all households generate food scraps at home.

The detailed results from this survey appear in the following sections of this report. The remainder of this section highlights opportunities for expanding current programs and the potential for diverting organic materials.

## **Current and Future Opportunities**

The summary table, *Seattle Residents' Organic Waste Management*, combines data collected from this organics survey with information gleaned from other SWU sponsored research on organics. The table separates information on yard and food waste to examine the market conditions and market potential for each waste stream.

The "Existing Market Conditions" portion of the table compares specific activities to the total number of eligible Seattle households. The "Market Potential" section synthesizes information from the survey with projections regarding the impact on organic wastes diverted.

### **Yard Waste**

Current yard waste activities compared to the total number of eligible single family households within the City and the corresponding tonnage of yard waste diverted or disposed are summarized in the "Existing Market Conditions" section of the table. The eligible single family household market for composting and curbside collection of yard waste is defined as households with yards (or 95% as indicated from this survey). The eligible single family household market for grasscycling includes only those households with a lawn (85% as indicated from this survey).

According to the 1995 Organics Survey, 41% of residents in single family households participate in backyard composting. This activity diverts approximately 8,000 tons per year. SWU yard waste report data indicates that nearly 87,000 single family households participate in Seattle's curbside yard waste collection program. Together, these households produce approximately 43,000 tons of yard waste per year. "Clean Green" drop off activities generate an additional 12,000 tons per year. Finally, the 1995 waste characterization study indicates that yard waste comprises approximately 3,000 tons of the single family residential garbage.

The potential market for furthering yard waste composting activity is derived from answers to the 1995 Organics Survey and is summarized in the "Market Potential" section of the table. Survey respondents who do not currently compost yard waste were queried on whether they had thought about yard waste composting and their willingness to do so if one (or more) of their perceived barriers were removed. Eighteen percent (18%) or approximately 27,000 households, of the non yard waste composter market indicated that they had thought about composting and would be likely to consider composting if one or more of their perceived barriers were removed. This group is identified as the "Likely Market." Twenty one percent (21%) fell into the "Questionable Market" category, those respondents who said they had not thought about yard waste composting (no further questions were

asked to probe reasons for or against the activity). The "Unlikely Market" comprised 8%, or approximately 12,000 households who reported that they had heard about composting but were unwilling to consider composting even if one (or more) of their perceived barriers were removed.

Results from the 1995 Organics Survey indicate that 46% of single family households with lawns ever grasscycle (that is, have ever left grass clippings on the lawn to feed the soil). Included within this group are the 15% who stated that they left grass clippings on their lawn "most of the time." Fifty four percent (54%) or 70,000 households currently do not participate in grasscycling activities. The survey did not query respondents further on their likelihood of participating in grasscycling activities, consequently projections on market potential are not possible.

### **Food Waste**

Existing market conditions for food waste composting tell a different story: most food waste goes in the garbage. For food waste, all households are considered eligible because all households generate food scraps. Thus, according to survey results, "Existing Market Conditions" for food waste management comprise 25%, or 39,000 single family households who currently compost food waste. These households divert approximately 3,300 tons of food waste per year. Forty-three percent (43%) of single family households use the grinder and divert an additional 3,800 tons of food waste per year. The remaining 20,000 tons are disposed of as garbage.

According to this survey, the market for food waste composting is not saturated. As indicated in the "Market Potential" section of the table below, non food waste composters account for 75% of the total single family households in Seattle. Of these, 37% indicated that they had heard of food waste composting and would be likely to participate in the activity if one (or more) of their barriers were removed. This group of "Likely Market" households is substantial, and as the table illustrates if this market alone were targeted, the SWU could potentially divert approximately 7,700 tons of food waste per year. In addition, the "Questionable Market," those respondents who reported that they had not heard of food waste composting, comprise 11% of the potential market and could possibly divert another 2,300 tons of food waste per year. Another 27% fall into the "Unlikely Market," those who have heard of food waste composting but would be unwilling to consider composting even if one (or more) of their perceived barriers were removed.

The following table presents a summary of Seattle residents' current behavior for managing yard and food waste, and a summary of the market potential.

Seattle Residents' Organic Waste Management: YARD WASTE

	Existing Market Conditions			Market Potential					
	Eligible HHs in Seattle Market <sup>1</sup>	Participating HH in Seattle Market <sup>2</sup>	Waste/Year (Tons)	Eligible HHs Not Participating	Likely Market (HHs)	Potential Diversion (Tons)	Questionable Market (HHs)	Potential Diversion (Tons)	Unlikely Market (HHs)
Composting	147,000	60,000 (41%)	8,000 T <sup>3</sup>	87,000 (59%)	26,000 <sup>4</sup>	3,400 T <sup>5</sup>	31,000 <sup>6</sup>	4,000 T <sup>7</sup>	12,000 <sup>8</sup>
Grasscycling	130,000	20,000 <sup>9</sup> (15%)	1,400 T <sup>10</sup>	111,000 <sup>11</sup> (85%)	<sup>12</sup>				
Curbside	147,000	87,000 (59%)	43,000 T <sup>13</sup>	60,000 (41%)	<sup>14</sup>				
Clean Green Drop Off			12,100 T <sup>15</sup>						
Disposed of as Garbage			3,000 T <sup>16</sup>						

<sup>1</sup> Source: 1990 Census which reported that 62% of all Seattle household are in buildings with four or fewer units.

<sup>2</sup> Composting and grasscycling figures based on survey results; curbside figures based on Oct. 1995 SWU Yard Waste Report.

<sup>3</sup> Source: SWU analysis that assumes people who compost with a city-provided yard waste bin, compost 370 lbs. yard waste per year; those without a city bin compost 200 lbs. yard waste per year. Survey results indicate 38% use city-provided bin; 62% compost in some other type of system.

<sup>4</sup> Defined by the survey as those who have thought about yard waste composting and would be willing to consider composting if one (or more) perceived barriers were removed.

<sup>5</sup> Assumed that the "Likely Market" would use a city-provided yard waste bin and divert 260 lbs. yard waste per bin distributed each year.

<sup>6</sup> Defined by the survey as those who have not thought about yard waste composting.

<sup>7</sup> Assumed that the "Questionable Market" would use a city-provided yard waste bin and divert 260 lbs. yard waste per bin distributed each year.

<sup>8</sup> Defined by the survey as those who have thought about yard waste composting but would not be willing to consider composting even if one (or more) of their perceived barriers were removed.

<sup>9</sup> Defined by the survey as those who responded that they leave grass clippings on the lawn "most of the time."

<sup>10</sup> Source: SWU Internal Analysis--1,500 square foot lawn generates 345-645 lbs. of grass clippings per year (depending on watering practices). For this analysis, generation is assumed at the mid-point, or 495 lbs./year. SWU also assumes that residents who grasscycle "most of the time" divert 67% of their waste (332 lbs. per year).

<sup>11</sup> Defined by the survey as those who did not report leaving grass clippings on the lawn "most of the time."

<sup>12</sup> No questions were asked of respondents that can be used to support predictions regarding grasscycling or curbside pick-up service.

<sup>13</sup> Source: October 1995 SWU Yard Waste Report: 87,246 accounts, of these 82.2 lbs. per month per account.

<sup>14</sup> No questions were asked of respondents that can be used to support predictions regarding grasscycling or curbside pick-up service.

<sup>15</sup> Source: October 1995 SWU Yard Waste Report: 12,109 tons generated Jan-Dec '94.

<sup>16</sup> Source: 1994/95 Waste Composition Analysis; 1994 tons disposed by single family households.

Seattle Residents' Organic Waste Management: FOOD WASTE

	Existing Market Conditions			Market Potential					
	Eligible HHs in Seattle Market <sup>17</sup>	Participating HHs in Seattle Market	Waste/Year (Tons)	Eligible HHs Not Participating	Likely Market (HHs)	Potential Diversion (Tons)	Questionable Market (HHs)	Potential Diversion (Tons)	Unlikely Market (HHs)
Composting	155,000	39,000 (25%)	3,300 T <sup>18</sup>	116,000 (75%)	57,000 <sup>19</sup>	7,700 T <sup>20</sup>	17,000 <sup>21</sup>	2,300 T <sup>22</sup>	42,000 <sup>23</sup>
Grinder	155,000	67,000 <sup>24</sup> 43%	3,900 T <sup>25</sup>						
Disposed of as Garbage			20,000 T <sup>26</sup>						

<sup>17</sup> For food waste, all households are considered eligible because all households have food scraps.

<sup>18</sup> Source: SWU analysis which estimates that the average household generates about 370 lbs. food waste per year and that 81% (300 lbs.) is compostable. SWU also estimates a 90% efficiency for Green Cone users and a 50% efficiency for non Green Cone composters. SWU records indicated that approximately 6,600 Green Cones have been distributed.

<sup>19</sup> Defined by the survey as those who are aware that food waste can be composted and would be willing to consider composting if one (or more) of their perceived barriers were removed.

<sup>20</sup> Assumed that the "Likely Market" would use a Green Cone and divert 270 lbs. per year.

<sup>21</sup> Defined by the survey as those who are not aware that food waste can be composted.

<sup>22</sup> Assumed that the "Questionable Market" would use a Green Cone and divert 270 lbs. per year.

<sup>23</sup> Defined by the survey as those who are aware that food waste can be composted but would not be willing to consider composting even if one (or more) of their perceived barriers were removed.

<sup>24</sup> Based on the survey results that 43% of households have a food grinder.

<sup>25</sup> Source: 1995 Metro study: Food Waste Discharge to the Wastewater Collection System, which reports that about 31.5% of food waste disposed through grinder.

<sup>26</sup> Source: 1994/95 Waste Composition Analysis; 1994 tons disposed by single family households.



## **Conclusions**

The following section highlights opportunities for diverting home organic wastes. Promoting these activities is consistent with the City's overall objectives for pursuing waste management strategies, namely that the City balance several goals to achieve its objectives. These goals include:

- Maximizing diversion from the landfill;
- Implementing cost-effective programs;
- Focusing on customer convenience; and
- Maintaining public health.

### **Grasscycling offers greatest potential for waste reduction.**

Of those surveyed, 54% indicated that they did not engage in grasscycling activities. Increasing grasscycling activities can help reduce yard wastes collected at the curb. Although this survey neither sought to investigate the primary reasons for not grasscycling nor the primary motivations behind grasscycling behavior, the results suggest that lack of awareness is the primary obstacle to engaging in this activity. Increasing awareness to motivate residents to change their behavior has the potential to divert substantial tonnage away from the curb.

### **Food waste offers greatest potential for waste diversion.**

The survey indicated that approximately 116,000 (75%) of Seattle's single family households do not participate in food waste composting. In addition, a substantial amount of food waste (approximately 20,000 tons) is currently disposed in waste stream. Within this potential market, survey results indicate that about 48% of respondents aligned themselves either within the "Likely Market" or "Questionable Market" categories. By targeting these two groups, the City has the potential to divert an additional 10,000 tons of food waste per year from the single family residential waste stream. Presumably, the City can work to further identify specific barriers and design an education program that increases both awareness of food waste composting and overcomes perceived barriers about the activity.

### **Yard waste continues to offer waste diversion opportunities.**

Our analysis indicates that 59% of households with yards do not participate in yard waste composting. Of these, 18% are defined as people who had thought about yard waste composting and would be willing to consider composting if one (or more) of their perceived barriers were removed. Twenty-one percent (21%) indicated that they had not thought about yard waste composting. Providing education to remove perceived barriers and promoting yard waste composting has the potential to divert 7,500 tons yard waste per year. However, curbside

yard waste collection services may impact that estimate. For although the survey queried non-composters about whether they "ever" use yard waste curbside collection services, it did not further probe the frequency of use of these services, the types of materials disposed and whether curbside collection best met their yard waste management needs.

## II. Research Design

### *Objectives*

The Seattle Solid Waste Utility has commissioned this quantitative research to determine the level at which Seattle city residents are currently participating in organic waste management activities--that is, yard waste composting, food waste composting, and grasscycling. In addition, this research seeks to examine attitudes and perceptions toward waste management activities for two reasons: (1) to explore the potential for expanding the organic waste management behavior of those currently participating; and (2) to explore the potential for increasing organic waste management activities by converting those who do not currently participate.

The specific research objectives addressed are as follows:

- To examine the attitudes and behaviors of Seattleites who are currently involved in organic waste management activities, including:
  - The types of activities in which they currently engage;
  - Awareness and usage of city-sponsored programs;
  - Primary reasons for composting; and,
  - Interest in increased participation of organic waste management activities.
  
- To examine the attitudes and behaviors of Seattleites who are not currently involved in organic waste management activities, including:
  - Awareness of composting and its benefits;
  - Awareness of and interest in city-sponsored programs;
  - Primary reasons for not composting or grasscycling;
  - Likelihood of composting in the future.

## ***Methodology***

**Target Population:** To qualify for inclusion in this study all respondents were screened to be 18 years of age or older and living within the city limits of Seattle. Only those living in buildings with four or fewer units were considered eligible; thus, the universe was defined as being 62% of all Seattle households.<sup>27</sup>

Quotas for ethnic groups were established and tracked throughout the interviewing to ensure that the sample accurately represented the target population.

**Technique:** 610 telephone interviews were conducted by Northwest Research Group of Bellevue, Washington. All telephone interviews were conducted by trained, professional survey-takers under the guidance of experienced supervisors. Interviewers were thoroughly briefed on the goals and objectives of the study and they were coached and monitored throughout data collection.

**Field Dates** Telephone interviews were conducted between January 10 and January 20, 1995. Telephone calls were placed from 4:00 p.m. to 9:00 p.m. on weekdays, and from 12:00 p.m. to 8:00 p.m. on weekends.

**Questionnaire:** The questionnaire was designed by Pacific Rim Resources in conjunction with Seattle Solid Waste Utility. The instrument was pilot tested on January 4, 1995 to ensure that the questions included would provide valid and reliable results. The survey instrument averaged 11 minutes. (See Appendix for a copy of the survey instrument.)

**Sample:** The sample was randomly selected using all working residential exchanges within the City of Seattle, recent to within the previous six months. The sample was selected in proportion to the population within each Seattle zip code area. (See Appendix B for the disposition of the sample.)

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<sup>27</sup> According to the 1990 Census, 62% of all Seattle households are in buildings with four or fewer units.



## Sample Profile

In interpreting the findings of this survey it is important to keep in mind the characteristics of the people actually interviewed. The following table presents a profile of the 610 Seattleites living in buildings with four or fewer units who were included in the survey. Here, as well as throughout this report, percentages may not sum to 100 because of rounding error or because of the acceptance of multiple responses.

		<b>Sample of 610</b>
<b>Gender:</b>	Male	39%
	Female	61%
<b>Age:</b>	18 to 24 years	8%
	25 to 34 years	24%
	35 to 44 years	23%
	45 to 54 years	16%
	55 to 64 years	9%
	65 years or older	17%
<b>Ethnicity:</b>	Caucasian	71%
	Black/African-American	6%
	Asian	10%
	Hispanic/Latino	3%
	Native American	3%
	Other	2%
	Don't know/Refused	6%
	<b>Dwelling Type:</b>	Single-unit
Multi-unit		16%
<b>Ownership:</b>	Own	71%
	Rent	28%
<b>Number in Household:</b>	One	17%
	Two	36%
	Three	21%
	Four	15%
	Five or more	10%
	<b>Education:</b>	High school graduate or less
Some college/AA degree		26%
4-Year college degree		28%

	Graduate work/degree	23%
<b>Income:</b>	Under \$40,000	39%
	\$40,000 or over	52%
	Don't know/Refused	9%

## **Household Characteristics**

Yard waste composting necessitates having a yard—either a lawn, a garden, or both. Respondents in this research were asked to provide information about their households and yards to determine the extent to which they had the need to compost yard waste. The following table provides this information.

<b>Base</b>		<b>Total Sample (610)</b>
<b>Yards:</b>	Yes	95%
	No	5%
<b>Lawns<sup>28</sup>:</b>	Yes	85%
	No	15%
<b>Ever Care for Yard:</b>	Yes	79%
	No	21%
<b>Have a Garden<sup>29</sup>:</b>	Yes	57%
	No	43%
<b>Garden Type:</b>	Vegetable Only	5%
	Flower Only	21%
	Both Vegetable & Flower	30%
	Other	1%
	Neither	43%

The majority of one to four unit households (95%) have a yard and thus the opportunity to compost yard waste. The majority also have lawns (85%) and thus the ability to grasscycle.

For the purpose of this study, it is assumed that *all* households have the opportunity to compost food waste, as all households generate food scraps at home.

<sup>28</sup> This question was asked of 517 respondents--the question was added after the first evening of interviewing.

<sup>29</sup> This question was asked only of those with a yard assuming that a yard was necessary in order to have a garden.

## **Survey Limitations**

A sample size of 610 is sufficient to provide 95% confidence that the resulting data will be within  $\pm 4.0\%$  of what it would be if all Seattleites living in one to four unit buildings were interviewed. That is, in theory, had all people in the target population been interviewed, there is a 95% chance the results would be within  $\pm 4.0\%$  of the results obtained from this sample. This error range is calculated at the 50%-50% response rate to any two-part question (e.g., 50% "yes" and 50% "no") and is therefore the maximum error range that can be expected from a sample of this size.

This report addresses results from several specific subgroups. The following table presents some of these subgroups, the number of interviews conducted, and the associated error range.

<b>Subgroup</b>	<b>Number of Interviews</b>	<b>Associated Error Range</b>
<b>Total sample</b>	610	$\pm 4.0\%$
<b>Yard Waste Composters</b>	248	$\pm 6.3\%$
<b>Food Waste Composters</b>	150	$\pm 8.2\%$
<b>Yard Waste Only Composters</b>	114	$\pm 9.4\%$
<b>Food Waste Only Composters<sup>30</sup></b>	16	$\pm 25.0\%$
<b>Compost Neither Yard nor Food Waste</b>	346	$\pm 5.4\%$

This sample would exclude any household in which there is no telephone. This sample would also exclude any household with a telephone exchange that was issued within six months prior to sample selection and data collection.

The data presented in this report provides a very reliable and valid picture of Seattleites' attitudes and behaviors with regard to organic waste management activities. This data is very useful when assessing the size of the current market and the future potential for program enhancement and expansion. However, it must be kept in mind that this survey cannot predict the future. While great care and the most advanced methods available were employed in the design, execution and analysis of this study, these results should be interpreted only as representing the view of these respondents at the time they were interviewed.

<sup>30</sup> This sample size is too small from which to draw statistically significant conclusions.

### III. Current Market: Detailed Findings

#### *Characteristics of the Market*

##### **Four of Ten Seattleites are Currently Composting**

Among the 610 Seattle residents interviewed, four out of ten (43%) are currently composting either yard and/or food waste, and 57% are doing neither.

- 114 (19%) currently compost yard waste but not food waste (referred to as "yard waste only composters" in this report);
- 16 (3%) currently compost food waste but not yard waste (referred to as "food waste only composters" in this report);
- 134 (22%) currently compost both yard and food waste (referred to as "yard and food waste composters" in this report); and,
- 346 (57%) currently do not compost either yard or food waste (referred to as "neither" yard nor food waste composters in this report).

Together,

- 248 (41%) currently compost yard waste (and may or may not compost food waste); and,
- 150 (25%) currently compost food waste (and may or may not compost yard waste).

The following table provides information about the demographic characteristics of those who currently compost yard waste, those who currently compost food waste, and those who compost neither yard nor food waste. For comparison purposes, the percentages for the total sample are repeated here.

While not statistically significant, the following demographic trends emerge:

- Composters live in single-unit dwellings (90% of yard waste composters, 86% of food waste composters, and only 80% of non-composters live in single units);
- Yard waste composters own their home (75% of yard waste composters, and only 67% of food waste composters and 68% of non-composters);
- Yard and food waste composters live in households with more people (on average, there are 2.86 members in yard waste



households, 2.92 members in food waste households, and only 2.57 members in non-composting households).

	<b>Base<sup>31</sup> (Percent of Sample)</b>	<b>Total Sample (610) (100%)</b>	<b>Yard Waste (248) (41%)</b>	<b>Food Waste (150) (25%)</b>	<b>Non- Composters (346) (57%)</b>
<b>Gender:</b>	Male	39%	40%	43%	37%
	Female	61%	60%	57%	63%
<b>Age:</b>	18 to 24 years	8%	4%	5%	10%
	25 to 34 years	24%	22%	24%	24%
	35 to 44 years	23%	29%	30%	19%
	45 to 54 years	16%	15%	17%	17%
	55 to 64 years	9%	9%	8%	9%
	65 years or older	17%	17%	13%	18%
<b>Ethnicity:</b>	Caucasian	71%	74%	72%	70%
	Black/African- American	6%	3%	5%	8%
	Asian	10%	8%	9%	11%
	Hispanic/Latino	3%	2%	1%	3%
	Native American	3%	1%	1%	4%
	Other	2%	3%	3%	1%
	Don't know/Refused	6%	9%	8%	4%
<b>Dwelling:</b>	Single-unit	84%	90%	86%	80%
	Multi-unit	16%	10%	14%	20%
<b>Ownership:</b>	Own	71%	75%	67%	68%
	Rent	28%	22%	30%	32%
<b># In HH:</b>	One	17%	15%	13%	18%
	Two	36%	34%	33%	38%
	Three	21%	20%	25%	21%
	Four	15%	17%	17%	13%
	Five or more	10%	12%	12%	8%
<b>Education:</b>	High school or less	19%	12%	11%	23%
	Some college/AA degree	26%	28%	30%	25%
	4-Year college degree	28%	30%	33%	27%
	Graduate work/degree	23%	25%	22%	21%
<b>Income:</b>	Under \$40,000	39%	36%	41%	40%
	\$40,000 or over	52%	54%	51%	51%
	Don't know/Refused	9%	10%	7%	9%

<sup>31</sup> 134 respondents were composting both yard and food waste; thus, these 134 respondents are included in both categories.

**The Majority are Aware of the Term "Composting"**

Ninety-six percent (96%) of the 610 respondents interviewed report they have heard the term "compost." Caucasians are more likely than those from non-Caucasian ethnic backgrounds to report having heard this term (100% versus 83% respectively).

The following table presents information about how those who have heard the term "compost" would define or describe its meaning. Information is presented separately for those who currently compost yard waste only, those who compost food waste only, those who compost both yard and food waste, and those who compost neither.

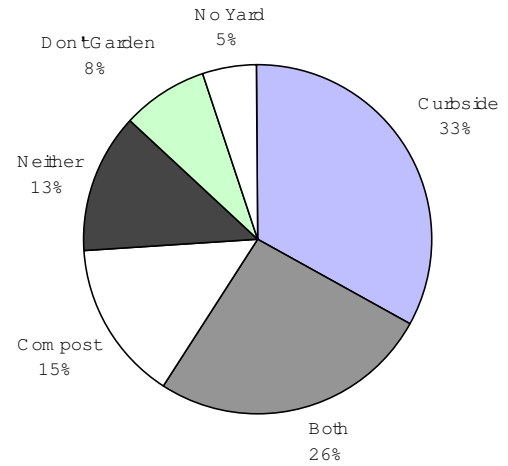
Description of Composting:

	<b>Yard Waste Only</b>	<b>Food Waste Only</b>	<b>Both Yard &amp; Food Waste</b>	<b>Non- Composter s</b>
<b>Base:</b>	<b>(114)</b>	<b>(16)</b>	<b>(134)</b>	<b>(346)</b>
Grass clippings, Plant, Lawn, Garden waste	46%	8%	20%	37%
Decompose/ Biodegradable Plant/ Vegetable/ Organic matter	38%	42%	40%	29%
Bin/ Pile/ Container	23%	33%	23%	11%
Fertilizer/ Soil enricher	16%	17%	20%	22%
Lawn and Food waste	13%	8%	17%	17%
Recycle/ Protect environment	13%	25%	9%	16%
	9%			10%

In general, Seattleites equate composting with yard waste. Composters seem more knowledgeable than non-composters about the types of waste that can be composted and about the primary benefits of composting.

## Current Yard Waste Behavior

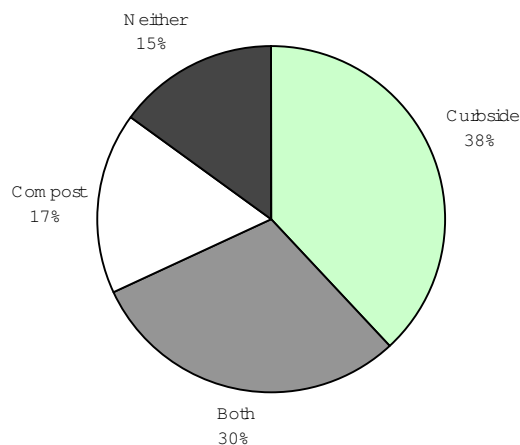
The pie chart to the right summarizes the yard waste behavior of the total sample of 610 respondents. As depicted, 5% of the households do not have a yard and 8% of the households do not care for their own yard. Thirty-three percent (33%) of Seattleites currently use curbside collection services for their yard waste (and do not compost), and 26% both compost and use curbside services.



## The Eligible Yard Waste Composting Market

The eligible market for yard waste composting is defined as Seattle households with yards in one to four unit buildings in which a household member is responsible for yard care. The following chart presents a summary of the eligible yard waste composting market.

Just considering those households with yards in which one or more household members are responsible for caring for the yard, 38% reported using curbside services but did not report composting their yard waste. Thirty percent (30%) reported that they compost their yard waste and use curbside services and 17% reported that they compost their yard waste but do not use curbside services. Fifteen percent (15%) neither compost nor use curbside services.



Among the 248 residents who are currently composting yard waste:

- 134 (54%) are currently composting both yard and food waste; and,
- 114 (46%) are currently composting yard waste only.

## Curbside Service Usage

Fifty-nine percent (59%) of *all* Seattle households in one to four unit buildings are currently using curbside services. The eligible market for curbside services is smaller than all households because some households do not have yards and some households do not care for their own yard:

- 14% of all Seattle households either do not have a yard or do not care for the yard they have.

The following table presents this information, comparing those who do and do not compost yard waste.

	Total	Yard Waste Composters	Non-YW Composters
<b>Total Households</b>	(610)	(248)	(362)
<b>Base = Care for Yards</b>	527	248	279

(eligible market, percent of total market)	(86%)	(100%)	(77%)
Use Curbside Services	68%	63%	72%
Do Not Use Curbside Services	32%	37%	29%

It is interesting to note that a significant percentage of those who do currently compost yard waste are still using curbside yard waste services. Because these respondents were asked if they "ever" use yard waste curbside services, it may be true that current yard waste composters are using curbside services for materials that cannot be composted or are using curbside services less frequently than are those who do not compost yard waste. No data is available to examine either the materials disposed of through curbside services nor the frequency with which curbside services are used; however, this may be worthy of exploration in the future.

### Compost Used For Fertilizer

Eight out of ten yard waste composters (82% of the 248 households with yards that are currently composting yard waste) use their compost. For the most part, they use their compost for fertilizer and because it is good for yards and gardens. The following table provides information about the primary reasons for using composted materials. Percentages are based on the 248 households currently composting yard waste.

<b>Base--All Yard Waste Composters:</b>	<b>(248)</b>
To fertilize/It is good for the soil/To use in the garden or lawn	63%
Because it is good to recycle/Environmental concerns	27%
Reduce trash/ Landfill concerns	17%
Because it saves me money	14%

### Use of City-Provided Bin

In total, 71% of all yard waste composters are aware that the city provides a yard waste composting bin. Among the total of all yard waste composters:

- 38% have a city-provided compost bin;
- 28% use an open pile or pit; and,
- 22% use a home-made bin.

## Co-Composting Behavior

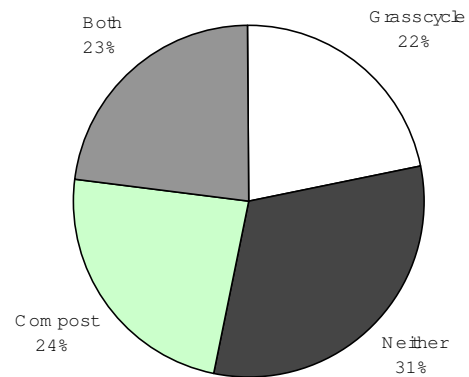
Sixty-three percent (63%) of the 134 respondents who currently compost both yard and food waste are commingling the two materials.

## Lawn Care Activities and Behaviors

### Grasscycling

494 (81%) of the 610 respondents interviewed live in households with lawns and take *personal* responsibility for lawn care. These 494 respondents were asked to describe their yard care activities and behaviors.

The chart to the right presents the percent of the eligible grasscycling market that is grasscycling but not composting; the percent that are composting but not grasscycling; the percent that are doing both; and the percent that are doing neither. As depicted, a plurality are doing neither (31% neither grasscycle nor compost).



When asked if they were aware that leaving small amounts of grass clippings on the lawn can be good for the lawn because it acts as a compost, 75% of the 494 residents stated they knew this.

Respondents were asked to report what they did with their grass clippings most of the time, and those who did not report grasscycling were asked whether they ever left grass clippings on the lawn.<sup>32</sup>

- Just under one-half of these 494 respondents (46%) ever grasscycle; and,
- About one third of these respondents, or 15% of households, grasscycle *most of the time*.

The following table presents information about the grasscycling behaviors of those who take personal responsibility for the care of their lawn. Information is presented for those who do and do not currently compost their yard waste. Awareness and grasscycling

<sup>32</sup> The question "Do you ever leave grass clippings on the lawn?" did not query people very rigorously regarding their grasscycling practices, thus the survey may overestimate the number of people who grasscycle.

behavior percentages are based on the percentage of the eligible market – those who have lawns and care for them.

<b>Total Households</b>	<b>Total (610)</b>	<b>Yard Waste Composters (248)</b>	<b>Non- YW Composters (362)</b>
<b>Base = Care for Lawns (Eligible market, percent of total market)</b>	<b>494 (81%)</b>	<b>232 (94%)</b>	<b>262 (72%)</b>
Aware of the benefits	75%	79%	72%
Grasscycling behavior:			
Most of the time	15%	21%	9%
Ever	<u>31%</u>	<u>29%</u>	<u>32%</u>
<b>Total</b>	<b>46%</b>	<b>50%</b>	<b>41%</b>

Those who compost their yard waste tend to be more likely than those who do not compost their yard waste to regularly grasscycle.

This research did not seek to investigate the primary reasons for not grasscycling. Nor did it seek to investigate the motivations behind grasscycling behaviors. However, it does not appear as if awareness is the primary obstacle to engaging in this activity.

### **Lawn Watering and Fertilizing Behaviors**

Of those who have lawns and care for them, more people water their lawns than those who fertilize them:

- 73% of these households water their lawns versus 49% who fertilize them.

The following table presents the frequency with which these households water and fertilize their lawns.



<b>Total Households</b>	<b>Total (610)</b>	<b>Yard Waste Composters (248)</b>	<b>Non- YW Composters (362)</b>
<b>Base = Care for Lawns (eligible market, percent of total market)</b>	<b>494 (81%)</b>	<b>232 (94%)</b>	<b>262 (72%)</b>
<b>Watering Frequency:</b>			
Every day or two	16%	11%	17%
1-2 times/week	45%	46%	44%
Less often	12%	16%	9%
Never	23%	20%	26%
<b>Total Households</b>	<b>(610)</b>	<b>(248)</b>	<b>(362)</b>
4+ times/years	4%	5%	4%
3 times/year	5%	5%	5%
2 times/year	20%	20%	19%
1 time/year	20%	25%	16%
Never	47%	41%	52%

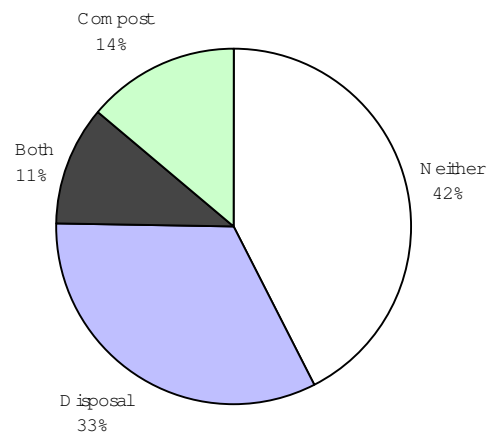
The majority of residents who have lawns water them at least once a week (61%). A plurality of residents do not fertilize their lawn at all (47%); however, if they do so, they tend to do it either one or two times a year (40%).

## **Current Food Waste Behaviors**

### **The Eligible Food Waste Composting Market**

The eligible market for managing food waste is considered to be 100% of the sample since all households generate food scraps. The following chart presents a summary of the total market of 610 residents.

Forty-three percent (43%) of all residents neither use a disposal nor compost their food waste, and 33% use a disposal but do not compost their food waste. Fourteen percent (14%) compost only (they do not use a disposal) and 11% both use a disposal and compost their food waste.



In total, 25% of the total sample of 610 respondents are composting food waste. Among these 150 respondents:

- 134 (89%) are currently composting both yard and food waste; and,
- 16 (11%) are currently composting only food waste.

**Disposal Usage**

Among the 265 residents who have a garbage disposal:

- 25% currently compost their food waste; and,
- 75% do not compost their food waste.

Likewise, among the 345 residents who do not have a garbage disposal:

- 25% currently compost their food waste; and,
- 75% do not compost their food waste.

**Most Food Waste Composters Use Their Compost**

Eight out of ten food waste composters (81% of 150) report they use their "compost." A majority of these 150 respondents (89%) are composting both yard and food waste and were not directly asked whether they use their food waste specifically. However it is reasonable to assume that since eight in ten are using their compost (in general), they are using their food waste compost.

**Awareness and Usage of City-Provided Food Waste Bins**

Only 13% of food waste composters currently use a city-provided bin<sup>33</sup>. The following table illustrates this information.

<b>Base: Food Waste Composters</b>	<b>Total (150)</b>	<b>Food Waste Only (16)</b>	<b>Yard &amp; Food Waste (134)</b>
Aware of and using a city-provided bin	13%	31%	10%
Aware of but not using a city-provided bin	18%	31%	16%
Not aware/Don't know	69%	38%	73%

While a sample size of 16 is too small from which to draw statistically valid conclusions, the data on awareness and usage of city-provided food waste bins seems to indicate a difference between those who are only composting food waste and those who are composting both food and yard waste. Food waste only composters may be more

<sup>33</sup> Only those who directly reported using a Green Cone or said they used a city-provided food waste bin were included in these percentages. Those respondents who reported using a worm bin were excluded because no information was available regarding city-provided worm bins. This is a conservative approach to take and thus the percentages reported here may under-represent the total market.

likely to use city bin programs because they are aware of the program and find it a convenient alternative.

The primary reason for not using a city-provided bin is lack of awareness (69% are not aware or don't know if they are aware). Among those who are aware that the city provides a bin, the primary reason for not using it is that they already have a different one.

### **Relative Use of Garbage Disposals**

Forty-three percent (43%) of the total sample of 610 residents have a garbage disposal, and this percentage holds true both for those who currently compost food waste and those who do not compost food waste.

The following table depicts the frequency with which garbage disposals are used. Information is presented for those who currently compost food waste as well as those who currently do not compost food waste.

<b>Base:</b>	<b>Total (610)</b>	<b>Food Waste Composters (150)</b>	<b>Non-Food Waste Composters (460)</b>
Have a garbage disposal	265 (43%)	65 (43%)	200 (43%)
<b>Frequency of Use:</b>			
<b>Base:</b>	<b>265</b>	<b>65</b>	<b>200</b>
Several times a day	31%	20%	35%
Once a day	28%	17%	31%
A few times a week	22%	35%	18%
Once a week	10%	9%	11%
Less often	8%	18%	5%

Food waste composters with a garbage disposal are using their garbage disposal less frequently than non-food waste composters with a garbage disposal:

- 37% of food waste composters use their garbage disposal at least once a day compared to 66% of non-food waste composters.

### **Awareness and Usage of City Programs**

#### **Compost Hotline**

Awareness and usage of the City's Compost Hotline is moderate:

- 18% of the 610 residents have heard of this program; and,
- 5% have ever called the hotline.

Thirty percent (30%) of all households are aware of the compost hotline. Considering just households that compost, 38% of them are aware of the hotline and one-quarter of those have called. Those who are not currently composting either yard or food waste are slightly less likely than those who are composting to be aware of and to have called Seattle's compost hotline.

	Total	Composters			Non-Composters
		Y/W Only	F/W Only	Both YW & FW	
<b>Base:</b>	<b>(610)</b>	<b>(114)</b>	<b>(16)</b>	<b>(134)</b>	<b>(346)</b>
<i>Awareness:</i>					
Yes	30%	44%	25%	35%	23%
No	70%	56%	75%	65%	75%
<i>Ever called:</i> (based on those who are aware)					
Yes	18%	26%	25%	26%	9%
No	82%	74%	75%	72%	91%

### Compost Demonstration Site

Awareness and usage of the City's compost demonstration sites is moderate:

- 22% of the 610 residents have heard of this program; and,
- 8% have visited a compost demonstration site.

Among those who are aware but have never visited a demonstration site, roughly one-half (48%) are interested in learning about them. The vehicle through which they are most interested in learning is direct mail (77%).

Those who compost their yard waste are more likely than others to have heard of and visited a compost demonstration site.

<b>Base:</b>	<b>Total (610)</b>	<b>Composters</b>			<b>Non- Composters (346)</b>
		<b>YW Only (114)</b>	<b>FW Only (16)</b>	<b>Both YW &amp; FW (134)</b>	
<i>Awareness:</i>					
Yes	22%	26%	19%	37%	15%
No	77%	73%	81%	63%	84%
<i>Ever visited:</i> (based on those who are aware)					
Yes	35%	40%	0%	42%	27%
No	65%	60%	100%	58%	73%
<i>Interest in learning more:</i> (based on aware, but never been)					
Yes	48%	48%	75%	56%	44%
No	49%	49%	19%	42%	53%
<i>Medium for learning more:</i> (based on aware, but never been)					
Direct mail	77%	78%	58%	79%	77%
Bill inserts	46%	61%	50%	51%	40%
Newspaper	42%	47%	75%	37%	40%
Information	40%	41%	42%	40%	39%
telephone line					
Flyer	35%	35%	58%	22%	37%

## IV. Potential Market: Detailed Findings

### *Potential yard waste market*

Fifty-six percent (56%) of Seattle households with yards are not currently composting yard waste.

- About seven in ten of these households (71%) are using yard waste curbside services.

The top five reasons for not composting yard waste are presented below.

<b>Base = Those that care for yards and not composting yard waste</b>	<b>Percent (279)</b>
Never thought about it	44%
<b>Have thought about it, but:</b>	<b>56%</b>
Don't have the space to place a yard waste bin	12%
Too much of a hassle to do it	8%
Don't have the time to do it	6%
Haven't gotten around to it	4%
Don't know how	4%

The 56% who have thought about composting but have some real or perceived barrier to engaging in this behavior were asked if they might consider composting their yard waste if that barrier were removed.

- 69%<sup>34</sup> of these 155 respondents might consider composting yard waste if the barrier(s) were removed; and
- 31% of these 155 respondents would not consider composting yard waste if the barrier(s) were removed.

The greatest potential for increasing the extent to which Seattleites compost yard waste is likely to be among those who would consider composting yard waste if their perceived barrier(s) were removed. Removing these barriers may best be accomplished through an educational program designed to communicate two ideas: 1) yard waste composting is environmentally and ecologically conscientious; and, 2)

<sup>34</sup> This frequency includes those who said "yes" they might consider it as well as those who said they would "maybe" consider it or who said they "didn't know" if they would consider it.

yard waste composting requires very little space and takes no more effort than carrying your yard waste to the curb.

While perhaps not as easy to penetrate, another market with potential for conversion is among those who have never thought about yard waste composting. Again, an educational program designed to communicate the benefits of yard waste composting may create the needed awareness to motivate this group toward composting behavior.

A third market, and one that would be more difficult to penetrate, are those who report that they would not compost even if their perceived barrier was removed. These people seem to have decided against engaging in yard waste composting for one reason or another and programs designed to change their behavior would probably need to be substantial and costly.

### **Bin Distribution Attractive to Non-Composters of Yard Waste**

Those who care for their lawns and who were not composting yard waste (279) were asked to report whether they would consider purchasing a composting bin at various price points. These respondents were asked to report whether they would consider purchasing a bin from a central distribution point as well as whether they would consider purchasing a bin if it were delivered to them.<sup>35</sup>

- At least one-quarter would purchase a bin for \$25.00 whether they had to pick it up or it was delivered; and,
- Roughly two-thirds would "purchase" a bin for free whether they had to pick it up or it was delivered.

The following table presents the percentage of those not composting yard waste who would purchase a bin at each price point.

<b>Purchase Price:</b>	<b>Central Distribution</b>	<b>Delivered to Home</b>
\$25.00	25%	32%
\$10.00	49%	53%
Free	63%	66%

### **Potential food waste market**

Three out of every four Seattleites (75%) are not currently composting their food waste.

<sup>35</sup> Those who were composting food waste but not yard waste were asked if they would consider purchasing a "yard waste bin" and those who were composting neither were asked if they would consider purchasing a "compost bin."

- Forty-three percent (43%) of these non-composters have a garbage disposal, and 66% of those with a garbage disposal are using it at least once a day.

The top six reasons for not composting food waste are presented below.

<b>Base = Those not composting food waste</b>	<b>Percent (460)</b>
Didn't know you could compost food waste	15%
<b>Knew you could compost food waste, but:</b>	<b>85%</b>
Concern about attracting rodents	13%
Don't have the space to do it	11%
Too much of a hassle to do it	10%
Don't have enough food waste to worry about	9%
Don't have the time to do it	8%
Don't know how	3%

The 85% who know that food waste can be composted but have some real or perceived barrier to engaging in this behavior were asked if they might consider composting their food waste if that barrier were removed.

- 58%<sup>36</sup> of these 389 respondents might consider composting food waste if the barrier(s) were removed; and
- 42% of these 389 respondents would not consider composting food waste if the barrier(s) were removed.

The greatest potential for increasing the extent to which Seattleites compost food waste is likely to be among those who would consider composting food waste if their perceived barrier(s) were removed. Removing these barriers may best be accomplished through an educational program designed to communicate two ideas: 1) food waste composting containers are available from the City that are designed to discourage rodents from foraging; and, 2) food waste composting requires very little space and takes no more effort than separating your recyclables.

While perhaps not as easy to penetrate, another market with potential for conversion is among those who do not know that food waste can be composted. A promotional program designed to create awareness of food waste composting and its benefits might create the willingness and desire to compost food waste among those who are not currently aware.

<sup>36</sup> This frequency includes those who said "yes" they might consider it as well as those who said they would "maybe" consider it or who said they "didn't know" if they would consider it.



A third market, and again one that would be more difficult to penetrate, are those who report that they would not compost food waste even if their perceived barrier was removed.

**Food Waste Bin Distribution Attractive to Those Composting only Yard Waste**

The 114 respondents who were composting yard waste but not food waste were asked to report whether they would consider purchasing a food waste composting bin at various price points. These respondents were asked to report whether they would consider purchasing a food waste bin from a central distribution point as well as whether they would consider purchasing a food waste bin if it were delivered to them.

- Roughly one in four would purchase a bin for \$25.00 if it was delivered; and,
- Roughly one-half would "purchase" a bin for free whether it was picked up or delivered.

The following table presents the percentage of those composting yard waste but not food waste who would purchase a bin at each price point.

Purchase Price:	Central Distribution	Delivered to Home
\$25.00	21%	25%
\$10.00	44%	43%
Free	54%	58%

**Moderately High Interest in Curbside Collection of Food Waste**

The 460 respondents who were not currently composting food waste were asked to report whether they might be interested in separating their food waste and bringing it to the curb or alley. Overall:

- 26% of the 460 respondents are very interested in separating their food waste and bring it to the curb or alley.

Those who were less than very interested were asked to assume that they could save money by doing so and asked again to report their level of interest in such a program. Those who reported that they were either "very," "somewhat," or "not very" interested in this program were asked to report the dollar amount they would have to save per month in order to separate their food waste and bring it to the curb. They were then asked to report if, in doing so, they felt they could use a smaller, less expensive garbage can. The following table presents this information.

<b>Base:</b>	<b>Total (460)</b>	<b>Yard Waste Composters (114)</b>	<b>Non- Composters (346)</b>
<i>Interest in separating food waste and bringing it to the curb or alley:</i>			
Very Interested	26%	28%	25%
Somewhat Interested	33%	24%	36%
Not Very Interested	14%	21%	12%
Not At All Interested	25%	26%	24%
<hr/>			
<b>Base: Those less than "very" interested</b>	<b>Total (340)</b>	<b>Yard Waste Composters (82)</b>	<b>Non- Composters (258)</b>
<i>Interest in separating food waste and bringing it to the curb if you could save money:</i>			
Very Interested	15%	17%	14%
Somewhat Interested	45%	40%	47%
Not Very Interested	13%	17%	12%
Not At All Interested	24%	24%	24%
<hr/>			
<i>Amount you would have to save per month:</i>			
Base: Those "very," "somewhat" or "not very" interested	<b>(248)</b>	<b>(61)</b>	<b>(187)</b>
\$5.00 or less	13%	5%	16%
\$5.01 to \$10.00	23%	28%	21%
\$10.01 to \$15.00	7%	8%	7%
\$15.01 to \$20.00	9%	11%	9%
\$20.01 or more	9%	10%	9%
Don't know	38%	38%	38%
<b>Median Dollar Amount:</b>	<b>\$10.00</b>	<b>\$10.00</b>	<b>\$10.00</b>
<hr/>			
<i>Do you think you could use a smaller, less expensive garbage can?</i>			
<b>Base: Total</b>	<b>(460)</b>	<b>(114)</b>	<b>(346)</b>
Yes/Maybe	47%	42%	48%
No	51%	55%	49%

Significantly more non-composters of food waste become interested in curbside collection of food waste when they knew they could save money. Overall,

- 59% are at least somewhat interested in the program before learning about the money savings; and,
- 60% of those who are less than "very" interested (without mention of a monetary savings) become interested when told they could save money.

Roughly one-half of those who are either "very," "somewhat," or "not very" interested in the curbside collection of food waste would want to save a sum under \$10.00 per month on their garbage service and roughly one-half would want to save a sum of \$10.00 per month or more on their garbage service.

- Roughly one-half (47%) believe they might save money on garbage service by composting food waste; and,
- One-half (51%) do not believe they would save money on garbage service.

Those who were currently composting food waste were asked if they would continue to compost food waste if the City offered a program of collecting food waste at curbside. A curbside food waste collection program is not likely to divert a significant amount of food waste from composting:

- 71% said they would continue to compost food waste;
- 11% said they "maybe" would continue to compost food waste; and,
- 13% said they would not continue to compost food waste.

## V. Composting Behaviors and Diversity Issues

While the sample sizes are too small to draw significant conclusions, the data shows a trend indicating that Caucasians may be more likely than those from ethnic backgrounds other than Caucasian to compost.

<b>Base:</b>	<b>Caucasian (433)</b>	<b>African- American (37)</b>	<b>Asian- American (61)</b>	<b>Other (34)</b>
Yard waste only	19%	8%	18%	15%
Yard waste &/or food waste	44%	30%	39%	29%

African-Americans show a tendency to be more interested than others in learning more about food waste composting:

- 66% of African-Americans would like to learn more about food waste composting;
- 50% of Caucasians would like to learn more; and,
- 48% of Asian-Americans would like to learn more.

African-Americans show a tendency to be less likely to compost their grass clippings and more likely to rake, bag, and bring their grass clippings to the curb.

<b>Base<sup>37</sup>:</b>	<b>Caucasia n (433)</b>	<b>African- American (37)</b>	<b>Asian- American (61)</b>	<b>Other (34)</b>
Rake, bag, bring to curb	41%	58%	43%	42%
Compost them	37%	19%	38%	21%
Leave on lawn	14%	12%	23%	25%
Landscaper	10%	8%	8%	0%

<sup>37</sup> The base of respondents include those who reported an answer to the ethnicity question (565 respondents answered and 45 refused).

# Appendix: Survey Questionnaire