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**Composting Opportunities for the
City of Austin**

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Composting Opportunities for the City of Austin

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Composting Opportunities for the City of Austin

by

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Composting is commonly thought of as practices urban residents can do as part of living sustainably in cities. However, it is also an effective strategy cities can reduce landfilling and move towards Zero Waste. A number of North American cities have already developed residential curbside composting programs, which collect and processes yard and food waste to create compost. The city of Austin is in the process of passing an Integrated Solid Waste Management Plan as a means of working towards its Zero Waste goal. Included in this plan is the charge to begin creating a residential composting pilot.

To assist in these efforts, I researched the opportunities the City of Austin has for developing a residential composting program. Using a framework of sustainability, I focus on how the city can create a program that addresses issues of equity. Through interviews with representatives of cities with composting programs and local stakeholders, I identify a number of best practices and recommendations. These interviews also outline methods to address equity through increasing outreach,

participation, access to the final compost product as well as incorporating input into program design.

First, I begin with a brief history of waste management to examine the social drivers that prompt the creation of waste diversion programs. Then, I identify variables that influence individual behaviors with a review of the consumer behavior literature. Next, I provide an overview of what is currently happening in Austin and explain my organizing framework of sustainability. After outlining my methods, I present the findings of my interviews. Then, I discuss eight proposals the City of Austin could use to develop its residential composting program. Lastly, I conclude by identifying opportunities for future research.

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Introduction

Waste is major and growing problem in the United States. In 2009, the US produced 243 million tons of waste, or about 4.3 pounds per person per day. Of this, over half (54.3%) was landfilled, a third (33.8%) was recycled or composted, and the remainder (11.9%) was burned (Spiegelman & Sheehan, 2005). The rapid growth of municipal solid waste (200%) in the last 40 years is just shocking and unsustainable (Spiegelman & Sheehan, 2005, p.10).

Recognizing the need to conserve resources and develop strategies to reduce and divert waste from landfills, in 2009, the city of Austin adopted the Zero Waste Plan. The diversion goals of the plan were to reduce per capita solid waste by 20% by 2012 and to reach Zero Waste (or 90%) by 2040. One of the strategies to reaching these goals is composting, which can reduce the waste stream between 25-33% (COA-2)¹, as well as prevent the production of toxic leachate and methane, a potent greenhouse gas (Metro, 2007). In addition, compost, or decomposed organic material, is a valuable resource which reduces erosion and improves the water retention and fertility of local soils. These environmental benefits make composting an important component of sustainability initiatives.

However, in order for a composting program to be sustainable, it must be environmentally as well as economically and socially beneficial. The city of Austin's Solid Waste department is an "enterprise department," meaning that it charges rates in order to fund its programs; therefore a composting program must be economically efficient and able to operate as part of a fee-based program. This means that the programmatic administration needs to be effective and that the program budget is sufficient for operations, outreach, monitoring and education. Lastly, a sustainable composting program must address issues of equity. Equity in relation to a city composting program entails providing equal access to program participation, input into program design, and enjoyment of the final compost product. Equity issues include the affordability of product price, the outreach effort to educate and enroll residents, the distribution of the final product, the location of processing and/ transfer facilities, and the inclusion of community input into designing and managing composting programs.

¹ Transcripts are coded; the code COA-2 refers to the second city of Austin interview.

I use the Brundtland concept of sustainability to frame what a truly sustainable composting program includes and requires. However, the three pillars of sustainability (i.e., economy, the environment and equity) are often thought as more effective as a heuristic rather than practical and achievable on the ground (Campbell, 1996). I argue that addressing issues of equity actually furthers the possibility of the integrating the three aspects of sustainability. For a composting program, finding methods that allow all community members to participation has environmental benefits as Zero Waste goals can't be attained without 100% participation. Leaving equity out of composting programs will not result in a truly and meaningfully sustainable program. Feedback loops are an important component of this process as they allow different systems to respond to one another. By providing information across to systems, feedback loops provide an opportunity for integration. Sustainability is about synthesizing across the three "E's".

While the city of Austin has started taken steps towards reducing waste, it has not explored curbside residential composting program. As mentioned above, the city of Austin adopted a Zero Waste Plan in 2009. In 2010, the city generated two Technical Reports which created an inventory of the city's current physical and future infrastructure needs. In November of 2011, the city unveiled its Integrated Solid Waste Management Plan. While these reports and plans are important, they offer general guidelines and overview. The city has yet to start researching options to start a residential, curbside composting program. Therefore, the goal of this professional report is to explore opportunities for the city of Austin to start a curbside residential composting program that addressed issues of equity.

While a number of North American cities have successfully implemented composting/organics recycling programs, many of their best practices are buried in in-house reports or in staffs' institutional and experiential knowledge. This professional report provides an opportunity to unearth these city reports and interview staff to identify best practices for developing a composting/organics recycling program.

This professional report begins with a brief history of waste management and a literature review of consumer behavior literature and behavior models as a means of situating composting programs in history and previous research. Next, I describe my organizing framework and

provide a brief overview of the composting programs of the cities I interviewed. Then, I delineate the methods I developed for the interviews. This results section includes the findings of those interviews, organized based on eight analytic themes. The discussion section highlights the implications as well as recommendations derived from the results. Lastly, I conclude by identifying opportunities for future research.

Literature Review

In this chapter, I review: 1.) the history of municipal waste management, including diversion programs such as recycling, yard waste and composting; and 2.) the consumer behavior literature and behavior models in regards to participation in waste diversion programs, 3.) the existing composting programs of other cities, and 4.) the current waste landscape in Austin.

The examination of the history of municipal solid waste management will highlight general historical patterns such as how other societies dealt with waste and its consequences. The study of the past provides perspective of the evolution of waste management techniques and the city of Austin's current situation.

The consumer behavior literature and behavioral models identify variables and leverage points for improving participation in waste diversion programs while minimizing contamination. Both of these elements are key to successful composting programs. The profitability of waste management, like most business, is based on maximizing efficiencies and economies of scale. Maximizing participation among residents increases the efficiency of collection, a major cost for providing the service. Minimizing contamination improves product quality and reduces the costs of additional processing of the waste to produce a clean product.

A number of North American cities have developed composting programs that have accomplished high participation and low contamination rates. Examining their programs provides insights into techniques and components of a successful composting program. Lastly, evaluating the composting landscape in the city of Austin provides a base point and an understanding of the climate to move towards starting a composting program.

1. History of Municipal Waste Management Programs

Throughout history, humans have produced and managed their waste. Reviewing the history of municipal solid waste management programs sheds light onto the lessons other societies have learned about dealing with waste, including the consequences of different management techniques. The study of the past provides insights into how and why different programs were implemented. We can use these historical lessons when designing and implementing future waste management programs.

Municipal Waste Management

The history of waste management dates back to the earliest civilizations. Communities with low population densities and little exploitation of natural resources were able to discard waste wherever was most convenient, including the street, with little consequence (History of Waste Management). However as cities became more populated, this laissez-faire attitude towards waste disposal resulted in major public health issues, including outbreaks of Bubonic Plague, cholera and typhoid fever (Barbalace, 2003). As a means of addressing these problems, ancient societies such as the Greeks and Mayans created dumps outside of the cities to deposit their waste. In later centuries, public health crises lead cities to build infrastructure to provide clean water and sewage (Spiegelman & Sheehan, p.2). This early history demonstrates that public health crises prompted the creation of municipal waste infrastructure that separates waste from populations.

However, even in dumps, waste could create public health problems. As nations industrialized, city landfills began accepting hazardous materials. These landfills, however were not designed to accept this type of waste, creating public health concerns: polluted soil and groundwater. After tragedies like Love Canal, the US government enacted its federal legislation and initiatives to improve design created safeguards against future disasters (Barbalace, 2003). Improper management of waste affects both health of both the environment and human populations.

Municipal Recycling and Yard Waste Programs

Unlike municipal waste programs, recycling programs began in response to material and energy scarcity. During times of scarcity, such as war and famine, societies become more frugal with resources (“History of Recycling,” 2011). For example, widespread municipal recycling first appeared during the World Wars as a means of conserving materials for the war effort (History of Recycling, 2011). Recycling was tied to patriotism, government propaganda encouraging residents to conserve resources in order to win the war effort.

After the wars, however, recycling programs were largely discontinued as there was less demand for materials and landfilling were once again an inexpensive way to disposing of trash (History of Recycling, 2011). This decline in reuse and recycling was also linked to the rise of industrialization which made products less expensive to purchase. Before mass production, it was more economical to repair or reuse goods than to purchase new (“History of Recycling,” 2011).

Municipal recycling programs resurfaced twenty years later with the environmental movement of the 1960s and the energy crisis of the 1970s (History of Recycling, 2011). As recycling embodied a fraction of the energy needed to harvest virgin materials, it was seen as a means of conserving energy (History of Recycling, 2011). However, while it has many environmental benefits, finding viable markets for recycled products has been its primary challenge.

In the late 1980s, yard composting programs came online as a way to reduce space constraints landfills. Landfills were growing so quickly that many cities began banning yard waste from their landfills and collecting yard waste to turn into compost. History demonstrates that recycling and yard waste programs have been primarily economically-motivated.

In summary, municipal waste programs were developed to address public health problems while recycling and yard waste programs developed due to material, energy and space constraints. All three of these drivers – materials scarcity, pollution and space constraints, and health, and are linked to the three “E’s” of sustainability (i.e., economy, environment, and equity, respectively). While it’s important to understand the large-scale drivers of waste management and diversion programs, it is also important to understand the individual choices that yield these societal changes.

2. Consumer Behavior Studies

Whereas the history of waste management provides insight into how societies have historically dealt with waste, literature on consumer behavior and behavioral models provide insight into why individuals make certain decisions over others. By isolating the variables (e.g., socioeconomic characteristics, program design) that encourage participants to compost, behavioral studies identify leverage points for changing behavior. This ability to predictably affect consumer behavior is valuable, because it allows policymakers and program designers to develop and modify waste diversion programs (e.g., composting programs) that are more likely to be successful.

Composting programs require high volume and low contamination to ensure efficient collection and a clean product. High participation rates maximize the amount of waste collected, increase economies of scale, and improve the efficiency of the program's collection service. Low contamination rates ensure the purity of the final product and the efficiency of processing. Therefore, identifying and incorporating variables that increase participation, improve sorting and reduce contamination behaviors contamination have the potential to yield the purest product and garner the greatest success.

The behavioral studies below identify consumer characteristics and messages that have been linked to improving the likelihood consumers will participate in waste diversion programs. Because they both divert waste and recycle materials for reuse, I use composting as well as recycling behavioral studies in this literature review. This was necessary also because there was a lack of behavioral studies on composting, likely due to the newness of the programs. The composting literature focuses on composting as a biophysical process. Luckily, there is a dirge of behavioral studies on recycling. These studies also shed light on what components can be designed into a composting program to maximize participation while minimizing contamination.

FINDINGS

Interest in Composting

Overall, there is an interest in composting both by individuals and organizations (e.g., private, public and non-profit). In a survey of compost pilot participants, the majority (77%) said they were likely to participate in a biweekly program, with additional participants interested if the frequency increased to weekly collection (Bagby and Tarnecki, 2001). However, a number of authors (Barker et al. (1994), Corral-Verdugo (1997), Perrin & Barton (2000), Perrin & Barton (2001), Read et al. (2005), Woollam et al. (2003)) have found that willingness to participate is typically higher than actual participation rates, suggesting an educational gap between desire to participate and execution (cited in Dahlen & Lagerkvist, 2010, p57).

Individuals aren't the only entities interested in composting. In 2000, the Center for Ecological Technology found that stakeholders (e.g., generators, haulers, processors) were interested in expanding the food waste infrastructure. These stakeholders had the ability to generate support and design composting initiatives (p.6). A number of cities have used interest from different sectors to develop composting programs. For example, the town of Bowdoinham, Maine worked with a local college to develop a pilot composting project (Friedman, 1992). Similarly, a non-profit runs the city of Berkeley, California's recycling center (Friedman, 1992).

Monetary Incentives

While there is interest in composting, economic rewards help encourage waste diversion practices. Chu and Chui (2003) found that monetary rewards were an important indicator of recycling participation (i.e., recycling rates decreased when compensation rates decreased). Pricing strategies are also associated with altering consumer behaviors. Participants are also strongly encouraged by relative savings of waste diversion services as compared to waste disposal services.

A number of communities in the U.S. have incorporated this information into their programs and competitively-priced their composting services to encourage participation. Linden Hills, a neighborhood in Minneapolis, Minnesota, set its composting fees at \$15/ton, less than half its

solid waste tipping fees of \$38/ton (BioCycle, 2008). Similarly, in Perkasio, Pennsylvania, recycling and composting rates are \$54/ton, again less than half its waste collection rates of \$113/ton (Friedman, 1992). In Seattle, Washington, recycling and composting rates (\$54/ton) are a little less than half waste collection rates (\$103/ton) (Friedman, 1992). In addition, to incentivize haulers to maximize their recycling collection, Seattle bases its recycling rates on tonnage recovered and provides diversion credits for collecting at apartment buildings (Friedman, 1992).

The literature states that composting services that are priced competitively against solid waste tipping fees provide economic savings to participant and an incentive to divert waste. This indicates that consumers are making decisions about composting in relation to other services, and that ultimately consumers are evaluating pricing of services relative to other services. However, economic incentives are not the only factor participants take into account.

Non-Monetary Benefits

While economic rewards are strong motivators, societal rewards are more important for encouraging waste diversion. Chu and Chui (2003) found that a sense of accomplishment, family education and resource conservation were more important than monetary rewards for recycling (p.616). In addition, participants are more willing to recycle than the direct benefit they received from the savings on their waste management bills (Sterner and Bartelings, 1999). These benefits extend to composting programs. During a 2001 composting pilot, Seattle residents were willing to pay for composting beyond their individual benefit, with those from higher median incomes households twice as willing to pay (Bagby and Tarnecki, 2001).

However, non-monetary benefits will only be incurred if participants are participating in the composting program. Therefore, educating residents is necessary to get participants started composting.

Education

Understanding of what participants see as benefits and what they need to participate is important in designing of waste diversion programs, particularly because high participation and low contamination rates are necessary for program success. Well-designed educational programs ensure participants have the information and confidence to correctly participate in the program.

Studies support the importance of education for waste diversion programs. Bagby and Tarnecki (2001) recommend having a strong education component as part of composting programs to encourage participation, to highlight the benefits of waste reduction, and to dispel notions that the process is smelly and messy. Specifically, instructions on how to mix compostable paper and yard trimmings with food scraps to reduce odors and insects are vital to a successful program (Bagby and Tarnecki, 2001). Gamba and Oskamp (1994) found that the most influential factor in participating in curbside recycling is knowledge of the logistics of the program (e.g., what can be recycled, how to recycle it). Vining & Ebreo (1990) agree that education should positively influence recycling participation (cited by Chu and Chiu, p.617). Chu and Chui (2003) suggest that ongoing recycling educational programs change with the stage of program implementation (e.g., marketing to promote the program initially, continuing “how to” education throughout implementation to ensure high participation rates and reduce contamination).

Institutional and Social Support

In addition to having an educational component, composting programs must require other forms of support. Nixon and Saphores (2009) identify “family/friends” and “school/work” as the most effective avenues of educating residents on recycling issues for behavior change. Shaw and Maynard (2009) found that participants were most likely to recycle if infrastructure, service and support were improved. Likewise, Sterner and Bartelings (1999) argued that making recycling and composting easy and convenient plays a key role in successful programs. Chu and Chui (2003) suggest that “the more compatible recycling is [with] a person’s lifestyle and the more capable a person believes he or she is, the more control the person feels over recycling” (p.617). Therefore composting programs that demonstrate how recycling is easy to incorporate

into and compatible with one's life may have higher participation rates. Their finding suggests that gaining participation in waste diversion programs requires that individuals have knowledge as well as personal buy-in to the program. Education helps individuals understand what to do and how to participate in a waste diversion program. In addition, messaging must demonstrate how waste diversion fits into individual's lifestyle and value system. Control and confidence in waste diversion is experienced when individuals know the WHAT (i.e., what to do) and WHY (i.e., why they should do it; because they value it). This knowledge empowers individuals. However, this article demonstrates that addressing values systems is as equally important as education. Composting programs need to be strategic in terms of identifying the values that will prompt individuals to participate and understanding that different populations may have different values. Participants require institutional as well as social support to participate in composting programs. The next section identifies some of the values that motivate individuals.

Moral Obligation as a Motivator

Researchers have found that waste diversion behaviors are less tied to environmental attitudes and more tied to values and morals. Diekmann & Preisendorfer (1998) and Gatersleben et al. (2002) note that the connection between environmental attitudes and actual behavior is weak (cited in Dahlen & Lagerkvist, 2010, p578). Likewise, Oom Do Valle et al. (2005) found that recycling behavior is affected by personal psychological features, such as social conscience, not general attitudes about the environment. If individuals can internalize the moral attitudes of society, then composting programs may be able to use this to increase participation rates (Hopper & Nielsen (1991) and Schwartz & Howard (1980), cited by Oom Do Valle et al., 2005, p10) This literature supports waste diversion programs using the morals of society and the individual as a means to enroll participants.

Oom Do Valle et al. (2005) argue that people who feel morally obligated will engage in recycling if they believe in, and feel personally responsible for, the positive consequences of recycling (Oom Do Valle et al., 2005, p.3). This argument is supported by Bagby and Tarnecki (2001) who found the most common reason respondents participated in composting programs was a feeling of obligation (Bagby and Tarnecki, 2001). Continuing in this vein of morality, Kantola et al (1983),

Lamm (1999), Thogersen (1996) have argued that “Perceived Moral Obligation” (PMO) positively impacts environmental behaviors such as recycling (cited by Chu and Chiu, p.618). Describe the act of composting as a social obligation is another method to recruit participants to composting.

Participant Characteristics

There is some debate on whether participant characteristics affect their likelihood of participating in composting behavior. Boldero (1995), Gamba & Oskamp, (1994), Hopper & Nielsen (1991), Werner & Makela (1998)) found that “socio-demographic attributes...show poor or doubtful relation to recycling behavior” (cited in Oom Do Valle et al., 2005, p.3). On the other hand, Dahlen and Lagerkvist (2010) noted that socio-economic differences in education and income did affect recycling behavior. Similarly, Sterner and Bartelings (1999) argue that waste generation rates vary by the age, education level, and number of people in a household. These authors found that waste per person decreased with family size (Sterner and Bartelings, 1999, p.480). Individuals who live alone create more waste per person than those that live in larger households. Likewise, younger people and people with less education produced more waste. These populations, as well as women, were more willing to pay than spend time dealing with household waste (Sterner and Bartelings, 1999, p.486). Contrarily, the number of people staying at home (e.g., a parent who work or stays-at-home) had a positive effect on composting (Sterner and Bartelings, 1999).

Characteristics of Compost

In addition to demographics of participants, the characteristics of composting affect participation rates and need to be taken into account in design and education programs. Negative perceptions regarding the smell, mess, and time it takes to compost deter individuals from participation in waste diversion programs. Sterner and Bartelings (1999) found that two important determinants of whether a household composted was whether they composted both kitchen (i.e., food scrap) and garden (i.e., yard) waste (p.483-484). This is reasonable as together these materials provide the necessary carbon (e.g., food waste) to nitrogen (e.g., garden waste) ratios needed for decomposition.

Similarly, a feasibility study of Seattle's composting pilot saw participation rates climb 20-25% when the city increased the size of its composting carts. (Bagby and Tarnecki, 2001). The larger containers allowed residents to add both their yard trimmings and food scraps and reduced the frequency of odors/mess and insects, the most common complaints (Bagby and Tarnecki, 2001). Ensuring the design of composting programs affectively prevents smells and pests is important to individual participation.

Perceptions regarding the act of composting may also deter participants. Negative perceptions such as composting taking a lot of time had a negative effect on participation rates (Sterner and Bartelings, 1999, p.484; Bagby and Tarnecki, 2001). Bagby and Tarnecki (2001) also found participants chose not to compost because they didn't feel as if they generated enough waste to make it worthwhile (Bagby and Tarnecki, 2001). According to Oates and McDonald (2006) and Chu and Chui (2003), individuals found recycling to be a mundane household task and that women were more likely than men to participate in recycling efforts. Women tend to initiate and sustain recycling within a household, while men are more likely to partake in joint efforts (Oates and McDonald, 2006). Education programs that target different groups of populations to reduce waste may be required to ensure high participation rates.

Program Indicators

To evaluate program success, it is important to develop meaningful metrics. Berg (1993) and Friedman (1992) note a number of commonalities of successful recycling programs. However, many of these indicators would be useful in evaluating composting programs. Berg (1993) argues for the use of following indicators to evaluating the success of recycling programs:

1. Quantity of collected recyclables (kg recyclables/household or person).
2. Quality of recyclables (contamination rate).
3. Recycling rate (recovered material/the potential recyclable amount).
4. Participation rate.
5. Willingness to participate (potential participation).
6. Inhabitants' degree of satisfaction.

(cited by Dahlen & Lagerkvist, 2010)

In an article titled “Recycling: five communities that do it right,” Friedman (1992) noted that while each community has an individualized approach, they had the following similarities:

1. wide range of materials for recovery,
2. offering convenient collection services (curbside and drop-off),
3. securing high participation rates through legislative mandates, economic incentives, and/or education programs,
4. extending programs beyond the residential sector to the commercial and institutional sector.
5. cost-effective collection and processing techniques that yield high quality, marketable scrap materials.

Program Characteristics

In addition to participant characteristics, Dahlen & Lagerkvist (2010) noted that culture and climate also effect waste generation (p.580). The following factors influence recycling behavior:

1. Property-close (curbside) or bring (drop-off) systems.
2. Differences in number and type of recyclable materials collected separately.
3. Mandatory or voluntary recycling program.
4. Use of economic incentives.
5. Differences in information strategies.
6. Residential structure (e.g. single-family/multifamily houses, urban/rural areas).
7. Socio-economic differences (e.g. education, income).
8. Households with private composting.
9. Availability of alternative places of discharge (e.g. recycling centers).

While these authors investigated recycling programs, it’s easy to see how these indicators could be adopted to composting. Quantity, quality (i.e., contamination), and variety of organics/food scraps collected and coverage (e.g., residential, commercial, institutional) would ensure more convenient, more efficient collection service and a higher quality compost product. In addition,

the rate of material composted versus potential material, participation rate, and customer satisfaction would give insight into diversion rates and the sustainability of the program.

Understanding and Ensuring Capacity and Demand

Capacity and demand are two other important components of composting programs. Blum (1992) found that composting programs can only be successful when there is demand for the compost, or in other words - a need for soil repletion. According to the Center for Ecological Technology, capacity can be an issue at both extremes. Lack of space or equipment can choke production. On the other hand, difficulties attracting supply can result in facilities operating under full capacity (Center for Ecological Technology, 2001, p.11). Therefore, understanding and anticipating future capacity and demand is necessary to ensure reliable and consistent service.

Cost-Effective Programs

In a survey of municipal recycling programs, Bohm et al. (2010) found that marginal and average costs of recycling programs were higher than waste collection and disposal, likely due to the additional resources needed to sort and process the materials. However, the authors found municipalities that contracted with private collection companies had lower costs than municipal-run programs (Bohm et al., 2010). In addition, programs with a single, contracted collector were less expensive than competitive markets (Kemper and Quigley, 1976 and Stevens, 1978 - cited in Bohm et al 2010).

Bjornlund (1998) found that composting "rarely covers the cost." On the other hand, Organic Materials Management Strategies," a report published in 1999 by the US EPA, performed a cost-benefit analysis of seven municipal solid waste composting tactics and concluded that all composting strategies were cost-effective, when used in the right combination and when the end product (i.e., compost) was in greater demand than the available supply (US EPA, 1999).

SUMMARY

A review of the consumer behavior literature demonstrates that individuals are interested in composting, but that there is a gap between this interest and participation rates. Individuals have a number of reasons for participating, including both the economic and non-economic benefits. Reasons for not participating include the process being perceived as messy or time-consuming. Education and infrastructure support that address these issues may improve participation rates. While there is a debate as to whether socio-demographic characters influence a person's willingness and ability to participate, different populations may be more or less disposed to composting. Therefore, program designs must recognize these potential differences and modify or customize the program respectively in order to ensure an equitable composting program. There are a variety of metrics for evaluating composting programs, in addition to equity and participation rates.

Successful composting programs need to have a strong educational component, which provides logistical information, delivers infrastructural support and takes advantage of family/friend and school/work networks. Compost programs include economic incentives, preferably competitive pricing compared to landfill. In addition, while composting programs can tote environmental and economic benefits, personal and societal benefits (e.g., saving money on waste bill, reduce need for tax to purchase additional landfill space, improve local soils for farming and gardening) must also be communicated to address morals.

To see how cities have incorporated behavior studies into their composting program designs, I examine the current composting programs of four North American cities in the next chapter.

3. Existing Composting Programs

Using methods identified in behavior studies and results from their own primary research, the cities of San Francisco, California, Seattle, Washington, Portland, Oregon and Toronto, Ontario developed successful composting programs. These cities were some of the first in North America to pioneer composting programs, moving expanding the scope of waste diversion. Their composting programs offer a glimpse into the present, past and future of composting.

Reviewing other cities' composting/organics programs illuminates valuable knowledge regarding lessons learned and pitfalls to avoid. In addition, city reports provide insight into the rationale behind program design as well as an understanding of the context and environment that shaped program (e.g., policies, politics, existing infrastructure, limitations, leadership). These cutting edge composting programs also provide an indication of the trajectories of their programs. BioCycle, the industry's trade magazine, was a valuable resource, for understanding current city programs.

SAN FRANCISCO, CALIFORNIA

The city and county of San Francisco have used a number of strategies to design and promote its composting program, including pilots, art and outreach to encourage participation.

In 2009, the city of San Francisco was mandated by the state of California to reach 50% diversion rate (Resource Recycling, 2011). A study in 1996 found that majority (i.e., 60,000 tons) of the city's total waste (i.e., 200,000 tons) were food residuals (Macy, 2000). Yard trimmings, on the other hand, only made up 5% of total waste. Therefore, the city decided to use food waste to meet its state mandate (Macy, 2000).

Pilot Design

Before rolling out a composting program, the city spent two and a half years conducting pilots, which tested a number of variables (Macy, 2000). These residential curbside pilots evaluated the mix of organics (e.g., vegetative, all food including meat, commingled with yard trimmings), collection carts (split versus separate) and vehicles (compacting split versus separate). They also experimented with frequency of collection service (weekly versus biweekly), using liners, and processing capability and capacity. In addition, the city examined outreach needs and the impact of diverse neighborhoods (Macy, 2000).

To account for the different needs of various ethnic groups while ensuring the most favorable outcomes, the city sampled from neighborhoods that a.) represented the diverse ethnicities of the city, and b.) had good to high recycling participation and yard trimmings generation (Macy, 2000). The city's rationale was if the pilots failed in these communities, a city-wide composting program would not work. To increase quantities and reduce seasonal variation, the city's collected from small commercial businesses (e.g., small produce stores, restaurants) (Macy, 2000, p.56). In addition, the city required large complexes (i.e., 6 units or more) to request a green composting cart and identify a resident who would be responsible for bringing it to the curb (Macy, 2000, p.56). However, even in the beginning, the city recognized the need for future outreach to bring multifamily buildings on-board (Macy, 2000, p.56). These pilots provided valuable information and a means for the city to evaluate different alternatives.

Pilot Results

The results of these pilots were encouraging and educational. Contamination levels were low, and participants were satisfied with the new program and had few complaints. Contamination levels starting at 6% and decreased to 3% (Macy, 2000, p. 54). When contaminants were spotted, drivers left tags reminding residents of unacceptable materials (Macy, 2000, p.54). The biggest contaminant was plastic bags, which were a difficult habit to kick (Macy, 2000, p.54). As a means of keeping their containers clean without plastic bags, the city encouraged residents to wrap their food waste in paper bags and newspaper (Macy, 2000, p. 56).

A majority of participants preferred the compost pilots to their current collection program. There were few complaints about the messiness or smell of separating food. The biggest complaint was the size and handling of the large, 64-gallon split carts (Macy, 2000, p. 54). These results were evaluated and used to develop San Francisco's composting program.

Final Program

After weighing the results, San Francisco decided to use three separate 32-gallon carts for its final program, called the "Fantastic Four," a green cart for compostables, blue for recycling and black

for trash. Dedicated carts offered the greatest flexibility in size, had higher satisfaction rates among residents and drivers, and required less maintenance than split carts (Macy, 2000).

The city chose split compactor vehicles for commingled recycling and trash and a separate truck for compostables (Macy, 2000, p.57). These split vehicles offered greater flexibility and efficiency, but were more expensive due to the compacting mechanism and required frequent cycling of the compactor (Macy, 2000). The city decided on the automated side-loader vehicle with one crew member because it was most effective. However, these vehicles required direct curb access, which was difficult to come by in a city with high volumes of street parking (Macy, 2000).

Though the city's hauler had to buy a new fleet of trucks and reorganize its routes to maximize efficiency, the hauler felt it could recover its costs over five to ten years (Macy, 2000, p.57). The city and hauler estimated that the green cart program could divert around 30,000 tons compostables, with an additional 45,000 tons from commercial collection (Macy, 2000, p.57). Before rolling out, the city developed an outreach plan.

Outreach Strategies

For its city roll out, San Francisco used a number of materials and outreach techniques to reach out to customers. To encourage participation, the city provided residents with kitchen pails, container labels, signs, toolkits, education materials, multi-lingual trainings, and consultations (SF Environment, 2010).

The city also used art and images to communicate, educate, and raise awareness. Images on the carts demonstrate what can go into the carts (e.g., banana peel) and what those materials are turned into (e.g., soil for vineyards) (Yepsen, 2009, p.18). This technique was found to be most effective, and address the issue of the wide variety of languages spoken in the area (Yepsen, 2009, p.18).

The city's hauler used images on their composting trucks to encourage residents to consider composting (Yepsen, 2009, p.18). These images linked diverting waste with protecting valued

environments, such as the redwood forests (Yepsen, 2009, p.18). In addition, the hauler has displayed local artwork made of garbage at its transfer station and donated the art to public institutions as a way to raise public awareness for diversion (Yepsen, 2009, p.18).

The city found direct outreach essential for getting participation, particularly from hesitant customers (e.g., commercial and multifamily facilities). The city reached out to restaurants and food establishments to encourage use of recycling or compostable to-go containers (Yepsen, 2009, p.19). It recruited and worked with property management companies to begin their composting programs (Yepsen, 2009, p.19). Multifamily property managers were persuaded by savings, tenant requests for the program, and the fact that a mandatory recycling and composting ordinance would be enacted in the near future (Yepsen, 2009, p.19). In addition, direct “human to human” outreach in the native language of residents was important (Resource Recycling, 2011).

Today

After operating the program for a number of the years, San Francisco passed a mandatory organics recycling ordinance in 2009. The ordinance was critical for moving from a 56% diversion rate (Resource Recycling, 2011) to a 75% diversion by 2010 (Yepsen, 2009, p.19). However, the city had difficulty keeping up with demand once the ordinance was passed. San Francisco’s organics recycling program is deeply discounted for commercial and residential customers (Yepsen, 2009, p.18). Residents pay one fee for trash collection while recycling and composting services are free (Macy, 2000, p.57). In addition, residents can lower their garbage bills by choosing a smaller garbage cart (Resource Recycling, 2011).

SEATTLE, WASHINGTON

The city of Seattle, Washington has used focus groups, pilots, educational materials and targeted outreach to develop its composting programs. These strategies provided feedback that the city could learn from and make adjustments to its composting program.

Focus Groups

Before adding food residuals to its yard waste program, Seattle held focus groups to get feedback on what customers wanted. Focus groups participants were most interested in knowing the logistics of the program (i.e., what were acceptable materials, how to store food waste, how to keep vermin and odors out) (Seattle Public Utilities, 2005). They also wanted a list of acceptable materials on the lid of all containers (e.g., trash, recycling and composting) and in the kitchen (e.g., refrigerator magnet) (Seattle Public Utilities, 2005). A latch or locking lid was recommended to keep pests out (Seattle Public Utilities, 2005).

In addition to food storage, participants wanted to know when collection would occur. Concerns were voiced about having frequent enough collection and a collection calendar. However, utilities newsletter, radio advertisement, public service announcement (PSA), or in inserts in bills or the newspaper were identified as the preferred methods of receiving this information (Seattle Public Utilities, 2005).

Participants wanted to understand the reasons for the change. Information regarding when and why the program changes were occurring was also important. In addition, keeping the workplace safe for collectors and haulers was seen as a necessary reason for the change.

The focus groups allowed participants to provide feedback on outreach materials. Some participants recommended avoiding the word “compost” as it conjured images of labor intensive work (Seattle Public Utilities, 2005). Even though some food images were confusing, participants still suggested using images instead of words to explain difficult concepts such as “units” and “gallons.” (Seattle Public Utilities, 2005).

Multifamily Pilot

Seattle also performed a multifamily pilot and focus group of the property owners at the end. The city had to do extensive outreach to garner participation for its multifamily pilot (City of Seattle, 2009). First, the city called or visited sign participants up (City of Seattle, 2009). Letters

alone resulted in few participants (City of Seattle, 2009). In addition, the city offered three months of free service as long as properties paid for the next three (City of Seattle, 2009).

Similar to San Francisco, the city of Seattle chose multifamily properties that had successful recycling programs for its pilot. The city rolled out the pilot in two phases. It started in a small geography in the north. For phase two, the city expanding to more neighborhoods, using the lessons learned.

Property managers decided to participate in the pilot for a variety of reasons. Those who participated cited composting being good for the environment, tenants wanting the service and having container liners as motivators (City of Seattle, 2009). They also enjoyed the money saved on garbage disposal repairs and increasing tenant demand (Seattle Public Utilities, 2008, Multifamily Interviews). On the other hand, property managers who didn't participate did so due to the cost, low tenant participation, perceptions of vermin and odors, and time to oversee the program (City of Seattle, 2009). Pilot participants preferred regular email communication (City of Seattle, 2009).

Pilot Lessons

Seattle's pilot was successful. The pilot found multifamily residences generate about 1.1 pounds of compostable material per week per unit (City of Seattle, 2009). Plastic was the greatest contaminant; its prohibition was later emphasized with stickers on carts and a note in educational materials (City of Seattle, 2009). While kitchen pails and compostable bags did not increase participation, they were appreciated (City of Seattle, 2009). However, similar to Portland, there was confusion around compostable bags (City of Seattle, 2009).

To address the issues of contamination and odor, multifamily property managers supported educational materials and property report cards for educate tenants. They also appreciated biobags, carbon filters and countertop buckets (Seattle Public Utilities, 2008, Multifamily Interviews). To reduce mess, the haulers have begun replacing liners after each collection to keep carts clean (Seattle Public Utilities, 2009).

Early involvement of the hauler was critical for anticipating and eliminating problems, and ongoing communications with a dedicated point-person was necessary for resolution of persistent problems. Currently, the city offers two levels of service: a less expensive curbside service and a more expensive, on-location service.

Trainings

In addition to focus groups and pilots, the city performed on-site trainings which generated interest and demand for more knowledge. Props were useful for demonstrating what could and could not be composted in the program, as well as served as an enjoyable challenge. Tenants were enthusiastic about the composting program and wanted to know about the specifics for their building, including collection days. In addition, some audiences wanted to learn more about the processes of composting and to discuss the cost and energy impacts of composting versus garbage disposal. (City of Seattle, 2009, p.4) City staff thought these tenants could be potential champions of the program.

Outreach

Seattle uses extensive outreach to connect with challenging communities. The city provides a variety of free products and services to actively recruit multifamily property managers. These include educational materials in multiple languages, cart liners, trainings, and technical assistance (Seattle Public Utilities, 2010). Pamphlets stress the benefits of the program (e.g., the potential to reduce garbage costs, the ease of participation, and the program as a potential “green” selling point) and include recommendations by property managers currently using the service (Seattle Public Utilities, 2009). To ensure security, organic waste collectors can be provided an access card (Seattle Public Utilities, 2009). In addition, if someone on the property is a Friends of Recycling and Composting (FORC) steward, the property gets a \$100 discount on service (Seattle Public Utilities, 2010). The city is evaluating a number of options for expanding, including asking current property managers if they’d like to add the service to other buildings.

Similar to the outreach with multifamily complexes, non-English residents required outreach beyond simple translation. Seattle staff learned that when interpreters are used, the room needs to have good acoustics, and be adequately large so audience can be separated by preferred language. In addition, only the most basic information should be presented, slowly, for simultaneous interpretation with pamphlets in both languages available (City of Seattle, 2009, p.4).

PORTLAND, OREGON

Like San Francisco, a political decision (i.e., a 1998 council mandate) prompted the city of Portland, Oregon to begin designing a composting program. Unlike the other cities, Portland began with a commercial composting program and only now is beginning to provide residential services.

As one of the states with the largest percentages of hungry people, Portland made composting both about waste management as well as hunger. To address both these issues, the city followed a waste hierarchy using the following strategies: 1.) reduce waste, 2.) donate edible food to hungry people and inedible food to animal feed, and 3.) compost the remainder.

Portland focused its efforts on the biggest producers of food residuals: restaurants, groceries, and educational institutions. The city targeted facilities that produced 2.4 yards or more of food residuals each week, as that was the threshold for “economically feasible” at a \$40 tipping fee (Metro, 2007 - check).

Portland’s composting program was initially funded with a \$56,000 grant with Metro, the regional governing authority. Franchised haulers collected food residuals and brought them to Metro Central transfer station. There, loads were examined before being consolidated into larger trailers for transport to a composting facility in Washington (Metro, 2007). This was necessary because there were no approved composting facilities in the Portland metro area (Metro, 2007). However, the city’s contract requires the contracted firm to site a future facility

in the Portland area (Metro, 2007). Recently, two composting processing facilities have opened near the city (Por-2)².

Even as a voluntary program, program designers had an eye towards making the composting program sustainable and mandatory. Initially, Portland allowed plastic bags to keep bins clean and existing containers to reduce costs. Later, the city discouraged the use of bioplastics since only some can be composted in their facilities, and none can be composted in backyards (Compostable Plastic). Additionally, bioplastics were difficult to distinguish from regular plastics and caused problems in recycling programs because they weren't recyclable (Compostable Plastic). In addition, bioplastics required continuous purchasing and a production process which used agriculture land for converting oil into plastic packaging (Compostable Plastic). The compost (90%) is sold locally (Metro, 2007).

TORONTO, ONTARIO

At the end of 2002, the city of Toronto closed its landfill and began shipping its waste to Michigan ("Green Bin Program," 2011). This change increased the city's disposal costs by more than 300% ("Green Bin Program," 2011). In 2001, the city of Toronto created a Waste Diversion Task Force 2010 to develop waste diversion goals ("Green Bin Program," 2011). The Task Force established the goals of 30% diversion by 2003, 60% by 2006 and 100% by 2010. The 2010 diversion goal was later revised to 70% ("Green Bin Program," 2011).

Since about one third of its garbage was organic, the city started a composting program to remove organic material from its waste stream, and reduced the amount of waste it had to ship ("Green Bin Program," 2011). The composting program, called the Green Bin Program, is unique in that it accepts diapers and pet waste and allows residents to put their organic waste in plastic bags ("Green Bin Facts," 2011). These conveniences increase the ease of participating in of the program and maximize participation rates.

² Transcripts are coded; the code Por-2 refers to the second city of Portland interview.

The plastic bags are removed and disposed of during compost processing and not included in the city's diversion rate calculations (City of Toronto). The city's final compost is a Class A unrestricted-use compost that meets ministry of Environment's strict standards ("Green Bin Facts," 2011).

Today, the city of Toronto, Ontario has one of the largest composting programs in North America. It currently serves 510,000 single family households and is being rolled out to multifamily households (e.g., apartments, condos and co-op buildings) that receive city collection services ("Green Bin Organics Program," 2011). The city is also in the process of constructing new composting facilities to increase the capacity of its physical infrastructure ("Green Bin Facts," 2011). In 2010, the city's single family diversion rates were about 63%, close to its 70% diversion goal ("Residential Waste Diversion Rate," 2011).

SUMMARY

Reviewing the reports of cities that compost sheds light on how they designed their programs. Pilots were an important element in testing and determining the materials, service and outreach strategies cities used. Existing physical infrastructure and policies also shaped program design.

Composting programs are dynamic and constantly evolving. Therefore cities must be flexible to responding to changing programs and customer needs. In general, cities are increasing their services to include additional sectors (e.g., commercial, multifamily) and to improve participation rates among challenging populations. In addition to the evolution from pilot to mature program, programs also move from voluntary to mandatory services.

The following figures give a general overview of the program metrics these cities to evaluate success as well as the challenging populations they've encountered.

Figure 2.A Program Metrics

| PROGRAM METRICS | | | | |
|------------------------|---------------|---------|----------|---------|
| | San Francisco | Seattle | Portland | Toronto |
| Diversion Rate | X | X | X | X |
| Total Waste | X | | | |
| Contamination Rate | X | X | | X |
| Participation Rate | X | X | X | X |
| Customer Satisfaction | | | X | X |
| Final Product Standard | | | | X |

Figure 2.B Challenging Populations

| CHALLENGING POPULATIONS | | | | | |
|-------------------------|---------------|---------|----------|---------|--|
| | San Francisco | Seattle | Portland | Toronto | Notes (*) |
| Denser areas | X | | | X | |
| ESL populations | X | X | X | | |
| Higher income customers | X | | | | |
| Lower income customers | X* | | | X | * Including Section 8 Low-Income Housing. |
| Multifamily Properties | X | X | X | | |
| Men | | X* | | | * Except property managers, which are primarily middle-class, white men. |

4. Austin Scene

Introduction

Understanding where other programs have been gives insight into to where the city of Austin can go. However, local politics, policies, culture and infrastructure play important role in how a composting program will be implemented within a community. This chapter focuses on how the City of Austin implements sustainability models and its current and future composting efforts. Currently the city of Austin mixes its residential yard waste collection with sewage sludge to

create a compost product called Dillo Dirt. The city is also in the process of passing its solid waste management plan, which outlines an effort to start a composting pilot as a means to reach its zero waste goals.

WASTE AND COMPOSTING PROGRAMS

Residential Waste Collection

The City of Austin uses a Pay-As-You-Throw program for its residential garbage collection. The program offers residents three cart sizes, with rates increasing with cart size (Word, Higginbotham and Pluenneke, 1992). The rates cover the volume in the cart plus unlimited recycling and yard trimmings (“Residential Garbage Collection,” 2011). Recycling and garbage are collected on the same day to reduce the number of trips to the curb (Word, Higginbotham and Pluenneke, 1992). Extra garbage may be set out for \$4 plus tax with a sticker, or \$8 plus tax without (Residential Garbage Collection,” 2011).

While the City of Austin’s current the rate structure increases with cart size, the rate of increase is non-linear. The first four columns of Figure 2.A depicts the city’s base rate, cart charge, which increases with cart size and total price. The fifth and sixth columns illustrate what a linear rate increase and corresponding total would be. Comparing column four and six demonstrates that, although larger carts are more expensive, current volumes are discounted. If the city charged the same amount by volume (i.e., per gallon), the price of a 90 gallon trash cart would be almost double its current price.

To attain a perfectly linear rate structure from the base 30 gallon charge, the City of Austin would need to increase the 60-gallon cart by \$8.25 to \$27.00 and increase a 90-gallon cart by \$12.05 to \$40.50. Future price adjustments could be justified by educating and encouraging residents to recycle and compost. In addition, it would ensure residents who generate a lot of waste pay for the additional costs in the system.

Figure 2.C City of Austin Waste Collection Rates

| Cart Size | Base Rate | Cart Charge | Current Total | Linear Rate Increase | Linear Rate Total |
|-----------|-----------|-------------|---------------|----------------------|-------------------|
| 30 gallon | \$8.75 | \$4.75 | \$13.50 | \$ 0.00 | \$13.50 |
| 60 gallon | \$8.75 | \$10.00 | \$18.75 | \$ 8.25 | \$27.00 |
| 90 gallon | \$8.75 | \$19.20 | \$27.95 | \$12.05 | \$40.50 |

(Residential Garbage Collection,” 2011).

WASTE MANAGEMENT PLANS

The city of Austin has created and adopted a number of waste management policies, including a Zero Waste Goal and a Needs Assessment. This policy and analysis lay the groundwork for the Integrated Solid Waste Management Plan (ISWMMP) the city is currently in the process of developing and passing. These policies also identify opportunities and challenges for waste diversion plan, including a composting program, along with policy and infrastructure recommendations.

Zero Waste Plan

In 2009, the City of Austin adopted a Zero Waste Plan with a goal of diverting 90% of the city’s waste by 2040. The thirty-year plan lays out a prioritized list of recommendations to achieve this goal and highlights some of the opportunities and challenges. Composting is a primary technique for meeting the zero waste goal, as well as one of the four interim policy priorities the city will focus on while it transitions to its Integrated Solid Waste Management Plan once adopted.

Austin’s Needs Assessment

In 2010, the City of Austin published a Needs Assessment, which summarized what the city’s infrastructure and service capacity are currently and projected what the city’s future needs will be in 2050. In addition, the city contracted with an engineering firm to produce two technical

memorandum, a “Private Sector Assessment, Non-City Programs and Partnership Case Studies” and “Methods for Improving Local Markets for Recycled Materials, Regulating Service Providers, and Establishing Mechanisms for Regional Cooperation.” These reports were developed to inform the Integrated Solid Waste Management plan (ISWMMP).

Integrated Solid Waste Management Plan

The City of Austin is currently in the process of developing an Integrated Solid Waste Management Plan (ISWMMP). The ISWMMP will be a fifty-year plan that identifies policies that focus first on reducing waste (e.g., through product redesign, manufacturer take-back programs, product reuse), and then using recycling and composting to address the remainder. The City of Austin’s Zero Waste Plan, two technical reports and Needs Assessment, and a Climate Protection Plan will inform the Integrated Solid Waste Management Plan.

CURRENT COMPOSTING ENTITIES AND PROGRAMS

There are a number of existing public and private composting programs and facilities operating in Austin, many of which are expanding. These facilities are positioned to handle increased composting services in Austin. In addition, the city has started a Composting Incentive program to encourage residents to backyard compost.

Private Firms

Two private firms, Texas Disposal Systems (TDS) and Organics by Gosh, currently operate permitted composting facilities in Austin. According to the Needs Assessment the city performed, these facilities could meet Austin’s short-term needs (Needs Assessment, 2010).

While Organics by Gosh focuses on composting, TDS accepts solid waste and recycling from 26 Texas counties in addition to its compost production facility (Private Sector Assessment, p.12). It processes 946,000 tons a year, with just over half of that collected from the Austin area. To create additional capacity, TDS constructed a 104,000 square foot Materials Recovery Facility (MRF), which opened September 2010 (Private Sector Assessment, p.13).

Public Programs

The city currently has two programs that address composting issues, Hornsby Bend and a Composting Incentive Program. Hornsby Bend is the City of Austin's municipal composting program. The facility is run by Austin Water Utility and mixes the city's sewage sludge with yard trimmings from the city's residential curbside collection program. The facility treats about 30,000 dry tons per year to create compost product called Dillo Dirt (Needs Assessment, 2010, City Facility Survey-2). The majority of the program's annual \$6 million budget is provided by Austin Water Utility, with some revenue sales of Dillo Dirt and farm contracts (Needs Assessment, 2010). Although currently under capacity, the program has invested \$31.8 million in capital costs for maintenance and upgrades, including doubling of its composting area (Needs Assessment, 2010, p.25) from 14 to 29 acres (Private Sector Assessment, p9). Although it's not currently set up to receive them, Hornsby Bend is interested in processing food waste from the residential Pay-As-You-Throw program (Needs Assessment, 2010, Existing Initiatives88, City Facility Survey2). In 2009, Austin Water Utility began a master planning process for Hornsby Bend (Needs Assessment, 2010, Existing Initiatives88).

The City of Austin has started its Composting Incentive Program In 2010 as a way to encourage residents start backyard composting. The program provides education and a financial incentive. The city reimburses residential households up to \$75 for purchasing home composting units and participating in the Green30 Challenge of:

1. Downsizing to a 32-gallon garbage cart,
2. Taking a free backyard composting class, and
3. Beginning composting using their new home composting unit. (Needs Assessment, 2010, New Initiatives-75)

According to the Needs Assessment, the Composting Incentive Program is expected to have a 10% participation rate and a 6% capture rate (Needs Assessment, 2010, New Initiatives-76).

While this is a step in the right direction, limitations like small program size and limited materials

coverage (e.g., meat cannot be composted) means this program will not be able to address all residential composting needs (Needs Assessment, 2010, New Initiatives-77).

Opportunities and Challenges

The city's current research includes a number of general opportunities and challenges for composting programs in Austin. Opportunities include developing partnerships and expanding markets. Challenges include the low cost of landfilling in the region.

According to the City of Austin's Zero Waste Plan, the value of the materials currently sent to the landfill that could be reused or recycled is over \$40 million annually (Zero Waste, 2008, p.5). Of that, roughly half is compostable (Zero Waste, 2008, p.5). And this amount is growing. The Needs Assessment states that "in 2009, 332,000 tons could have been diverted from the landfill and processed at a Composting Facility. By 2050 the amount of compostable material will increase to 779,000 tons requiring a second Compost facility." (Needs Assessment, 2010, p.17) "The greatest opportunities for diversion exist among the materials that already have a market potential to be reused, recycled, or composted - including food wastes." (Zero Waste, 2008, p.9) Therefore, the Zero Waste Plan finds that "preventing waste and expanding reuse, recycling, and composting programs as some of the fastest, cheapest, and most effective strategies available for combating climate change." (Zero Waste, 2008, p. 4)

Partnerships were key to the success according to the Private Sector assessment. To achieve strong partnerships, cities must ensure that the partnership is stable but has room for creative solutions. To build stability, partnership must have trust so all partners feel like they are getting a fair deal (particularly in regards to rates). In addition, partners must have mutual interest in moving toward a shared goal (e.g., composting). Frequent, clear and effective communication, including of expectations is necessary to develop a positive working relationship. To find creative solutions, both entities need to utilize their expertise with room to innovate.

Consistent, long-lasting relationships help stability and creativity (Private Sector Assessment, p.18).

Potential partnering opportunities include working with Goodwill and Ecology Action, which are both interested in providing job-training programs for workforce development (Private Sector Assessment, p.19). AISD and UT could be partnered with to increase education outreach and program research (Private Sector Assessment, p.19). Another opportunity is to utilize the underused capacity of local private composting firms instead of the city of Austin constructing a new public facility (Private Sector Assessment). In addition, a number of organizations support the city Zero Waste Plan and composting efforts. Both Travis County and the Solid Waste Advisory Committee of Capital Area Council of Governments (CAPCOG) support “expanding organic waste diversion programs.” (Zero Waste, 2008, p.17) In addition, in 2010, the Sustainable Food Policy Board supported a city-wide composting program. These organizations may be other potential partners.

Improving local composting markets is another opportunity. Markets can be expanded through increasing demand by improving product quality (and efficiency), reducing contamination, investigating the needs of agricultural and horticultural markets, and increasing education. For example, the city can create demand by adopting the Texas Department of Transportation’s (TxDOT) specifications for using compost in all city public works projects and a compost requirement for residential and commercial development and re- development projects. In addition, a comprehensive education program would be required for curbside recycling to ensure customers understand logistics of the new system (e.g., what could be composted, how to keep pests and odors out).

Composting programs, however, are not without their challenges. One of the biggest economic barriers to composting in Austin, Texas may be the low cost of landfilling. Travis and Williamson Counties have large, low-cost regional landfills that attract waste from the surrounding region and undercut the economics of waste diversion tactics, such as composting. (Zero Waste, 2008,

p.16) As mentioned above, competitive pricing improves the likelihood individuals will participate in waste diversion programs such as composting.

Recommendations

To address these opportunities and challenges to composting, the City of Austin's Zero Waste plan provides a number of suggestions to the city:

1. Form partnerships with private and non-profit sectors. (Zero Waste, 2008, p.31)
2. Through public/private partnerships, develop pilot programs to incorporate food scraps and food-soiled paper to determine how to best roll out city-wide residential and commercial organics collection programs." (Zero Waste, 2008, p.21)
3. Through public/private partnerships, develop a pilot program to evaluate offering lower rates for less frequent garbage collection. (Zero Waste, 2008, p.29)
4. Adopt a city goal (and potentially state-wide initiative) of having no compostable organics go to landfills by 2015. (Zero Waste, 2008, p.21)
5. Require landfills in Travis and Williamson require counties that want to dispose their waste in counties to adopt and implement Zero Waste goals (Zero Waste, 2008, p.16).
6. Require all new construction to build adequate space for composting. (Zero Waste, 2008, p. 34)
7. Require contractors and developers to reuse, recycle or compost at least 50% of materials, and monitoring and providing economic compensation for composting those materials. (Zero Waste, 2008, p.31)
8. Require businesses, through incentives, to purchase compost products. (Zero Waste, 2008, p.33)
9. Use the mulch and compost generated from the city's composting program in public projects, including landscaping, roads, etc. (Zero Waste, 2008, p.28).
10. Use the composting program for job training (Zero Waste, 2008, p.31)

11. Once the comprehensive program is implemented:

- a. Make the current rate structure of its Pay as You Throw program more linear to further encourage composting (Zero Waste, 2008, p.29).
- b. Include organic food collection bins in public locations wherever food is served (Zero Waste, 2008, p.28).
- c. Through public/private partnerships, develop pilot programs to collect and process food scraps and food-soiled paper from businesses and institutions. (Zero Waste, 2008, p. 30) .

The Needs Assessment provides additional composting recommendations to the city:

1. Adopt a new Recycling Ordinance that incorporates compostable materials and phases organics out of landfills.
2. Adopt a new Green Events Ordinance to ensure composting at city-funded events (Needs Assessment, 2010, p.20).
3. Adopt a mandatory food scrap recycling for the food service industry. (Needs Assessment, 2010, Existing Initiatives-74)
4. Use both anaerobic and aerobic systems and utilize its existing systems, including Hornsby Bend (Needs Assessment, 2010, p.25).
5. Modify to the city's yard trimming collection to include food scraps and compostable paper and provide a collection cart. (Needs Assessment, 2010, p.22)
6. Ensure compost is contamination-free and suitable for agricultural food crops. (Needs Assessment, 2010, Existing Initiatives54)
7. Create a calculator to show how reducing garbage and increasing recycling and composting saves money. (Needs Assessment, 2010, Existing Initiatives86)

In addition to the policy recommendations, the Needs Assessment suggests the following two future infrastructure investments:

1. A Mixed Material Processing Facility, also known as dirty MRF, collects all waste co-mingled and sorts recyclable and compostable materials from municipal solid waste on-site using various technology. A mixed material processing facility could process 500 tons/day, cost \$25-50 million in capital costs, and have a \$50-75 total tipping fee and a \$35-60/ton net tipping fee (New Initiatives, p.173). With 100% participation and 50% efficiency, it would have a 50% capture rate. While the technology has been proven, it is expensive to construct and operate.
2. A Resource Recovery Park is a one-stop drop-off for all reuse and recycle products, including compost. A resource recovery park could process 200 tons/day, cost up to \$10 million in capital costs, and have total and net tipping fees varying based on functions of facility (New Initiatives, p.125). One of the major benefits is that if it's developed near generators, waste materials are only have to be handled once, thereby increasing efficiency, lowering costs and reducing carbon footprint. (New Initiatives, p.157).

The city of Austin is in the process of planning for its future waste and diversion needs. To investigate the opportunities for the city of Austin to start a city-wide, residential composting program that addresses issues of equity, I needed to find an organizing framework. The following chapter explains why I chose sustainability as a lens to explore these opportunities.

Organizing Framework

Sustainability as a Framework

I use the concept of sustainability as an organizing framework for evaluating the efficiency of a future composting residential program in Austin. The United Nations Brundtland Commission of 1987 defined sustainability as “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (Imagine Austin,” 2011). The City of Austin’s Planning department used this definition in its comprehensive plan and expanded upon it with the following:

“Sustainability means finding a balance among three sets of goals:

- (1) prosperity and jobs,*
- (2) conservation and the environment, and*
- (3) community health and cultural vitality.*

It means taking positive, proactive steps to protect quality of life now, and for future generations” (Imagine Austin,” 2011).

The city of Austin’s definition of sustainability centers on three themes: economic, environmental and social responsibility. Economic sustainability means a program is designed, structured and administered in a way that ensures there will be adequate funding to continue operating the program in the future. Environmental sustainability ensures the program uses resources efficiently and that the impact of operating the program now and in the future benefits the environment. Lastly, social sustainability encompasses the idea the program will benefit the community and be wanted and necessary for the future. A truly sustainable composting program will use these themes as guiding principles and ensure each is given equal weight.

Sustainability and Waste Diversion Programs

Waste diversion programs that follow the waste hierarchy of “reduce, reuse, and recycle” follow sustainability principle as they stress resource conservation so that future generations can meet their needs. Reduction, the first and most effective component of the hierarchy, reduces consumption and future waste. Reuse gives old items a second life, while recycling uses energy to process old products into new materials. Programs and designs that prevent the creation of waste, such as those outlined in McDonough and Braungart’s book “*Cradle-to-Cradle: Remaking the Way We Make Things*,” are most effective. However, when waste can’t be prevented, recycling programs, such as composting programs, play an important role in reaching sustainability goals. Composting programs provide an opportunity to divert waste and recycle organic waste into valuable compost materials.

Composting for Waste Diversion

Composting is a waste diversion technique that recycles organic waste (i.e., kitchen scraps, yard waste, soiled paper) into a nutrient-rich product. Epstein (1997) defines composting as a “method of solid waste management during which the organic component of the solid waste stream is biologically decomposed under controlled conditions to a state in which it can be handled, stored and/or applied to the land *without adversely affecting the environment*” (cited in Komilis, 1999, p.6).

I’ve modified this characterization of composting to create a working definition. I argue that compost should not “adversely affect the environment,” but rather it improve it (e.g., through soil remediation, waste diversion, soil erosion prevention, methane gas prevention) and the community (e.g., through better public health, economic savings, job creation). My definition is: method of solid waste management during which the organic component of the solid waste stream is biologically decomposed under controlled conditions to a state in which it can be handled, stored and/or applied to the land *to positively affect the environment and community.*”

By removing organic material from the waste stream, composting produces a product that can be used to amend local soils and increases the life of landfills. This compost product improves the health, nutrient quality and moisture retention of soil, as well as prevents soil erosion (Faucette et al., 2004). Because decomposition is a naturally occurring process, most composting programs require little management, namely a few mechanical inputs (e.g., energy to cut up and turn the material).

Composting in Austin

A composting program fits with Austin's commitment to the three pillars of sustainability. Not only does a composting program provide a number of environmental benefits (e.g., reduce waste, increase life of landfills, improve the quality of local social), it also creates opportunities for economic development. Composting services in Austin would create jobs for compost collection and processing (cite COA). In addition, increasing the life of landfills allows public funds to be used for other projects. In addition, the end result of the composting process creates a valuable product that can be sold for a profit. In addition, composting addresses issues of equity by improves community health through the soil amendments for healthier food production and erosion prevention for better water quality.

A sustainability framework provides the city of Austin an opportunity to design (and later evaluate) a future composting program that aims to addresses the economy, the environment and equity. Using the lens of sustainability focuses the city's effort on integrating equity into its program. This is particularly useful as equity is the principle that is often over looked or left out of sustainability initiatives. In addition, focusing on equity can have positive benefits in the other two realms. For instance, increasing access to the program (i.e., equity) can increases participation rates, which improves the efficiency (i.e., economy) of the program and the diversion rates (i.e., environment).

Methods

A sustainability framework provides a lens to investigate and evaluate current composting programs and the city of Austin's current waste initiatives, including how the city of Austin's composting program could address issues of equity, in addition to the environment and economy. More specifically, my research goal was to identify specific opportunities for the City of Austin to develop a composting program that ensured equitable access to collection services and the final compost product(s). First, I identified potential contacts, including cities with composting programs, the city of Austin and local stakeholders. I wanted to interview cities with composting programs to see if and how they addressed equity and the lessons they'd learn in setting up their composting programs. I also needed to speak with representatives from the City of Austin's Solid Waste Department to understand the solid waste and composting landscape in Austin and how they approach issues of equity. Lastly, I wanted to contact local stakeholders to see if they had any concerns or opportunities with Austin starting a city composting program. Then, I created a list of questions for semi-structured interviews. After conducting the interviews I transcribed and then analyzed the data. I organized my findings by analytic theme in the results chapter.

1. Cities with Composting Programs

To learn more about what other cities programs had done, I identified a list of cities that currently offered composting services. Then, I narrowed the list by targeting cities that had established programs (e.g., those that had been operating city-wide for a few years) and had populations similar in size to Austin (population: 800,000) ("Austin, Texas," 2011). The final list included four cities:

1. Portland, Oregon (population: 580,000) ("Portland, Oregon," 2011)
2. San Francisco, California (population: 805,000) ("San Francisco," 2011)
3. Seattle, Washington (population: 600,000) ("Seattle," 2011)

4. Toronto, Ontario (population: 2,500,000) (“Toronto,” 2011)

Although none of these cities are located in the South, all are similar in size to Austin and have well-established residential composting programs, aside from Portland, which has a mature commercial composting service and a newly-launched residential service.

Next, I developed a list of questions, identified the particular city staff I’d need to talk to and set up interviews. Below is a list of the interview questions I developed for the semi-structured interviews. These questions focus on the city’s composting program design, educational materials, metrics for success and challenging populations.

Questions for Cities with Composting Programs

- What is the compost program’s current budget?
- What is the program’s compost current fee structure? And how does it compare to their current garbage fee structure?
- What educational and programmatic materials have they used?
- How was the program initially launched?
- What kind of planning was required prior to the launch of the program?
- How long was the pilot program?
- How long did it take from the start of the program until it was fully operational?
- Who were key players in the start of the program?
- How does the city assess success? How does the city measure program size (e.g., geographic coverage, volume)?
- What does your program do to ensure historically disadvantaged participate in the program and/or have to the finished composted product?
- How do you define “historically disadvantaged” populations?
- Did your program draw from research that analyzes how people make decisions about participating in waste diversion programs?
- If so, how did you use this research?
- Did you consider this research useful?

2. City of Austin

I followed a similar process for the city of Austin. First, I identified representatives with the city of Austin's Solid Waste Department and developed a list of questions for semi-structured interviews. The questions focus on the city's current programs, fees, partners and infrastructure. Below is a list of the questions for semi-structured interviews:

Questions for City of Austin's Solid Waste Department

- What is Austin's current solid waste program budget?
- What is Austin's current garbage and Dillo Dirt fee structure?
- What is the structure of Austin's current waste program?
- Who collects garbage and recycling curbside?
- Is it taken to a transfer station?
- What landfill is the garbage taken to?
- Who takes the garbage to the landfill?
- Has the city ever run a compost program or pilot?

3. Local Stakeholders

For the third group of contacts, I wanted to understand composting services currently offered in Austin. I also was also interested in identifying the potential constraints and opportunities local stakeholders saw. First, I identified the local stakeholder groups I wanted to interview, including local compost collectors and processors, large food waste generators (e.g., large groceries), and groups that addresses environmental justice issues. Then, I identified the specific groups I wanted to target and developed a list of questions for the semi-structured interviews. Below is a list of the questions by stakeholder type:

Questions for Local Composter Processors

- What composting services do you currently offer?
- What is your current fee structure?

- How have you educated customers about what to compost?
- What barriers are there to your composting business?
- Are there any legal, environmental, fiscal or other barriers do you have?
- What might be some of the opportunities for you to be a part of a residential, curbside food scrap/composting program?
- Would you support city efforts to start a municipal (e.g., residential and/or commercial) composting program?
- What concerns might you have if the city started a residential, curbside food scrap/composting program?

Questions for Local Generators

- Do you receive composting services? If so, what kind?
- What is your current composting and garbage fee structure?
- Have you realized a financial savings compared to your previous garbage fees?
- What barriers did you overcome to begin a composting program?
- What barriers do you face composting at your business?
- What might be some opportunities your business to receive composting services?
- What might be some opportunities your business to participate in a city composting program?
- Would you support city efforts to start a municipal (e.g., residential and/or commercial) composting program?
- What concerns might you have if the city started a municipal (e.g., residential and/or commercial) composting program?
- Why was your composting program initially launched?
- How was your composting program initially launched?
- Who were the key players involved in starting your composting services?
- What educational and programmatic materials have you used in-house to ensure compliance with your composting program?

- Did your compost service provider provide educational and programmatic materials? If so, which did you find the most useful?

Questions for Environmental Justice Groups

- Has your group addressed environmental regarding siting of Locally Unwanted Land Uses (LULUs) (e.g., waste disposal or waste processing facilities)?
- Have you worked with the city on issues of equity associated with infrastructure like composting facilities? If so, what issues and how?
- Do you have any concerns for a curbside, residential food scrap/composting program (e.g., patterns of distribution)?
- Do you have any recommendations for the city creating a program for curbside residential composting?
- How might you want to work with, or be involved in, the city developing/siting/implementing a curbside, residential food scrap/composting program?

Interview and Transcription Process

I conducted the interviews over the phone using a cellphone, earpiece microphone and Olympus Digital Voice Recorder VN-4100PC. I also took notes on my personal laptop computer in case the recorder failed as well as to increase the speed of transcription. The interviews took between 30 and 40 minutes to complete. I transcribe most of the interviews using Digital Wave Player software. One interview was recorded using Microsoft PowerPoint and transcribed using VLC media player software. A jump drive was used to store and back up interview data.

Conducting the interviews was an interactive process. Interviewees answered my questions or referred me where I could find answers to my questions (e.g., to reports, websites, or other colleagues). As the interviews progressed, I asked follow up questions to clarify important points. In addition, interviewee responses changed the direction of my research. For example, after learning that the city of Austin only controls residential curbside collection programs, I began focusing my research questions on residential composting.

While for the most part the interview progressed smoothly, there were a few glitches. First, one interview was cut off three quarters of the way through the interview due to loss of power to

the recorder. However, I was aware of the situation before it occurred and able to take copious notes for rest of the interview. Second, the local compost processor requested I not record or attribute their name to their comments. In addition, the interviewee for the large-scale food waste generator was not acting in official capacity for the company. Therefore, their comments can only be as general issues rather than company-specific concerns. In addition, I had planned to interview contacts at the Sustainable Food Center (SFC), the city of Austin Water Utility, as well as some local haulers. However, these interviews were not conducted due to scheduling difficulties/conflicts. While they would have been information, the stakeholders I did contact (i.e., PODER, the city of Austin and the local compost processor) were likely able to provide similar information, paint a fairly clear picture of composting in Austin and highlighted a number of opportunities.

Data Analysis Method

After transcribing the interviews, I analyzed the data. First, I read through the transcripts once without taking notes. Then, I read through the transcripts underlining sections related to themes from my research questions. Then, I took notes on Sticky Notes, using a different note per topic. I catalogued each sticky note, writing the analytic theme at the top along with the interview code and the note number. Then, I wrote the note number on the corresponding underlined section of the transcripts and the total number of notes on the first page of the transcripts.

After taking notes for each interview, I grouped the sticky notes by topic and eight analytic themes (i.e., community engagement, grassroots outreach, communication and education, feedback loops, program metrics and monitoring, historically disadvantaged communities, policy infrastructure and physical infrastructure). Using these analytic themes as a guide, I wrote the Results section.

Results

Eight Analytic Themes

Using the research questions outlined in the Methods section, I interviewed contacts in order to explore opportunities for the city of Austin to start a residential, curbside composting program that was sensitive to issues of equity. Though each city had a unique way of starting and implementing its composting program, the interviews revealed the eight common analytic themes: community engagement, grassroots outreach, communication and education, feedback loops, program metrics and monitoring, historically disadvantaged communities, policy infrastructure and physical infrastructure.

1. Community engagement and startup process details how a city garners the political will to begin a composting program. Community engagement is a key component in two ways: first, it creates the political will for launching a composting program, and second, it provides foundational support for future program success. Community engagement can create community support for composting services. This community support can prompt community leaders to generate the political will to start a composting program. Once the program is started, community support provides a consumer base for participation in the program. And, as noted above, participation rates are important for program success. Therefore, community engagement, and the political will and customer base it generates, is critical to the successful initiation of a composting program.
2. Grassroots program outreach encompasses the strategies cities used to enroll their residents into their composting programs. Program outreach is a form of community engagement which entails consumer education, program promotion, and message customization.
3. Communication and education describes the communication and educational strategies and materials cities used to communicate with their customers. Interviewees discussed how

they developed programmatic materials, targeted different populations and customized their messages for different audiences. Materials and messaging varied overtime (e.g., from initial outreach to on-going program implementation).

4. Feedback loops covers the methods cities use to become more responsive and adapt to information. Feedback loops include the city gathering or providing information as a way to modify the program or behavior. For example, the city provides information to customers about their contaminants in their compost to change behavior and reduce contamination results. Cities also collect information to understand how they can better serve their customers. Feedback loops begin with gathering information and using it to. integrating it into the program as a means of improving performance.
5. Program metrics and monitoring are a type of internal feedback loop cities use to gather and analyze information on their program. Cities collect data on their total waste tonnage, diversion rates, participation rates, and contamination rates. This information can be used to make program adjustments and publicize that they are meeting their diversion goals.
6. “Historically disadvantaged” or challenging communities describe how cities identify these communities as well as the strategies they’re using to increase enrollment of these populations.
7. Policy Infrastructure outlines the waste management plans and ordinances cities have used to start and continue developing their composting programs. Many of these policies begin with waste management plans and progress to composting requirements.
8. Physical Infrastructure highlights the facilities and coordination necessary to implement a composting program. These facilities include processing facilities, transfer stations, along with haulers, trucks, carts and routes. Policy and physical infrastructure interact with one another to create opportunities as well as barriers to composting services.

1. Community Engagement and the Startup Process

Creating the community support and political will to start a composting program is important to move from ideas and concepts to implementation of pilots and a roll out of the program. The representative from Toronto Solid Waste Management provided a model for gaining support and having a city council pass a composting program. First, the city needs to engage the community about composting to garner support and community buy-in. Then, once there is strong public support, the city needs to educate City Council about the program and its overall support. Then, once wide-spread support is established, the City Council should have the political will to pass an ordinance to start a composting program. Just one example is *the strong political support Portland has for its Portland Recycles and Climate Action plans (Por-1)*³.

According to a representative from the city of Austin Solid Waste Services, there is already strong community support in Austin for a composting program and that all seven members of City Council are on board. However, the city has only put on 20 workshops, which while well-attended, have reached only a small portion of the population. Currently, less than 1% of Austin residents currently backyard compost (COA-2). Due to these low numbers, it's not likely that these participants represent the diversity of Austin, especially since many of the workshops occurred in Sun Valley (PODER). Therefore it is important that the city of Austin must continually examine who is providing feedback in order to judge community support. If the city is only using those who attend composting workshops as a litmus test of community support, it may have an inflated estimate.

2. Grassroots Program Outreach

Similar to community engagement, interviewees discussed the importance of program outreach, including the more and less effective ways cities enrolled their residents into their composting programs. Program outreach is important to enroll high participant rates and to attain low contamination rates. Multiple cities, including San Francisco and Seattle, have found grassroots outreach more effective than other, more-mass produced forms of outreach.

Seattle's Friends of Recycling and Composting program works on the same premise, enlisting property managers and/or residents of an apartment complex to become an on-site

³ Transcripts are coded; the code Por-1 refers to the first city of Portland interview.

“ambassador” for their composting program. These program ambassadors attend a two hour training and receive posters and fliers to educate the tenants about the composting program. In return for signing up for composting services, the apartment complex receives a \$100 off their utility bill. While the majority ambassadors are on-site property managers, due to the excitement about the program, tenants have called to sign up to start the program. On the other hand, the city of Seattle has not had strong success with advertisements in English as a Second Language (ESL) newspapers and presentations within community. These efforts have had little impact in these communities (Sea)⁴.

The city of San Francisco used a similar means of grassroots outreach, which also proved highly effective. San Francisco has adopted Community-Based Social Marketing/Philosophy for its outreach (SF)⁵. The city believes people are being bombarded by advertisements and becoming overwhelmed by messaging. While more expensive, San Francisco has found direct, face-to-face outreach more effective than mass advertising (e.g., billboards, bus shelter ads) and worth the investment. As part of its Green Apartments Campaign, San Francisco hired members of Green Jobs program, which are residents who represent the city’s diversity, are from different neighborhoods and talk to other members of their community about the program in their native language. In addition, San Francisco also uses door-to-door outreach to educate residents who have multiple contamination violations. The city sends someone to knock on the door of the violator to talk him/her through the program and about what is and is not collected by composting program.

Much like San Francisco’s hiring of members of Green Jobs, PODER strongly recommends the city hire a group of residents to perform grassroots outreach, *particularly to historically disadvantaged populations*. The members of this group will represent Austin’s diverse racial and ethnic communities, live in these communities and be native speakers to more effectively communicate the program concepts to residents. This group could be part of a “Train the Trainer” program, where trainees could use their outreach skills for other city programs and initiatives.

⁴ Transcripts are coded; the code Sea refers to the city of Seattle interview.

⁵ Transcripts are coded; the code SF refers to the city of San Francisco interview.

While the city of Austin may decide to use a variety of education and outreach strategies, PODER believes grassroots efforts will be necessary to communicate with Austin's diverse communities, including those who may not have college degree and those who have been historically disadvantaged and/ or left out of the dialogue on previous city programs. PODER sees reaching out to these communities through the schools, churches and children as particularly important.

3. Communication and Education Strategies

Along with targeted outreach, cities are developing a number of creative strategies for communicating with their diverse populations, including image-based outreach, and different messages for different clients. A successful educational campaign is necessary for successful implementation of a composting program (PODER), especially since the City of Austin has had difficulty communicating with its different populations in the past.

A. An Important Investment

Consistent and extensive communication and education are critical to program success (Tor)⁶. As a result, the city of Toronto invested in their communication and education strategies. Likewise, the city of Seattle saw their educational materials as an investment. While more expensive, San Francisco found direct outreach to be more effective than mass-advertising.

B. Image-Based Messaging

Many cities are turning to image-based outreach. Information must be presented in a way that is simple to read, understand and learn (Tor). The city of San Francisco believes text is cumbersome and that people are less likely to read that look at images. Therefore, the city uses image-based outreach and only translates key words (SF). Similarly, the city of Seattle has found that much of its English as a Second Language (ESL) population is illiterate and, while it does translate its educational material into 14-15 languages, it prefers images to text (Sea).

⁶ Transcripts are coded; the code Tor refers to the city of Toronto interview.

C. Promotional Messaging

The cities use a variety of messages to communicate with their clients. In order to convince residents, apartment complexes and businesses to participate in the city's composting program, Toronto highlights the benefits and value to its customers as well as the city. For example, the city notifies residents of how much composting has saved them on their waste bill. The city also communicates that there is real value in residents separating their garbage.

Seattle uses a number of strategies for communication. It demonstrates that composting promotes community pride and fits in with the culture of the community. The city also stresses not being wasteful with slogans like "why waste a good thing?" In addition, the city highlights the negative consequences of failing to participate properly with the catchphrase "don't be left behind" as waste haulers leave carts that are contaminated behind to be sorted.

Toronto also communicates to demonstrate provide updates and publicize that its program is achieving its results (Tor). Toronto stressed that the frequency of communication with customers is important (Tor). For example, the city sends out a quarterly newsletters as well as updates in their bills.

D. Audience Targeting

Cities found messages that are specific and specific to their audiences were preferred. For example, PODER recommends the city clearly communicate what products can be composted and where they should be placed (PODER). This is supported by the experience of Portland whose residents request the city provide an explicit "Yes/No" list of products that could be composted (Por-2).

To address varying levels of participation across groups, cities are developing different messages to different groups of people. For example, San Francisco has developed customized messages to educate each of the various stakeholders involved in multifamily complexes (i.e., property managers, landowners, tenants). First, the city speaks to

individual property managers about how the program works (e.g., frequency of service, cost, benefits). Then, it educates tenants on how to participate in the program (e.g., what can and cannot be put in the carts). After the program is successfully running, the city then moves up the chain to the owners of the property (i.e., owners, property management companies) to see if they can get additional properties signed up for the program. The city also educates them on San Francisco's mandatory ordinance that requires composting (SF).

To help commercial facilities educate their customers, the city of Seattle offers customizable educational materials to its commercial clients. Businesses that subscribe to the city's composting program can use the city's image database to create posters using images of the foods they serve from the city's database. In this way, businesses can effectively communicate to their customers what they can and cannot compost at their establishment.

For examples on how customized messaging has contributed to customizing services, see the section below on Customized Programming.

E. Access and Distribution Issues

While the design of communication and educational strategies are important, it means little if the distribution of this information and the final compost product is inequitable. PODER noted that while the city has performed a number of backyard composting workshops, they have only been offered in certain parts of the city (e.g., Sunset Valley). To ensure greater access to a greater number of people, PODER recommends the city expand the distribution of its educational workshops to areas across the city, including East Austin. The city could address access issues by expanding the numbers of workshops offered and by increasing the kinds of locations/neighborhoods involved.

In addition, the city of Austin might consider increasing access to the final compost product. While few cities set the price of compost, Seattle in conjunction with its compost processor offered sales on their compost product to temporarily reduce the cost of their compost product. The city of Seattle gives away containers and compostable bags at sales and as give-aways at community events. This type of one-time price adjustments could increase

access if the sales occurred in a variety of locations, since cost and access are the two big barriers to purchasing for lower income communities (PODER).

4. Feedback Loops

However, communication and information does not flow one way. Cities can use feedback loops to gather information about program performance and encourage two-way communication between customers.

Alberti et al. (2003) describes feedback loops as entities or systems that, in their interaction, influence and change one another. They link programmatic structures, behaviors and outcomes with the intention of changing program structure in response to behaviors and outcomes. Cities monitor the outcomes of city programs through waste audits and surveys. Using this information, cities can work to modify their program structure and outreach to change individual behaviors to improve collective program outcomes. Integrating user knowledge into programmatic structures allows composting programs to be adaptive and responsive to user needs.

However, not all feedback loops are successful. A successful feedback loop requires that the information provided is meaningful, that the city receives the information and has the capacity and willingness to respond to the feedback. Therefore, the city must not only track this information (using the surveys above are one method), but it must also make a commitment to incorporate and integrate this information into their program in a timely manner.

Feedback loops are particularly useful for customizing programs for particular groups. As noted earlier, cities are comprised of heterogeneous groups; therefore it's likely communication and outreach strategies will not have the same effect on all populations. To address equity issues of increase access, participation and satisfaction, cities may need to tailor their composting programs to different populations. Feedback loops create an opportunity for specificity.

Feedback loops are an important component of the composting programs of the cities I interviewed. All of the cities I interviewed use feedback strategies as means of changing

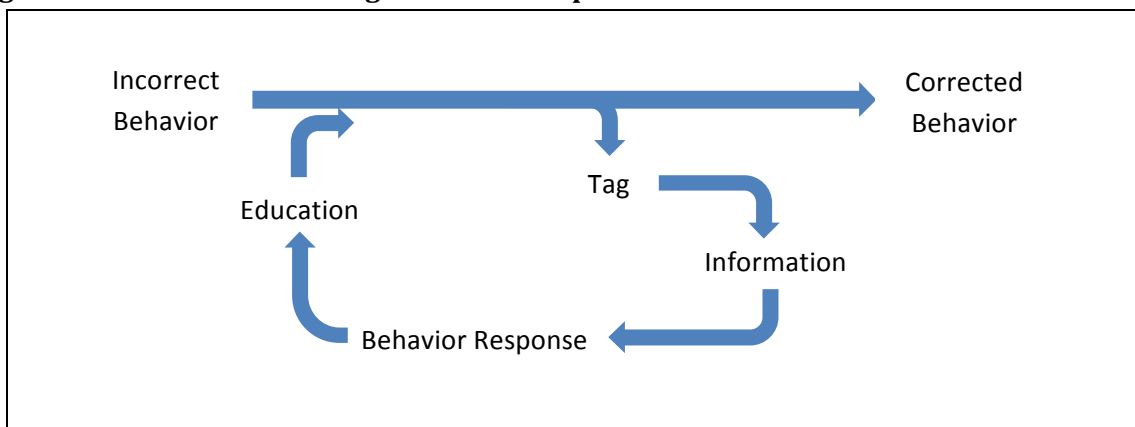
behavior, communicating and gathering information, and adjusting their composting programs. Interviewed city staff described a number of devices to collect information from a variety of sectors, including single family, multi-family and commercial. Listed below are examples of the feedback loops that interviewees discussed.

A. Contamination Tag

Cities, like San Francisco and Seattle, tag carts with contamination as a means to educate and change the behavior of residents. One of the slogans the city of Seattle uses is “don’t be left behind.” In Seattle, waste haulers leave a tag on contaminated carts and require residents to sort out and remove the contaminant(s) before they’ll pick it up. In San Francisco, if a cart is tagged multiple times, the city will send a representative to knock on the door of the violator and talk to him/her about what can and cannot be put in the compost carts.

The diagram below is graphic representation of a feedback loop of how the city provides information about customer’s composter behavior and requires the customer to address the problem (e.g., sort out contaminants) before collection service will be provided. The tagged cart presents information which elicits a behavioral response and provides education about the program. This feedback loop links information and behavior change to learning.

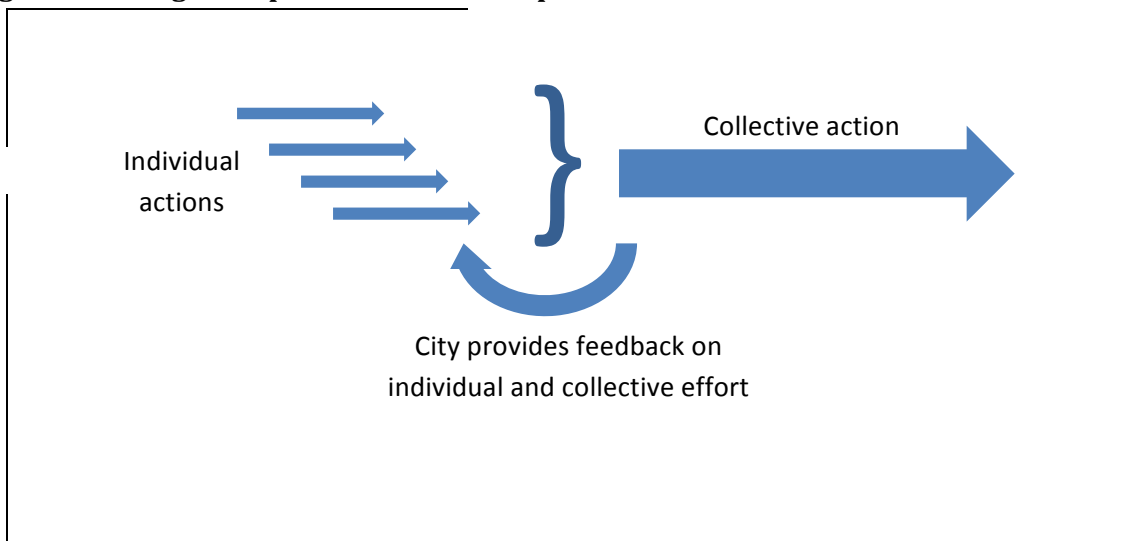
Figure 5.A. Contamination Tag Feedback Loop



B. Program Updates

Many of the cities provide updates on the status of the program to their clients. The city of Seattle informs residents of number of their peers participating, how much the city has diverted, and how much they and the city saved by diverting material from the landfill. This feedback loop links individual action to collective impacts and program success and serves to encourage residents to continue diverting waste. It also demonstrates to residents that there is value in their individual actions and that they are helping the city reach its diversion goals. In addition, it shows that residents can have faith that the city is on its way to meeting its goals. This feedback loop links individual action to collective results as a means of building individual and community support.

Figure 5.B. Program Update Feedback Loop



C. Customer Input and Program Modification

Interviewed cities have customized their programs in response to customer feedback. For example, space constraints in high-density cities like San Francisco and Toronto, have resulted in property managers wanting more frequent service than weekly pick up. Toronto provides such a premium service, at a premium cost five times a week. The city of San Francisco is considering offering more frequent service at an additional cost.

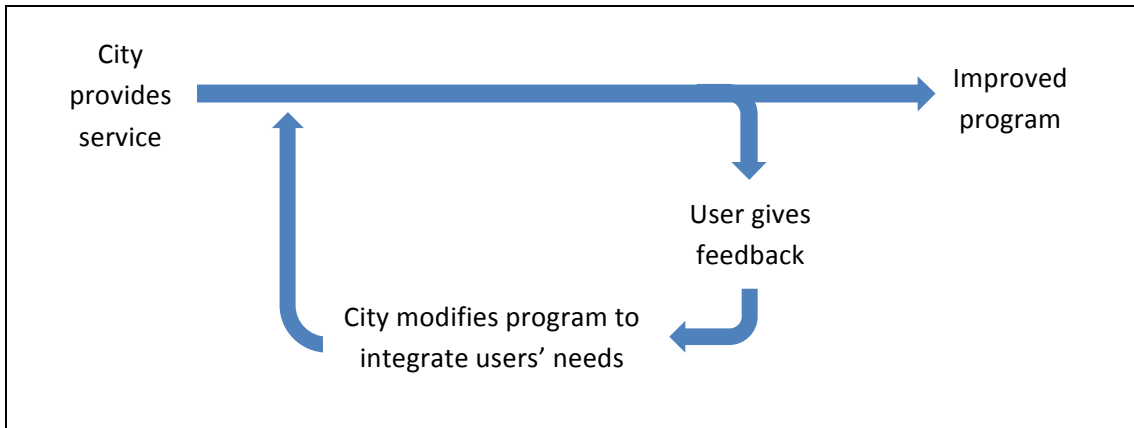
In Portland, surveys provide is an important feedback regarding customer satisfaction. While the residential composting program is just beginning, Portland has collected data on its commercial composting program since its inception to assess the success of its program. These surveys measure customer satisfaction, how well their messages are working, the number of people who participate, and barriers to participation (Por-1). The city integrates this data to better understand its clients, evaluate its service, and adjust its programs and messaging.

The city of Seattle has also modified a number of its programs. In response to feedback they received from multifamily facilities, the city has started allowing these properties to line their containers with compostable, bio-plastic bags. In addition, while Seattle did not initially provide kitchen containers during the program's roll out, it has begun offering these containers to encourage the last remaining residents to join the program.

Likewise, the city of Seattle conducts annual to biannual surveys on who is participating in their compost program, how satisfied they are with the program and why they like it. Seattle also collects data on how often and why residents participate and why they don't (e.g., don't have kitchen container, don't want to attract fruit flies or other pests, have a backyard compost bin). This information is used to modify their programs, including now providing kitchen containers to encourage stragglers to enroll.

This feedback loop links customer input to program modifications and improvements.

Figure 5.C. Customer Input and Program Modification Feedback Loop

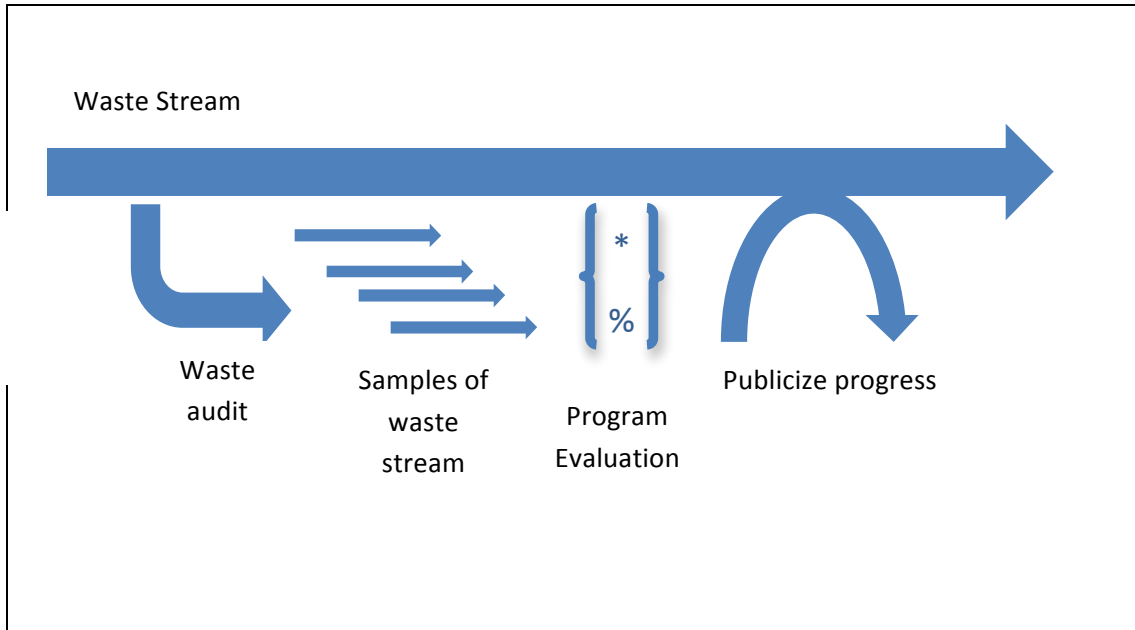


D. Waste Audits

Like surveys, waste audits help program administrators understand how the program is operating and as a means to evaluate program success. Both the cities of Portland and Seattle mentioned performing waste audits to collect data on how much waste is produced and where it is sent (e.g., recycling, garbage, compost).

In Portland, the Oregon Department of Environmental Quality performs an extensive waste audit of the Metro area every six years to determine diversion and contamination rates. At each transfer facility, staff perform a visual check of the compost collected and reject loads that are too contaminated (Por-1). Possessors create monthly reports which include contamination levels for loads that are received (Por-1). These waste audits provide a sample of the waste stream that can be extrapolated to provide a picture of the entire system. This information is then used to evaluate the program, identify areas of improvement and to publicize their progress towards their goals. This feedback loop links collective result to program goals to evaluate and promote the program

Figure 5.D. Waste Audit Feedback Loop

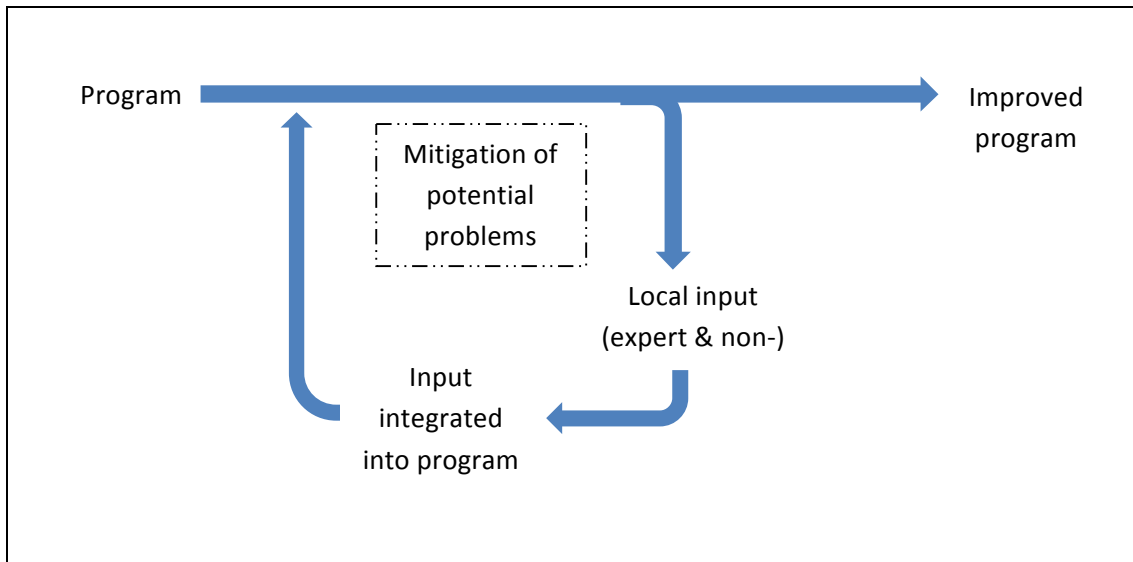


E. Taskforce/Advisory Committee

The city of Portland used expert and community input to design and adjust its programs. Portland convened a taskforce to investigate the feasibility of composting programs. Later it created public advisory committees to provide input regarding design the composting programs (e.g., rates, collection equipment).

PODER believes the city of Austin should continue its strategy of creating Taskforce or Advisory Committee, with a particular focus on ensuring its members represent the diversity of Austin. These advisory committees could provide input on the location of the composting facilities, how to improve the effectiveness of the city's educational and outreach campaigns and strategies, and the distribution of the final compost product (e.g., access and cost). This feedback loop links community knowledge and concerns to customized program design.

Figure 5.E. Taskforce/Advisory Committee Feedback Loop



5. Program Metrics and Monitoring

Program metrics and monitoring are an internal feedback cities can use to analyze and demonstrate how they are reaching their diversion goals. Using the data collected from their waste audits, these cities have used a variety of methods to assess the success of their programs, including total tonnage, diversion rates, contamination rates, participation rates and customer satisfaction.

A number of cities, including San Francisco, Portland and Seattle, were concerned about their total landfill amount. San Francisco is particularly concerned about its landfill tonnage. While it publicizes its diversion rates, within their department, San Francisco is working to reduce the 600,000 tons it currently disposes to zero (SF). Portland uses its total waste tonnage as a primary indicator of its success, however, unlike San Francisco doesn't see zero waste as feasible (Por-1).

All cities look at their diversion rates (i.e., the amount of material they are diverting from the landfill by composting). This rate was particularly important among cities that were shipping their garbage long distances (e.g., Toronto shipping to Michigan). While the city of Portland

examines recovery (i.e., diversion) rates, it stresses that “it is hard to determine what is moving that recovering rate [because] there are a lot of variables driving [it]” (Por-1).

Cities also examine their contamination rates (i.e., of the amount of material in collection that is not compostable). Contamination is directly linked to efficiency of the service and the educational campaign. It is also linked to the purity of the final product. However, only the city of Toronto mentioned being concerned about the quality of its compost product, which must meet Ontario’s standards for compost feedstock and output.

Participation rates are another metric used to judge the success of programs. Because composting is required in San Francisco, the city tracks the total number of buildings enrolled in their program, because they can’t reach zero waste without 100% access to all commercial and residential properties. The city of Seattle, which also requires composting, combines its curbside collection subscribers and backyard composters.

Customer satisfaction is a strong indicator in Portland as well as Seattle. Both measure satisfaction through regular surveys. Portland compares survey results to historical data, which it has been collecting for years.

While Portland was the only city to specifically look at whether its messages are working and changing behaviors (Por-1), participation and contamination rates may be a proxy for other cities.

6. Equity for “Historically Disadvantaged” Communities

The cities had different definitions of “historically disadvantaged” communities. Most cities focused on “challenging” rather than “historically disadvantaged” communities, which varied based on housing, economics, language, etc. Challenging communities may include populations that are difficult to enroll in the curbside compost collection program, that are resistant to participate or that have high contamination rates.

Most cities found apartment complexes to be a challenge. As mentioned above, the city of Seattle customized its multifamily service by providing larger bins for tenants to share and

allowing bio-plastic liner to improve sanitation. The city of San Francisco described apartments as “historically forgotten” and actually forgot 3-, 4- and 5-unit apartments in the roll out of its composting collection program, which was later a challenge to go back an enroll.

In addition to apartments, a number of cities found lower income communities to have lower participation rates. The city of San Francisco had difficulties getting residents from section 8 Housing to participate in their composting program. As a result the city is working with residents and property managers of Section 8 Low Income Housing to join their composting program. San Francisco is using multiple interventions, including stakeholder meetings to discover what the barriers are for residents and managers (e.g., carts stolen or damaged, high turn-over rates within complexes, city doing a poor job of communicating with this group) and ways the city can reach out to these communities (e.g., provide a kitchen catcher) (SF).

In addition, communities where English is spoken as a second language were also more difficult to reach. As mentioned above, the cities had different strategies to reach out to these communities. To reach out to these communities, Seattle ran ads in English as Second Language newspapers and went out into the community to present the program. However, these had little impact (Sea).

The city of Seattle had a number of interesting findings. First, the city found that men were stragglers in the program, which coincides with the research that women are in charge of household chores. However, interestingly, white, middle class men have the highest enrollment rate in the city’s “Friends of Recycling and Composting” program, for multifamily facilities. This is likely due to the fact that property managers in Seattle skew towards this demographic. In addition to lower income groups, San Francisco also found higher income communities to have low participation rates as well, which again coincides with current research (SF).

7. Policy Infrastructure

The importance of policy infrastructure was another common analytic theme. Policies such as waste management plans and composting standards as well as organization infrastructures can help promote composting services. Most of the cities had waste management plans, which

create diversion rates which prompted the creation of their composting programs. For example, in 2008 with strong community support, Portland's city council passed the Portland Recycles plan, which required the Bureau of Sustainability to pursue a residential composting program (Por-1). In addition to strong community support, the plan had the political will of the city's council and mayor (Por-1). Since then, the city has passed supporting legislation regarding rates and how the city will bill for services (Por-1). Like the city of Austin's proposed waste management plan, Portland used a phased in system focusing first on recycling and then composting services. After successful implementation, Portland, along with San Francisco and Seattle, have passed mandatory ordinances which make composting services required.

The city of Toronto has a standard for its compost inputs as well as final product. The city of Austin as well as local composters are interested in developing a similar end user compost standards as a way to expand the compost product market by developing a variety of products and changing the image of compost from waste to a valuable resource. The standard would delineate higher and lower grade products and provide clear labeling, thereby ensuring organic farms and TxDOT receive the products they desire (ObG)⁷.

Organizations such as the health department, TCEQ and policy can play a role in compost implementation. The city's current health code, which requires facilities like grocery stores to throw away and not donate unpackaged, edible food, may impede the diversion goals composting programs aim to reach. Large food producers such as grocery stores see readdressing these standards as an opportunity to improve composting and outcomes (WF). In addition, local composters see an opportunity for the Texas Commission on Environmental Quality (TCEQ) to be more educated, more supportive and less regulatory of the composting industry as a way to reduce barrier (ObG).

Regulation is another innovative way of encouraging composting. To discourage the increase in illegal dumping it noticed after starting its recycling and composting program, the town Perkasio, Pennsylvania began publishing the names of offenders in the local newspaper (Friedman, 1992).

⁷ Transcripts are coded; the code ObG refers to the conversation with a local compost stakeholder.

8. Physical Infrastructure

While policy can both hinder and drives demand, infrastructure posed mainly limitation.

Therefore, if the city of Austin is to implement some of the policies above it will need to address its physical infrastructure. A representative from the City of Austin's Waste Service said it's important that the city work both the policy as well as the infrastructure end. A good example of infrastructure limitations is that fact that Portland couldn't expand its composting service to include its residential sector because there was not permitted composting facility in the Metro region and it couldn't afford to ship additional compost to Washington. Portland also had limited capacity at one of its transfer stations, both which have been rectified.

The city of Austin has mentioned adding a service center north of Town Lake as a means to increase efficiency of collection routes and service of a large and growing city. Many of the interviewed cities, including Portland, had transfer stations, particularly when composting facilities were spatially spread out (Por-2).

SUMMARY

These results aimed to help inform the city of Austin of other program ideas as it designs a future residential, curbside collection program. Three themes emerged from the interviews: the importance of communication, of understanding and being flexible to the different needs of its diverse population, and of using feedback loops to constantly improve its service. Implementing these components will help Austin disseminate information to its customers, collect and incorporate customer input, and modify and customize its programs.

One of main themes of this is the importance of communication. Outreach, engagement, education and feedback techniques all rely heavily on the clear flow of information.

However, communication is not a one-way street. The city of Austin must be adept at listening and responding its community in addition to communicating with its residents. Therefore, creating and monitoring feedback loops will be an important component to a future composting

program. Feedback loops help the city understand how its services are (or are not) working, react to community input and modify its program.

Another theme was the fact that the composting program must be flexible to the heterogeneous nature of the community. The city of Austin is comprised of diverse populations that will respond differently to the city's initiative. As a result, Austin must make an effort to respond to and work with different communities, which will require the use a variety of methods of outreach, communication and education. For example, because it can react to the needs of its different communities, grassroots outreach is an effective means for targeting a variety of populations.

Discussion

Given these results, I've developed a series of proposals to assist the city of Austin as it begins to investigate creating a composting program. These seven proposals cover a breadth of topics including: community engagement, grassroots outreach, communication strategies, customer feedback system, sustainability, tiered services, and standards for compost product(s). Many of these ideas originated from interviews or research and were tailored to Austin's situation. Lastly, I address unanticipated results and disagreements among responses.

Seven Specific Proposals

1. *Continue Community Engagement*

Because community engagement has the ability to generate political and community support, I recommend the city continue its community engagement around compost. According to its website, the city of Austin is currently offering bilingual composting workshops, both online and in-person at City Hall. However, populations which don't have access to the internet or the ability to attend these workshops will not be able to attend.

While workshops have been full, only 20 have been offered and the total number of residents who compost in Austin is low (i.e., less than 1% of the population) (COA-2). Because it's such a small portion of the population and because these workshops have been held in less accessible locations (e.g., Sunset Valley), participants likely do not represent the diversity of Austin. The Hope farmer's market on the east side may be a good venue to start.

Therefore, I proposal the City of Austin expand the geography of its compost workshops as a way to increase engagement of all of Austin's community. The city could work to bring composting programs to low-income areas including east Austin, Dove Spring, Montopolis, St. John's and Del Valle. The city could partner with organizations that are already operating or

performing environmental-related outreach in these communities. For example, the Sustainable Food Center (SFC), a local non-profit which works to increase access to local foods, may be a potential partner. SFC works with schools to educate children about food production and nutrition through the use of school gardens.

PODER mentioned that targeting children, churches, and schools are some of the more effective ways of engaging more groups that may be not currently part of the discussion around compost (e.g., Spanish-speaking, low income). Community centers may be another avenue. The city could work with community leaders and organizations to develop a corps of outreach activists. Activist corps should be a part of the neighborhoods they work with to ensure that residents from these communities can trust and understand (e.g., speak the same language, have similar culture) the activists. PODER mentioned it has assisted the city with outreach in the past and would be a good potential partner or consultant.

The city and the activist corps could work with the schools and churches. This may be a natural fit as a growing number of schools and churches have community gardens on their property.

Enrolling higher income groups, which also had low participation rates, may benefit from a similar tactic of targeting children. If so, Austin's private and charter schools, such as St. Edwards and St. Stevens, would be schools to target. However, additional research is needed to verify that this is effective means of increasing participation among higher socioeconomic groups.

To target smaller apartment complexes (i.e., 3-, 4, and 5-unit), the city of Austin could follow Seattle's example and set up a program that utilizes economic incentives and an ambassador program. Currently, apartment complexes are beginning to recycle. This is a great opportunity for the city to learn which techniques are most effective for encouraging properties enrollment and tenant participation. For small apartments such as the duplexes at "Duplex Nation," the group of duplexes located on the east side just north of E. 38 ½th St. and east of Maplewood Elementary School, an ambassador program may not be appropriate. This would be true if there were no enthusiastic property managers, owners or tenants. In this case, the city

might use its activist corps to educate one or two tenants from Duplex Nation to work with the group of apartments.

2. Begin a Grassroots Outreach Campaign

Cities with composting programs had overwhelming support for grassroots outreach. Although an investment, they found it to be more effective than other forms of outreach. In addition, other forms of outreach failed, as the case with Seattle advertising in ESL newsletters with no impact. Similarly, the city has not always been successful in communicating with different groups of people, including those living in East Austin. Therefore, the city of Austin's should focus its outreach effort on grassroots programs.

Like the city of San Francisco, Austin should start a grassroots outreach corps. The corps would be a train the local trainer program, where people who represents Austin's various neighborhoods, learn how to talk about the composting program to their fellow neighbors. This corps would speak a variety of languages and go out in their own community to show residents how to participate in the new program. This group could be used for the community engagement plan above, reaching out to churches and schools. PODER would be a potential partner, especially in East Austin.

The city could work with community leaders to identify volunteers for this corps develop a corps of outreach activists would work with the schools and churches in target communities. This corps could also assist with other city initiatives, such as a city's bicycle ambassador program, where experienced cyclists help newer riders learn to ride safely in the city.

3. Develop Targeted, Image-Based Communication

The city should develop educational and programmatic materials they use images rather than text and that are tailored to specific audiences. All materials should be quick and easy to read and understand. Image-based communication not only reduces the amount and cost of

translation, but addresses literacy issues in populations that speak English as a second language. By focusing on meaningful images and translating only key works into the most commonly spoken second languages (e.g., Spanish) will be more effective than text-heavy materials.

In addition, messages need to be tailored to specific audiences whenever possible. The city of Austin needs to recognize that it will be serving a heterogeneous population. As a result, some messages will be more important to certain audiences than others. Targeting messages will ensure that each population receives the information they need without diluting it with information that they don't. For example, communication materials for apartment tenants will be different than for property managers and owners. Materials for tenants must focus on what tenants will need to know, including how they will participate in the program, what foods and materials can and cannot be composted, where they can store their food scraps both in their kitchens and for collection, when collection occurs, etc. They will also need to know what to do if they have pests and how to prevent them in the future. On the other hand, property managers and owners will be interested in materials that explain the cost and frequency of collection, where storage containers need to be located, how to inform their tenants of the new service, and how to keep larger containers clean and pest-free. While there will be some overlap in information, overall these messages should keep in mind what kind of information each audience will need to participate. Single family residents will need different information and have slightly different issues than multifamily. Likewise, commercial clients will require other considerations. For example, the city can help commercial clients educate their customers by offering posters that commercial facilities can customize with images of the food they serve.

This is by no means an extensive list, and as the program develops, other audiences that require specific messaging become apparent. The key for the city will be to be able to pay attention to these populations and identify what additional information they need. This will require a commitment to react and flexibility on the city's part.

4. Develop a Customer Survey/Feedback System

To aid the city in listening to its clients, the city of Austin should develop a customer survey system to understand customer satisfaction and to adjust the programs and its messaging. The city should survey residents annually and collect information on participation, including how many residents are participating, how often they participate, and why or why they don't choose to participate. The surveys should also ask for why clients like the program as well as incentives and barriers to participation. The city should also collect data on whether or not their messages are working and how it could modify the program to improve its services. The city could model its survey after the city of Portland or Seattle. The information collected will be useful in evaluating and modifying the composting program. However, the city must commit to addressing concerns in a timely manner.

5. Use Its Zero Waste Strategy for Addressing Waste Issues Upstream

In 2009, the City of Austin has adopted a Zero Waste Strategy, which includes reducing per capita solid waste by 20% by 2012 and Zero Waste by 2040. While the interim diversion goal is step in the right direction, diversion rates does not necessarily translate to a reduction in overall waste. For example, if Austin increased its diversion rate from 50% to 75% by composting (i.e., a 25% increase) but increased its overall waste tonnage by 33%, it would have increased both its diversion and overall waste. Only if the city's diversion rate increased and its overall tonnage remained the same would overall waste be reduced.

Instead the city should use its zero waste goal as its driving force and the rationale behind its decision making. Contrarily to diversion goals which focus primarily on moving waste from the landfill to other waste streams, zero waste goals work up the waste stream towards eliminating overall waste, which provides opportunities to innovations. In the example of food waste, a diversion goal stresses increasing composting whereas a zero waste goal incentivizes reducing overall food waste. A zero waste program strategy might include encouraging reuse of food, such as donating edible food to food banks or animal farms.

6. Tiered Services

Currently the city of Austin's circle of influence is single family residences up to 6plexes and commercial facilities downtown. While most other cities offer single family residences weekly compost, larger facilities such as multifamily buildings and commercial buildings expect more frequent. For these cities, providing daily service would increase the amount of food scraps collected (thereby increasing overall diversion rates) as well as demand, they are unable to provide that service at the weekly rates. Therefore, they recommended developing tiered services, so that clients who receive more service pay for it. I proposal the city of Austin develop tiered service rates, with weekly residential collection the least costly and daily or more frequent service as premium service. Tiered rates compensate the city for the extra costs it incurs for offering this premium service (e.g., fuel, wear and tear).

7. Develop Compost Product Standards

I propose the city of Austin adopt compost product standards to diversify and expand the types of compost products on the market. Distinct product standards with clear labels will ensure consumers have information to make educated decisions about the different compost products. This process would delineate higher and lower grade products to address the variety of compost user needs. For example, organic vegetable farmers require a higher grad compost products that TxDOT. Four to five compost products may be necessary to differentiate between the highest and lowest grade products. Standardizing compost products will ensuring consumers receive the product they expect as well as help change the image of compost from waste to a valuable resource. The standard should address output quality and potentially input materials. For example, the city of Toronto follows a standard that regulates both.

Unanticipated Results

A number of surprising results came out of the interviews, including the diversity of program startups, lack of focus on compost product, focus in investment, and the importance of outreach and engagement.

I was surprised to learn that many of the cities saw the communication and education components of their composting program as an investment. Interviewees from the cities of San Francisco, Seattle and Toronto all discussed how their cities were willing to make investments in the composting program and how those investments paid off with greater program success.

Another unexpected result was the diversity of program startups. While I'd anticipated each city having its own unique infrastructure, I was surprised by how the city of Seattle started its residential composting program – without a pilot and initiated by its haulers four years before the city had planned to start the program. The city of Toronto also had a unique launch. Toronto was the only city that built and ran its own processing facility, a sizable investment (Tor). The city rolled out the program one section of the city at a time starting with its single family residences and moving to more dense urban areas.

Interviews focused little attention to the final compost product, with the exception of Toronto. The representative from the city of Toronto was the only interviewee who mentioned a compost standard. This may be due to the fact that there is a regulation and the city owns and operates the composting facility, but I was surprised that the other cities seemed unconcerned with the final product they were creating.

Discrepancies

There were few disagreements between interviewees. The most notable was viewpoints on zero waste. On the one hand, the city of San Francisco looked to zero waste as the driving goal for their program, something though challenging was a realistic goal. Contrarily, Seattle mentioned how zero waste was likely not feasible. Because it uses a holistic approach to waste

management, the city of Austin should adopt a Zero Waste as its ultimate goal and sustainability as its guiding principles when making decisions.

Another notable difference between cities was their views on diversion rates. The interviewee from the city of Seattle talked about how diversion rates could be deceptive. That is, it is difficult to link changes in the program to changes in composting, because it is dependent on so many variables. Composting programs are dynamic, complex systems. Therefore, the city of Austin must be cautious in how it interprets survey and waste audit results.

Conclusion

Introduction

The aim of this paper was to explore opportunities for the city of Austin to start a curbside residential composting program that addressed issues of equity. The result has been a number of recommendations, however there are always opportunities for future research.

Composting is an important strategy to reach the diversion goals outlined in the city of Austin's Zero Waste Plan. Composting has the ability to reduce as much as 25% of waste from the landfill (COA-2), which has been shown to reduce methane production (Metro, 2007). Disposing of food residuals down garbage disposals raises sewage treatment costs. In addition, compost is also a valuable resource which reduces erosion and improves the water retention and fertility of soil. Due to this high water content, compost is heavy and these benefits are typically locally distributed because transportation is expensive.

While composting is an important component of sustainability due to its environmental benefits, for a composting program to be sustainable, it must address the triple bottom line of being environmentally, economically and socially responsible. The city of Austin's Solid Waste department is an "enterprise department," or funded by the charges it rates for its programs, therefore any composting program must be financially solvent (COA-1)⁸.

Lastly, a sustainable composting program must address issues of equity. I defined issues of equity in relation to a city composting program as equal access among residents to participate in the program, provide input and enjoy the benefits of the final compost product. Equity issues could include the price of the compost, outreach to educate and enroll residents, distribution of the final product, location of processing and/ transfer facilities, and community input. Some of these issues are addressed in this paper while others are left to be explored. For example, the city will need to pay attention to the quality and distribution of the final compost product so

⁸ Transcripts are coded; the code COA-2 refers to the first city of Austin interview.

that access to healthy foods, soils and water are equitably distributed and the not privilege of only those who can afford them.

However three sustainability pillars are not mutually exclusive. Addressing equity can have environmental benefits. Zero waste goals can't be attained without 100% participation, therefore including all community members in the composting program is necessary. In addition, the community will only support the program if it is economically feasible.

Future Research

This paper was a platform for a composting pilot in the city of Austin. Due to time constraints, a few key stakeholders (e.g., Texas Disposal Systems, HEB) were left out of the interview process. Therefore, future research should focus on including these and other stakeholders (e.g., large food generators, compost processors and garbage haulers). Future research may also center on logistics such as timelines, trucks, processing equipment, etc.

Conclusion

While many waste diversion programs develop due to necessity (e.g., scarce resources, public health concern, economic imperative), the city of Austin has an opportunity to start a composting program before its necessary through policies that push encourage (and in the future require) composting.

There are a number of opportunities for the City of Austin to start a curbside residential composting program. One of the greatest is to develop an effective communication, outreach and education component. Hiring a communication firm or building a communications department at the city will help ensure more effective programs. In addition, the City of Austin should create an equitable composting program is to enlist a corps of individuals to perform grassroots outreach to neighborhoods to educate and generate support

However, while a composting program will divert waste from the landfill and improve the quality of soil, waste reduction and recycling measures (e.g., creating an infrastructure for fresh food donations) will be needed to prevent total waste production further up the waste stream and help the city of Austin reach its Zero Waste goal. In New York, food rescue groups pick up leftovers from restaurants, and then freeze and distribute them to the hungry (New York Times, 2008). Other programs pick up food unfit for human consumption and provide it to livestock farmers. These programs not only divert waste but feed human and animal populations and require little to no energy for processing (New York Times, 2008).

Appendix

Transcription: City of San Francisco

Date: 09-06-11, 1pm CDT

Interviewee: AK

Interviewer: KM

KM: And the first question is: what is your current composting program budget? And I think, from the last email you sent me, it was about \$250 million a year. Is that still about right?

AK: So the composting budget really cannot be separated out.

KM: Ok.

AK: I'm not sure what email you're referring. Is it something I sent?

KM: Yeah, yeah.

AK: Ok.

KM: But maybe that's the total waste...

AK: That's probably our entire waste budget.

KM: Ok.

AK: So [I'm going to look] at that right now.

KM: Alright. Is that any better?

AK: Yeah.

KM: Ok.

AK: So basically the way we cost or evaluated or figured basically we take all the collection costs along with the recycling, garbage, landfill and compost costs. []

KM: Ok. Sorry, I'm not going to move. Is that any better?

AK: [Vaguely.] I keep getting a bunch of feedback in my ear.

KM: Oh, ok. Alright. Well, let me...alright let me see if I can figure something out. I'm just going close this. Ok.

AK: Let's see. Testing: one, two, three. That's actually better.

KM: That's better? Ok, great. Alright. Sorry about that. So you were saying that kind of...

AK: The composting costs basically can't be removed from the total cost of collection because it's one company doing all of the collecting the waste, what we call landfill, and the compostables as well as the recyclables from all commercial businesses and all residential accounts. And then they're doing all the processing. So they own the processing facility, they do all the sorting of recyclables and they do not currently own the landfill. However, they're... we're in negotiation process...processes right now to...we're basically... our current landfill contract is expired. They're negotiating a new one that's going to start. I can't remember the exact...into the next five or ten years, in which case they would also own the landfill. So roughly speaking, if you take our total amount of tons of compost this is probably where I may have come up with the figure, which is all a very rough estimate...

KM: Uh, huh.

AK: I'm searching for my calculator someone took off my desk. I love that. Hold on one second.

KM: [Laughing.]

AK: Well, we're right now collecting about 600 tons a day of compost and our costs are about between \$200-300 a ton to process. So our daily costs, I mean, if we use that number, which is really, really rough...

KM: Uh, huh.

AK: I don't want to be like totally quoted on paper with that figure because I honestly I can't fully say this for sure. But we're at roughly... probably at \$200,000 a day in processing and collection costs associated with compost.

KM: Ok.

AK: So that's super, super rough. So if we did that, times five, that's like, times 52 weeks, I mean we're getting into some really, really big numbers. So that really doesn't sketch out. But a really rough way to look at our costs are between \$200 and \$300 a ton for collection, processing. Doesn't matter if it's composting, recycling or landfill, they're all similar in cost because they're all similar processing and collection costs associated with each of the [] types.

KM: Ok. Alright. Well, if I have any other questions about the budget, I'll email you and hammer it out. But that's...yeah. I was just looking for a rough budget and I'll be sure to clear anything

with you so that anything I write down isn't taken the wrong way. It's more kind of just to see...kind of like as a comparison I think, too.

AK: Ok, great.

KM: Yeah.

AK: If you do email me, just give me a call, because I have about well... what's the latest figure? I have like 500 emails. So if it's possible it might get mixed in there and I might not see it.

KM: Oh my gosh. Alright, I understand that. I'll be sure to call you. As far as your fee structure, it's...your fees are based...do you have a base rate and then you've got a cart size rate? Is that correct? Or is it just the cart size that your fee for?

AK: Right now, let's see the commercial rate does have a base charge.

KM: Ok.

AK: That everyone gets regardless of their type of service. Residential does not have the base charge.

KM: Ok.

AK: That I'm aware of. Hopefully they do.

KM: And that...so, composting, recycling and garbage are all included in the fee? Is it...?

AK: No, so how it works is.... Do you want to talk about residential or commercial first?

KM: Uh, how about residential.

AK: So you... so residential you just pay for the volume and frequency of your collection of the ... I'll just call it landfill. That's what we've been trained to call it, so your black cart, which is the material going to landfill.

KM: Ok.

AK: So if you reduce your frequency, then you'll reduce your bill. Or you'll reduce the size of your bin and you also reduce your bill. And with that service comes unlimited collection for compostable material or recyclable material.

KM: Ok. And that's the incentive to divert to recycling or composting?

AK: I'm sorry?

KM: And that's the incentive that you have? That you're charging for...

AK: Yes, exactly. For residential, it's...you know, we work with apartment buildings, we basically tell them the more you work with your tenants to educate them on what's recyclable and you make it as convenient as possible for them, you will be able to reduce the amount of garbage and therefore reduce your overall bill.

KM: Great.

AK: I mean for a single family home there's not much variability. They can go down to the smallest garbage can is basically an insert in the 32 gallon cart, which reduces their volume to about 20 gallons.

KM: Ok.

AK: And they can get up to a 96 gallon bin for their recycles and a 64 for their compost. And they can get additional carts if needed, but most single family homes don't have more than one cart.

KM: Ok.

AK: for each of those commodity types.

KM: And as far as educational and programmatic materials, I know that you've used images to kind of address the multiple languages that you have spoken in the city and it sounds like you do outreach to property managers to get them on board. Are there any other materials that you've used that you've found were really successful?

AK: Yeah, well, in terms of actual outreach...like hard materials that we give out? Or in terms of our style of outreach?

KM: Maybe, could you talk about both?

AK: Both. Ok, so there's been kind of... well one thing we've done is we've moved towards images so we not gonna have to translate everything. The more text we use on outreach pieces the more cumbersome they become and people are the less likely people to read them. So we really... we try to just stick to image-based outreach and, on an occasion, we'll translate a couple of key words. And our two top languages are Chinese and Spanish outside of English.

And it terms of what's worked. Our most effective for behavior change has probably been what we call direct outreach or grassroots, door-to-door outreach, where we actually send people out face-to-face in the field talking to residents or tenants in apartment buildings on how to use the programs correctly. It's definitely a more expensive way to do outreach, but we found it to be more effective than broad-sweeping billboards campaigns or bus shelter ads or radio or t.v. which is not very directed or focused.

KM: Uh, huh.

AK: So we really like sending people...we basically hired a bunch of folks from what we call the Green Jobs program. They're folks from different parts of the neighborhood who speak different languages that come from different ethnic backgrounds. And we send them out to the field to talk directly to business owners, small business people, tenants in apartment buildings, and speaking...it's like people speaking in their native language from their community on how to use the program correctly. And that seems to be working the best.

KM: Great. Ok. I'm just gonna...and where did you come up with this idea to do the direct outreach? Is that just a something you addressed in your pilot program? Or was there kind of... research or theories that you read about to come up with that idea?

AK: There's some...you know, I'm wondering if... I'm sure there's some research piece that we've read in the past. But I can't directly reference right now. That I can't remember. There's a couple different philosophies on behavior change out there and one of them is Community-Based Social Marketing. And I think if you do a Google search you can find a lot on that topic. But it's sort of a shift from standard advertisement campaigns and I think it has a lot to do...the reason why we made the shift is because as people get more and more bombarded with media over the years. They're just becoming deaf to messaging, they're so overwhelmed. So because what we're trying to do is so specific, and it's aimed at such a specific population that live in San Francisco, it's just...what we found is it's best to work with people directly with other people. But I think that may have come from the community-based social marketing philosophy. But I think it may have also been just from trial-and-error. I mean we've just try we've done some compare and contrast to, we've done big broad sweeping billboard campaigns and special direct campaigns and we've also done some direct door-to-door campaigns, and we've done some compare and contrast to see how much more material or composting have we collected through different styles of outreach. So, that as well.

KM: Great. And you said that you're targeting a certain group of people. Can you describe those people? And, well, I'll let you answer that one first maybe.

AK: Yeah, well.... our target audience is every resident in San Francisco and every business in in San Francisco and actually ever city government facility. So those are our three.... And honestly, people who work in San Francisco, right? So anyone who producing waste products in San Francisco, they're our target audience. Because we basically want them to use the programs that our offered. And so we specifically have a couple different campaigns that target certain audiences. And one is our Green Apartments campaign. And we go out every Wednesday with a team of people educating apartment tenants because they represent, I want to say something like three quarters of our population is in apartment buildings,

KM: Ok.

AK: And we've... which we define apartment as 6 units and above. And so we've spent a lot of energy focused on that group... tenants basically. And then... the reason why we focus on them is because they've historically been forgotten. They're not... they haven't been a target audience and they also haven't received composting service in the past. So it's been in the last year or two, two years, it's been our focus: is getting them the composting information. First of all, working with property managers to get the service and working the tenants to educate them on how to use the programs. And obviously what goes with that is another target audience is the property management companies that run apartment buildings. We've been reaching out to them to educate them on the mandatory composting and recycling ordinance and that it's required by law that they offer composting. You know, we've been working with them on getting them set up with the program.

And then another target audience has been small businesses, getting them the composting service and also single family homes. The single family homes we've been sending people out to basically tag their garbage bins saying that basically there's, what we're calling "contamination" in your garbage. There's compostable material or recycling material, we're finding in your landfill bin and you're using the bins incorrectly. So what we've been doing is sending people out in the field to tag their bins and then, if they haven't used the bin correctly multiple times, they'll actually get somebody who knocks on their door.

KM: And that person then talks to them...?

AK: Yeah, that person tells....basically instructs them... "you're using the bin incorrectly. This is how you do it. What you need to use the bin correctly." And we have the ability to fine businesses, single family homes and apartment buildings for not using the programs correctly. But that we haven't started yet. That will probably happen at the end of this year.

KM: Got it. Ok. And any of these target audiences, do you have any historically disadvantaged groups that you're working with to get them on-board?

AK: Uh, huh. Well, another target audience...well, I guess we have a whole range of target audiences. But, we just recently are now focusing strictly on, not strictly, but in a more focused way on Section 8 Housing, low income housing. And they... a lot of those complexes where they have 200 units and they're in [Bay Hunters Point] or parts of the city that have been historically disadvantaged, we're coming up with sort of customized outreach methods. And I'm in the process of developing that still. But they have been very challenging because of a whole slew of different issues. But, you know, their bins have been stolen in the past, so of course they're not going to be able to recycle when the bins get stolen. Or, and I can say, the city has done a poor job of getting them the information. And there's this turnover and other issues that they're facing. So because of that we're putting together a more focused outreach plan for specifically Section 8 Housing, which will probably involve giving...actually giving people containers to separate their recyclables and also containers for their compostables. Because every time I have done interviews out there and I ask people, I go to tenant meetings, and I say "look, what's it going to take to get you to use this programs?" And I get, time and time again, "well if I had a container to separate my recyclables, I would more likely use the program." So we're

going to do some tests and compare is that what's going to get people to use the program, giving them a designated bin with the information on what goes into the container, and see if that works.

KM: Great. Alright. And as far as how the city accesses success, what... I mean I'm sure there's a number of metrics you use...could you maybe give me an idea of what some of those are?

AK: Uh, huh. So I think the one we use quite a bit in the media is our diversion rate and so we're at... I believe, we're about to announce a 78% diversion rate if we're not there already. But we're right around... between 77 and 79% diversion rate, which basically means out of the entire pie of discards, 77-78% of our discards are either being composted or recycled or reused in some way.

KM: Great.

AK: So that's one of our big metrics. But internally what we've been doing more and more is focus on what our landfill amount is. Because our absolute real goal here is to reduce landfill and reduce the amount of stuff going to our landfill. So our diversion rate could essentially increase but our... as well as our landfill, right? If we were just looking at diversion rate alone, we could diverting more and landfilling more as well and that's not our goal. So we're about 600,000 tons per year of landfill and we want to get that to zero.

KM: Wow, that's awesome.

AK: Yeah.

KM: Are there any other? Do you kind of look at contamination rates or participation rates? Are there other ways you break this down? Or is it mostly just getting that down to zero?

AK: You mean is there other matrix that we're looking... or metrics, sorry matrix haha..., other metrics that we're actually looking at besides just the landfill?

KM: Yeah, yeah. I guess do you take into account that you've been increasing participation... well I suppose you've got mandatory so...

AK: Yeah, so in addition to that. I guess subheaders underneath our "landfill tonnage amount"... our yearly landfill tonnage, we keep track of number of buildings that we have on composting. And we're...we have about 8,500 apartment buildings and I think we're about...we have about 3,000, between 2,000 and 3,000 left. I think we're about 2,500 left apartment buildings that we still need to get service to. So obviously we can't get to zero waste if we not everybody has access to the program, so that's our number one priority right now. Is getting 100% access to all of our commercial businesses and all of our apartment buildings.

KM: Ok.

AK: Yeah. And city government facilities.

KM: Ok, so those three. And then, so you're program was launched in... well you had the pilot in '99 and that was a two year pilot, with the roll out in 2001?

AK: Uh, huh.

KM: And you finished the rollout in 2003/2004. What...as far as the planning went for launching the program, was it could you talk a little about that? I'm assuming it's all the logistics, like carts and trucks and things of that nature. Was there any kind of special planning that you had to take into consideration? Or things that you would have... things you learned along the way or things you'd recommend while doing the planning process?

AK: Hmm. For specifically rollout, well... one thing that I think we would have...we should have done differently, at the time, was we skipped over this...the really small apartment buildings, which we don't really consider apartment. They somehow, the three, four and five unit buildings and I think there's probably about 5,000 in the city, and they somehow got left out of the equation. So all the single family homes received their recycling and composting program. And the apartment buildings, most of them, were already on when we were rolling out compost, but the apartment buildings could voluntarily set up composting, if they wanted. And quite a few of them...well probably a few hundred started up in the beginning. But the three to four to fives were left out and so we're now having to go back and do an automatic roll out of the threes, fours and fives. And I think it's a lot more challenging to get to them now. They should have just been folded into the original roll out and that would have been a lot easier.

KM: Ok.

AK: There's a lot of...oh, the other thing I think we still need to consider, and I'd recommend other cities is a lot of apartment buildings get their trash picked up multiple times a week, usually maybe on average Monday-Wednesday-Friday pick up. And so they have very small... we have a lot of space constraints in San Francisco, because we're so dense. We're like second in density to New York. And because of that there's very small waste areas and their trash is being picked up frequently. And then when we introduce the composting program and made it mandatory, the composting is only picked up once a week partly because of the volume. You don't want to be sending trucks out there multiple times a week to get...to only pick up one or two bags of compost. So I'm don't know if we've been able to iron out that issue yet. Basically the property managers want more frequent pick up of service for the composting and we're not yet really able to offer that. But it's sort of chicken and the egg, right? We can't get... we need a certain amount of critical mass and participation in order to get the increased frequency of pick up, but in the mean time we can't offer that. So I think a lot of buildings have been dissuaded to use the program, because they can't get the bin service as often as they'd like. [So a turkey?]

KM: Ok.

AK: And I think what's going to happen in our next rate processes, we review the rates every five or six years. We probably going to offer that service but they may have to pay an additional fee for that additional pick up.

KM: Got it. Ok. Alright, well I think I got through all my questions. Thank you so much again for your time. I really appreciate your help.

AK: You're welcome.

KM: If I have more questions, I'll shoot you an email and maybe follow up with a call, but I think I'm pretty good with this. I'm just trying to get this research done to write this paper.

AK: Great! I'm glad I could be of help.

KM: Yeah, I appreciate it. Have a great day.

AK: You, too.

KM: Alright. Bye-bye.

AK: Bye.

Transcription: City of Seattle

Date: 10-05-11, 3pm CDT

Interviewee: BS

Interviewer: KM

KM: So I guess one of the things I'm interested in is... well, I wanted to clarify...is your current compost fee structure Pay As You Throw?

BS: Yes, we have three different sizes of carts.

KM: And is that for both commercial and residential?

BS: Yeah.

KM: And I believe I remember your commercial side, that you don't actually provide the services but that you set the contract prices? Is that correct?

BS: Correct.

KM: Ok. And so then you can ensure that that's a Pay As You Throw as well? That's kind of how you implement that?

BS: Uh huh.

KM: Ok, and I know you've got three programs going: you've got commercial, single family and multifamily. And kind of from background research that you, I think, started the single family - and multifamily, excuse me - commercial in 2006/2007. Is that about right?

BS: Are you referring to food waste?

KM: Yes. Sorry for food scraps.

BS: Single family began in 2005, for vegetative scraps.

KM: Ok.

BS: And switched to all food waste in 2009.

KM: Ok and what does that mean by "vegetative" and "food scrap"?

BS: In 2005, we were collecting yard waste every other week.

KM: Ok.

BS: So the health department didn't want us to put meat out. But once we moved to weekly collection in 2009, we could put meat in our waste cart.

KM: Ok, and the commercial program started in around 2006?

BS: Yeah, approximately.

KM: Ok. And do you know about how long those pilots ran for?

BS: Pilots?

KM: Oh, I'm sorry, I guess. That's when... is 2005 and 2006 when you rolled out the city-wide program? Or did you do...?

BS: Correct.

KM: And did you do any sort of pilot program before rolling out those programs?

BS: Um, I think we did a couple of pilots in the early 1990s but really they didn't have any impact or influence on the design for when we rolled it out in 2005.

KM: Ok. And um. Ok. And so how did you gauge how people were responding and the progress and success of the program? And how did you decide to design the pilot – or I'm sorry – how did you decide to design the program?

BS: So in 2004 our solid waste haulers came to us and had an ergonomic solution they presented us with. It was essentially, before 2005, we were allowing people to put out a variety of different containers of yard waste to the curb. Typically they were garbage cans or paper bags full of branches or leaves and things like that. This was not ergonomically suited for the collectors to carry. So in 2004, waste management came to us and offered to switch all of the system to a cart system. Thereby allowing us also to collect food waste from the health department food waste. Permission from the health department to collect food waste. So that's essentially how it started.

KM: Oh, ok. And when you said that your haulers came to you. This is the city's solid waste department came to you and asked for this.

BS: No, we contract the collection of recycling, garbage and yard waste.

KM: Ok.

BS: So we run with two different contractors collect the waste. We contractors came to us, it will benefit our drivers and will create an opportunity to pick up more waste.

KM: And when you said that two contractors... am I recalling correctly that one services the northern part of Seattle and the other one services the southern part of Seattle?

BS: Yeah, but at that time.

KM: Is it different now?

BS: Yeah.

KM: How so?

BS: It's different sections of the city.

KM: Ok, but it's still two contractors?

BS: Correct.

KM: And this is for both... is this for the residential? Is it...?

BS: It's for single family and multifamily residential.

KM: Ok, and what about commercial?

BS: Commercial... they... those two contractors provide services for small business recycling, but anyone/any business can subscribe to any hauler as long as the haulers...must abide by our rates structure.

KM: Ok.

BS: ... price structure. So there's, you know, people who have two or three different collection contracts to pick up their cardboard, someone else to pick up their glass, someone else to pick up their compost.

KM: Ok. And do you know...did you roll out the program to the entire city at once or did you do an incremental roll out?

BS: It was pretty much all at once. It took us about six weeks to deliver all the carts to everybody.

KM: So it was up and running fairly quickly?

BS: Correct. And this is just for the people who are subscribing to the service.

KM: Because at that time it was voluntary?

BS: Yeah, yard waste had been banned from the garbage for...since 1988. So people who were either not mulching their yard waste or taking it to the transfer station were probably... and had a yard... were taking part in the service, and that was about 100,000 households who participated.

KM: Ok. And I looked through some of your materials, and I noticed mention of a liner for the food scrap/composting collection. Does... do you still use a liner?

BS: Yeah, that's a fairly recent change. We've been doing that based on feedback from our multifamily customers. It's only the multifamily customers receive the liner.

KM: Ok. And is that a bioplastic that can be composted? Or is that a plastic that...

BS: Correct.

KM: And is it correct to... bioplastics can be composted with aerobic composting...or aerobic digestion... or is that anaerobic?

BS: It's aerobic.

KM: It is aerobic. Ok. And you said you switched your frequency of organics collection from biweekly to weekly, is that correct?

BS: That was in 2009.

KM: Ok, so really the big... the thing that pushed this along was the safety of the contracted haulers/operators, is that kind of...?

BS: Yeah, they pushed it along further that we wanted it to. We had originally planned to do it in 2009 when the contract... when our haulers' contract was up for renewal. But the fact that they were willing to do it early allowed us to do it four years early.

KM: Wow that's great. And you mentioned a transfer point. How is that used?

BS: Landscapers, people who have a lot of yard waste from a big... maybe a big spring cleaning, they take it down to a recycling and disposal station where it's then transferred to either go to the landfill or a recycling facility or a compost facility.

KM: And is there...?

BS: We have two of them in Seattle.

KM: Ok. And is that.... are there tipping fees involved with that? And can... is it commercial and residential...?

BS: Yep.

KM: ...clients can drop off.

BS: Yep.

KM: And I'm sorry there is a tipping fee involved?

BS: There is. Yes.

KM: Ok. And how does the city...were there any other key players to starting the program?

BS: No.

KM: Ok. And how does the city measure the success of this program?

BS: Primarily through our waste... we do a waste audit every year where we look at how tonnage much we go into composting... compost facility or landfill.

KM: Ok.

BS: I think the 2005 number was... it was an additional 6,000 tons of food waste. The first year, we diverted 6,000 tons. And I think last year, in 2010, we diverted 35,000 tons. This is single family.

KM: Wow. Is there anything your program does to ensure historically disadvantaged populations participate in the program?

BS: Well, in 2009 we mandated that the service is part.

KM: Ok.

BS: So we give our single family residents the option of doing one of two things. They can either back... compost in their backyard, sort of a home composting system. Or they can... or they have to subscribe to the food and yard waste curbside service where they can subscribe to three different sized carts.

KM: And...

BS: So, one way or another everyone is participating. Or everyone is [] to participate.

KM: And as far as your fee goes, are you... are they charged garbage and then the compost cart is included in that fee?

BS: No, it's additional.

KM: Oh, ok. And how do you... are there audits that are done to ensure that people who say they're backyard composting are actually composting?

BS: We haven't done that yet. We have done some surveying throughout the years that looked at how many people were participating in backyard composting and the one... the people now

who...we look at our subscription rate for people who are signed up for food and yard waste service and it's well within those parameters so we haven't really felt like there's any [stop loss].

KM: Ok. And what is about the percentage of those who are backyard composting?

BS: There are 45,000 people subscribed to food and yard waste collection. And there's about 5,000 people who've signed up... or who have opted out of it through backyard composting.

KM: And what kind of participation and contamination rates are you guys looking at?

BS: We're looking at... about 90% of people indicate they use the service. Our waste audits, or site audits of looking into people's carts, show that, any given week, more than 70% of the people who have their cart at the curb have food in them. And it's looking like around 10 or 15% of the carts contain some form of contamination, usually a plastic bag or a paper container like a coffee cup or ice cream tray.

KM: Ok. And how is the product sold? Or is it given away, the final composting product?

BS: It's delivered to a private facility north of the city, about 25 miles north of the city, called Cedar Grove Composting. And it is sold both residentially and commercially.

KM: Ok. And when you say "residentially" do you mean like at a Home Depot?

BS: Right.

KM: Type store?

BS: Yep.

KM: And is there anything that the city does to ensure that lower income families can afford the compost?

BS: No.

KM: Ok.

We often partner with Cedar Grove to provide discounts for its compost through sales throughout the year. But we don't provide a low income rate.

KM: Ok. And my project's kind of looking at composting opportunities in Austin and a little bit of equity, and how people make decisions. Did... do you know if your program's drew any information from research that analyzes how people make decisions to participate in these kinds of waste diversion programs?

BS: Can you extrapolate on the question?

KM: Yeah. I was just wondering if, in designing your compost program, if you looked at any literature on how to encourage people to, you know, to put the banana peel in the compost bin versus putting it in the...

BS: Ah, yeah, yeah, yeah.

KM: And you might be primary research, too, that you've done (focus groups and surveys) and found this is the best way to get people to change their behavior.

BS: Right. We primarily relied on our recycling research, our recycling experience, plus we did a lot of primary research before we implemented the program.

KM: Ok.

BS: We did a lot of focus groups. We did a few surveys.

KM: And what did you find most effective for changing people's behaviors? Or what... are there any materials that you developed that you found that worked really well? Or maybe one focus group... or focus groups versus surveys to get input?

BS: We're [really invested] in designing our education materials. We...if you go to our website our "Where does it go" Flier is... people...our residents find really helpful. We translated it into about fourteen or fifteen different languages.

KM: Oh, wow.

BS: Our customers find, or tell us, that the primary [marketing] mechanism they... that is most useful to them is mail to door rather than T.V., radio, etc. T.V. is probably number two in the mechanism. In terms of messaging, people...you know, there's a lot of research out there that you can find on your own, but our experience, but promoting community pride is a strong element. Promoting fitting it in your community is a strong element. We found that the frequency in how often you communicate with your customer is an important element. A strong element is the sensation to be wasteful, and that you might be punished if you don't participate.

KM: Ok.

BS: So lot of our messaging is usually around the word... around catch phrases like... we use "it's not garbage anymore," or we use "why waste a good thing?," or we say things like "don't be left behind." One of the penalties we have for, you know, if you screw up and put recycling in the garbage or vice versa, we'll leave your cart behind and leave you a little note and make you sort it out before we collect it.

KM: Oh, wow. And so you've been doing this, you know, your residents have been composting since 2005-2006. It's been five years, two years that it's been mandatory, what's the overall public support for this program? Is it well received? You know, are there...?

BS: Yeah, hold on a second. We do annual... roughly annual, biannual surveys. I'll pull up data from the... Let me get the last one here. It's a very well received program. There's some hesitation to fully participate in food and yard...food waste collection, but people value having weekly collection. And they do like to...the opportunity to reduce their garbage can through food and yard waste collection.

KM: And did you... are you continuing to collect garbage weekly? Or did you reduce that?

BS: We're still at weekly collection.

KM: Ok.

BS: So in the last year, we surveyed our yard... food and ward waste customers and, on a 7 point satisfaction scale, 88% noted that they were in the 6 or 7 on that scale, meaning that they were very satisfied.

KM: Cool.

BS: 82% of them said that they generally dispose their food scraps in their food and yard cart. 96% of them indicated that they put at least some of their food and yard waste or food soiled paper in their food and yard waste cart. 72% of the households indicated that they do it every week.

KM: And that's kind of matching up with what you'd said earlier, right?

BS: Yeah, it's pretty close to what we're seeing. People tend to generally over-report positive information but this is actually pretty close. The main reason that they do it is that because they feel it cuts down on waste sent to the landfill and it's easy, and it cuts down on... and it's good for environment. The reasons why people don't participate is that they don't have kitchen container to store their food scraps, or they don't want to attract fruit flies or other pests, or that they compost in their own backyards. 54% of our customers indicate that they have backyard compost bin, which matches up with our findings. So there's 34% of the people that have one, but well over 95% participate in curbside collection because they find value to it. We found that people are using their backyard composter a lot less, since we switch...since we started providing curbside collection.

KM: Ok. Are there any stragglers that you've found? And if so, how have you addressed getting them on-board?

BS: Oh, there's always stragglers, typically it's men. We didn't... many cities provide kitchen buckets of some form to roll out their program. We did not, because we had heard from other

jurisdictions that the buckets weren't being used, they were being thrown away, or misused, and we just figured people would be able to figure it out and they pretty much do. After, now that we're being to be a fairly mature program, we're providing those containers and compostable bags to people through sales or give-aways at community events to get the last remaining people on board.

KM: Ok.

BS: Plus, we do a lot of encouraging, we tell people, you know, how many of peers are participating, how much diversion is going on, how much they're saving on their garbage bill or how much the city is saving by diverting this from the landfill, things like that.

KM: And is this in newsletter form, or on their bill, or how are you communicating that information?

BS: We provide a newsletter quarterly to all our customers, plus we provide a newsletter to all of the... with the bills.

KM: Ok. Alright, and as far as... you said that you translated a lot of your messages into a number of languages. Have you found images to be really useful, and are there any other some, in particular, were more useful than others?

BS: We try and provide images that are relevant to each community. We... imagine whatever community you have it's always benefits you to...well first of all, if you're doing an education campaign, you should utilize images rather than words or drawings. We found that images really tell the story, and many of our English as a Second Language populations are not literate. So even if we did get translated into another language, it may not necessarily be conveyed. So we found using pictures of things to say... especially, whatever their background is [to depict] the different types of foods they use. For our commercial collection, we have an "a la cart menu" where business can order posters that describes what they can compost...what their customers can compost at their establishment, and they can go into our database and pick out the images to depict the type of food that they're serving.

KM: OH, wow, that's great. Are there any financial incentives that you offer to encourage either residents or commercial businesses, to join the program. I guess the commercial side is mandatory at this point, but maybe for the multifamily?

BS: Our yard waste... our food and yard waste, compost rates are 30% lower than garbage, so that's an incentive for businesses to participate. For apartments, we provide a \$100 credit on their utility bill if they sign up for a program we call "Friends of Yard Waste...", I'm sorry, "Friends of Recycling and Composting." And the way the program works is the apartment building would provide someone to act as an ambassador to help educate the tenants about composting on-site and they would go through a two hour training and receive a packet of materials from us that they could share with the fellow tenants, things like posters and fliers to

put up around the building. And then they would make sure tenants are composting correctly, and in exchange, they get the \$100 credit off their bill.

KM: And this goes to the property owner? Or does this go to the person who actually signs up to be that ambassador?

BS: It goes to whoever is paying the bill, so probably the property owner.

KM: Ok. And do you find that the ambassador is usually the property owner or the person who's living at the?

BS: It's usually the property owner or there could be a manager, although sometimes the on-site manager does find someone who's really gungho about the program.

KM: Ok.

BS: They've a lot of people who are really excited about recycling. So right now, we're in the process of signing up all the multifamily buildings, and some buildings haven't signed up so we get residents who call us up and say "oh yeah, I'll be the recycling and composting person."

KM: Cool. Have you found any other stragglers aside from men? Perhaps the populations who speak English as a Second Language or, I don't know, maybe older adults, or anything like that?

BS: For this program? Anecdotally, from what I've seen from the training, it's primarily older white residents who are participating.

KM: Ok.

BS: Usually because property management here typically skews older and white and English-speaking.

KM: And is there anything you're doing to reach out to those that are...?

BS: Yeah, we're... we do advertising in English as a Second Language newspapers, and we go out into the community and give presentations to English as a Second Language populations.

KM: Ok.

BS: And it really hasn't had much of an effect.

KM: Ok. Great. Let me just... I'm just going to look over my questions here and make sure I didn't miss any. Let's see. I think I got everything. Yeah, man that was fast. Yeah, if I have... oh, I guess, one last question... do you have latches on your bins to ensure that pests can't enter them?

BS: The... when we did focus groups before the roll out in 2009, we started to provide three tiers of carts, we had focus groups help pick out the smallest cart, which has a latch, and that was the highlight feature, why they chose it. We have three sizes of carts, one's 13 gallon, which is knee high, one's a 32 gallon which is about chest or belly high, and the other one is a 96 gallon which is about chest high. And the 13 gallon has a latch on it, and the other two don't. The other two just have a heavy lid.

KM: Ok. And have you had any issues with pests or anything like that?

BS: Anecdotally we hear stories. If there's a hole in the...if something's... if the cart's damaged in any way, our residents can call us and we'll replace it. It mean, there's like an urban legend that says there's been more rats since we switched to food and yard waste collection, but our inspection staff and our health inspectors haven't noticed that. We... we're of the mind that, to say that we're putting garbage out and they're just putting that same stuff in different containers, so how can there really be that much of a difference?

KM: Uh, huh.

BS: In terms of requests for part replacement due to rats or raccoons or the size of our solid waste carts, we haven't noticed anything, any uptick since we switched.

KM: And has this program helped the city financially at all, or has it been a wash in terms of price?

BS: In terms of price, it.. the cost is about 20% less than what we'd have to spend on sending it to landfill.

KM: Great. Oh, I guess, one other thing. Does the use a separate, designated composting truck or use a split-body truck?

BS: Separate truck.

KM: Ok. Great. Brett, thank you so much for your time and your insight. This has been really useful. If I have any more questions, you wouldn't mind if I sent you an email?

Transcription: City of Portland - 1

Date: 09-13-11, 11:30am CDT

Interviewee: PD

Interviewer: KM

KM: So my first question is a historical one, and it is "how was the program initially launched"?

PD: Are you talking residential or commercial?

KM: If you...so Austin is not in a position... the city is not in a position to start a commercial project

PD: Ok.

KM: So if you have residential that would be helpful, but anything you have would be great.

PD: Well, so as early as the mid-90s a residential program was looked at. We had a... to step back, a unique way of collecting our garbage and recycling here in Portland, at least unique in our region, where it was a complete, open program, many haulers. In fact, back in 1989 I think there was 150 or so haulers that serviced Portland, which is pretty remarkable. Through attrition, I think, over... in the mid-90s, it dropped down closer to 100. So we had... we didn't actually have a franchise for residential until say the early 90's, 1992, something like that. So that limited how much we could control what was being collected, how it was being collected, what the price of what the collection would be, and so we just weren't in a position to do anything before that. Residentially, after the...after we franchised, we had a real interest in composting. About that time, maybe a little bit after that time, the state put together 2% credits, which the legislature said, "well we've got these waste reduction goals, and some of this stuff isn't easy to capture data on (such as backyard composting), and we have a pretty good sense of people who participate we don't know how is being diverted, but we know it's a real impact and at that point, that's where we started to be more proactive in food waste at the residential sector, being required to, through our Solid Waste Management Plan, at least the one we submitted to the state through Metro, our regional government. We're one of three counties who are under an umbrella of government that is ultimately the one who we report to the state through. Anyway, so that ended up kicking off a more focused area... a more focused food waste approach to the residential community. And back in the mid-90s, we, so 1993-4-5, put together a taskforce, actually a couple of taskforces to look at the feasibility of food waste composting both residentially and commercially. It turned out, that residentially, and I don't have a lot of detail here, but residentially, it was just...because we didn't have a collection facility and because we'd have to most likely mix it with yard debris, and we didn't have a great yard debris collection system, and there were quite a few hurdles and we just ended up pushing it aside and going the commercial route. I think that was because we could focus our attention a handful, maybe 100-300 generators, and get quite a bit of material for the effort, at least, that was the thought. And I wasn't around, but I think that was generally what was being considered as being a little bit easier route. We didn't have a local facility, so we had to truck material up to

Washington. But so anyways, we went down the commercial route, not the residential route. It's not until... fast forward, it's not until 2008, where there was a city council said "yes, if fact, we are going to pursue residential composting as soon as we have the facilities here in the Metro area to take that material and we have transfer capabilities," and that has recently opened up. Both facilities, a couple of facilities, that we could truck the material to and we do have some additional transfer capacity and that has... and DEQ has permitted the facilities and so we're ready to roll on the residential side. A brief history.

KM: And NDQ is....do you know what that stands for?

PD: Say that one more time?

KM: You said that NDQ permitted your facilities.

PD: It's DEQ, Department of Environmental Quality.

KM: Ah, got it.

PD: So Oregon Department of Environmental survey, yeah, has the responsibility of land permitting, including that of composting facilities and transfer facilities, reload facilities for that material.

KM: Great.

PD: And that took a while. It took a while to get facilities up and running, and it took a while to find and we're still hoping that we could gains some more transfer capacity out in the outer reaches of our city.

KM: And do you have any ideas of what kind of planning was required prior to the launch of the program?

PD: Well, yeah. There was...there were... I think there are similar issues commercially and residentially in the sense that you still have to look at rates (although we don't do rates here commercially), but you have to look at rates, you have to look at collection equipment, you're looking at the challenges around where the material is going to go, and what is the efficient way to get it there. So we did... so the process... we had quite a bit of that ground work laid already with the commercial program. So the residential program tied into the fact that we had public advisory committees looking at many of these things. And, in... I would say, as far back as 1998, we had been, in one way or the other, politically engaged trying to figure out a way to make both residential and commercial food waste composting happen. So there had been... I can't give you a blow by blow, but there's definitely been activity for, like I said, over a decade trying to get this stuff taken care of.

KM: Great. And when you rolled out the program, did you do it city-wide or did you start in certain areas and..?

PD: So residentially, we... in 2008, the political will was there. The policy...the Portland Recycles Plan was passed, which included a requirement for the city to pursue a residential composting

collection, and with that, there was an effort to bring... Ok, let me sit down for a second. Repeat the question. Sorry.

KM: No, that's fine.

PD: I was listening to a ... I was distracted by a coworker, but go ahead.

KM: No worries. I guess I wanted to see how the program was rolled out. I know some cities decided that they were going to start out with one sector and then add sectors as they go, or was it rolled out across the whole city at once?

PD: Well, residentially. So where I was going was in 2008 we passed that legislation. IN 200-... over the past, from 2009 through now... no, I take that back, from 2008 and 2009 we developed a pilot project, where we took four pieces of the city and worked with haulers within those four locales to pilot different ways in which to collect the material. And what type of...and asking questions like "what type of volume are we going to get?" And "what...how...should we be going with every other week collection of either the composting and/or the recycling and/or the garbage or different combinations to try to keep costs down?" "Would we... what kind of education is necessary for that?" And "how...would we do different waste sorts?" And "can we do studies to determine the financial impacts?" Those sorts of things, so that's all well-documented. And I can actually pass you on to a residential person if it's specifically what you'd like to pursue.

PD: Commercially, it's...like I said, there's a lot more history there. But there were also pilots back in 1999-2000-2001 to do the same thing commercially. Although I got some older stats on that, I don't have anything electronic, unfortunately. There's a few things on our website and you can pursue that if you'd like to make recommendations to the City of Austin or on commercial. But residential has been more recent and we've got a lot of good data on that.

KM: And so it sounds like the commercial pilot was about three years and the residential was about two years, or?

PD: Yeah, yeah. The planning process was probably around a year to a year and a half, and then the actual implementation of the pilot has been just under two years. I'm thinking a year and a half at the very least. So it's been a good three year process. Was 2008-2009-2010-2011? Yeah. So it, from 2008 to [200]9 has been, half of which planning, half of which implementation, and that we're at the point where we have the data we need. We passed recently, actually two weeks ago, passed the final supporting legislation through City Council saying that "yes, in fact, these are the rates we're going and this is the way we're going to be billing the services that we're going to have and the rates we're going to have for the residential composting program." So it's... it's up and running. And we'll, well, it's not up and running. October 31st will be the first day of launching the composting collection and it's just going to be mixed in with yard debris, it's going to be every week as well as with recycling every week, and then garbage is going to be every other week.

KM: Got it. And this is being released city-wide on October 31st?

PD: 31st. Correct. It's a Monday.

KM: And who were the key players as far as starting the program? It sounds like composting in Portland has been going on for a while, but are there any people who were clamoring for residential or maybe leaders either within your department or legislators or anything like that?

PD: So the question was, "who has been moving us forward with major support of...for this?"

KM: Yeah or key players?

PD: Say that one more time.

KM: Yeah, who were the key players involved in the residential program?

PD: Key players? Well... Ok. I would say there... there's been a lot of political support for meeting our Climate Action Plan goals as well as our Portland Recycling and Composting Diversion goals for some time. And City Council and the mayor have been very supportive of that. We, as a bureau, are...we have a weak mayor system where we've got a City Council and the mayor is one vote on that City Council. But the mayor also has other unique powers that other City Council members don't have, and the just happens to have our bureau under his auspice. So each city council has their own set of bureaus and issues that they work on, and one thing that our mayor currently has a great deal of interest in is sustainability issues. And, that being said, you know, some of the easiest, most tangible to pursue are those with resource efficiency, and that's kind of where we're at. So, I... political support from the mayor as well as him being our lead Council member for this bureau has... there's been a lot of direction from him individually. And there's also a lot of community support. This is Portland, and, even though, people, I think, would prefer every week garbage, it's something that generally is very highly supportive, and we were one of first in the nation to mandate recycling...or not mandate recycling residentially, but mandate recycling commercially and certainly have curbside recycling instituted so there's just, it's not a difficult sell in this city. And I will say if there's any other key players in this... the other key players that are necessary to bring up to the table if this whole thing's going to work regionally obviously there's haulers, there are processors, there are... the regional government who is pretty critical in because they own both of the transfer stations, so the major transfer stations here in the Metro Area. And so all those are critical pieces to the infrastructure.

KM: Uh, huh.

PD: But, I guess I'm not sure... We did have a Technical Advisory Committee, which I think was very helpful. And public comments and input. Yeah, that might be a good question for AS Sperry, who can answer a lot of the residential questions so much better than I can. I just haven't been as involved with residentially, I'm a Sustainability Worker, commercial guy. It might be pretty helpful to talk with her. And there's also, I think, potentially other people on our team that could fill in gaps where she doesn't...if she doesn't know.

KM: Great. Alright, well. I'll run through the rest of these questions and maybe I can follow up with her if there's something [we're sticking on]?

PD: Yeah.

KM: What it...Do you have a Pay as You Throw fee structure, currently, for your compost, garbage and recycling? Or what's your current...?

PD: You're still talking residentially?

KM: Yeah.

PD: Ok, so residentially, it's a franchise... it's a monthly ... I think it's a pay by volume sort of system where you're [] a container size and you... you're... and you can decide what size of service you have. So that's.... I'm not sure if that has a name to it, I'm sure it does. I'm sure the residential people could tell you that. It's...it is commercially, it's a Pay As You Throw. So, I don't know.

KM: And is it bundled service in that you pay for garbage, and then recycling and composting are included in that fee?

PD: That's correct. That's correct.

KM: Great. Alright. Do you have any educational or programmatic materials that you've used that you've found particularly useful for educating residential and commercial clients?

PD: Well, I'll have to differ to residential. Yes we do. In fact, it's one of the big pieces of the pilot program that we, for the residential program, is that we tested messages, tested materials. And they can tell you all that.

KM: Ok.

PD: Ah, commercially, we do have some outreach material. We have a brochure. We have a poster...stickers that we use for education purposes. But... not much. The way the commercial, just to give you some brief history of the commercial program, is that we had... once we had our...the region government had a contract with a processor up in Washington, we hired a consult to do all our outreach and that one person went out and drummed up business, essentially. Knocking on doors, cold calling, saying, "we've got this new program. Call your hauler and get it set up." And that was about a year and half worth of work for him. He...at that point, we had plenty... more people on the program than we were... could actually handle, and we had to ratchet it back. In fact, the capacity was... for the contract at Cedar Grove up in Washington there was...the composting facility we were running out of...running out of room on that contract, so we haven't done any outreach or education since then. We just haven't needed to. So that's that. Residentially, of course we do. And again, I'd want them to give you, I think it would be a more valuable use of your time if you just talked to them directly. But, rather than me trying to recall certain things from meetings that I may or may not have been paying attention.

KM: And when you said you didn't have room on that contract and that you haven't needed to do outreach, is that just... you still are working with capacity issues?

PD: Right, right. And so, there's two things. One, the contract was only for, I think, something like 10,000 tons a year. Because that was the capacity at Metro Central, one of the facilities that we transfer the material, the haulers transfer material through. And since then, that was from, I'm going to say, 2008-2009, a little bit of 2010, we weren't really looking to increase volume because we just didn't have that capacity. That since has opened up. Metro Central has had some renovations; there is two facilities that are now up and running that we can now take material to. So we've got considerably more capacity than we had in the past, which why we're...which is why I was brought on about nine months ago to start looking at...on this project... start looking at ways to develop our mandatory program and outreach strategy for composting.

KM: Ok.

PD: Yeah.

KM: Um.

PD: And most of this outreach materials, I think are... they're certainly electronic, and I think they may even be on our website. Maybe something easy enough. I know commercially they are. But residentially maybe [if you prefer] just a link to our website. I don't know for sure.

KM: Ok.

PD: Yeah.

KM: And do you know how your bureau or the city assesses success of the composting programs? Do you do it by coverage or volume, I guess, how do you...what are the metrics you use to say "we're doing well" or, you know, "we need to improve?"

PD: Right, there are some different holes in the information we have. We do have total tonnage moving through Metro Central, so that's certainly our primary indicator. But, I think, for the most part, there's a lot of questions that we have. We know that from DEQ (the Department of Environmental Quality), we sort... we still have around 30,000 tons of residential food still thrown away in the garbage, and another roughly 50,000 tons of food waste still going in the garbage, you know. We're capturing around 10,000 tons of that, 10 tons commercially. So, that's another data point that we use to say "yeah, you know, we've got a long way to go," understanding that full... collecting all that, the full amount of that what's possible is not really going to be feasible, but we still have some positive work ahead of us. But, I guess, the other thing is residentially, it's also about satisfaction, it's also about seeing whether or not our messages are working, and that we're... are people participating, and what are the barriers to participating and that? And I would say that's something we've been tracking with surveys, and it seems like there were some written surveys and some also phone surveys, maybe some door-to-door canvassing, that sort of thing.

KM: Ok, and when you're talking about you've got the total tonnage as far as what's actually being processed into compost and what's ending up in the landfill. Are you talking about diversion rates? Like which....how much of... how much are we diverting out of what is possible?

PD: So there are two data points. One comes from Metro who owns the facility and they know how much material is being dumped at their facility, and reloaded and then taken to an actual composting facility. That's number one. And that's... some haulers go direct to the composting facility and that is also being tracked, so we have a total amount of tonnage that's being collected and dumped at any of these facilities coming out of Portland. That's one data point. The other one is that every six years or so the Oregon Department of Environmental Quality has a very well-structured study... waste sort study where they'll go out and sample from commercial and residential loads, sort the material, and then extrapolate the material into what they assume, what they think is going into the landfill from the use, by commodity, by the use of these individual routes and sectors and haulers. And it's broken out a lot of different ways. And that's where we can take... we can get an estimate of how much material is actually going into the landfill, and after that, it's just a matter of...you know, of looking at what we think we're missing and what we actually feel like we're capturing and seeing what the gap is.

KM: And do you...

PD: And there's a larger recovery rate number in there. We do track that as well, though that is... it's hard to determine what is moving that recovery rate. There's lots of ... variables driving that. Is it the economy and the different technologies? It's just hard to say that because we started a residential composting program our recovery rate went up 2%. It's not that simple.

KM: And do you look at contamination? You mentioned participation but do you look at contamination rates of the compost?

PD: In two ways. The DEQ study always looks at contamination. So when they sort through, let's say the yard debris loads, they're weighing up all the different materials in different categories including yard debris and contamination and food waste, etc. And that will then give us a pretty good idea of what contamination looks like... have with loads coming into Portland. But also, if a load's is too contaminated, we have spot checkers at the transfer station to see if there's too much plastic or too much [material in it]. It's visual so it's not perfect, but if it's significant enough, we reject the load, "we" being the Metro rejects the load. They'll say, "no, this has to go, it's too dirty." So there's a quality control measure there, and then the processors who report back to us what kind of contamination levels there are. And not so much with food waste because they're still so brand new, I mean, we still get feedback but I don't know if it's too terribly scientific. I don't know if they're weighing or... they're giving us percentages, or what have you. But residential folks may know more about that because they worked with them more closely, the processing facilities. But it's, you know, for the most part it's a, the recycling folks, as you are well aware, take...keep pretty good numbers on what the residual is coming out of their facilities and they give us good numbers on what kind of garbage they're finding in their facilities.

KM: Ok. Alright. And has your... so I guess, the other portion of my report or my project is looking at composting and equity as far as... is there a way that Austin can start a program and

is there a way it can address issues of equity. Does your program do anything to insure that historically disadvantaged groups participate in the program or have access to the compost? I mean, that might be a question for AS, it kind of depends on how you define even "historically disadvantaged"...?

PD: Right, I would say that's definitely on our radar. I don't know what the residential program is doing about it. I mean all our materials are always translated into the different languages. How does our outreach...how would it differ because of that lens? I don't know residentially. But I'm sure they can answer that. Commercially, no, we really haven't done a lot. It's always been, whoever comes to us is who we've been assisting. We haven't been very proactive. So, like I said, we haven't even looked, with our commercial composting program we haven't even done outreach for the last four years. And when we did do the outreach, we were focusing on very specific entities, that were producing a lot of food waste, so manufacturers, and large restaurants, and food processors, and, you know, hotels, and things like that. So I don't think there was a component... kind of an equity component in that outreach. Although I know it's very much on the minds of the residential folks. So there are certain things like adult care facilities, who are... have a lot of adult diapers, well that's something we want to be sensitive to that and make sure we're not pricing them out of service. So that's... I think AS, AS's very...would be a good person to chat about how what they...how they're managing that part of the program.

KM: Alright, and in setting up the commercial and residential programs, did you...do you know if they drew from any research that analyzes how people make decisions about participating in waste diversion programs? Do you know if they did any research on, well you know, if we've got a group or a sector of the city that is doing very well at recycling that maybe we want to pilot there or we want to focus efforts there. Do you know of any kind of...?

PD: Well, the residential pilot definitely took that into account. There were... four unique areas and partially it was somewhat dictated to us where these were because of which haulers were working to work with us. But on the other hand, we also wanted historically... to have historically high end, historically low participant levels in the residential pilot areas. So I know that there's some work on that and again, I'd have to differ to a residential programmer for you to that... for you to get good information on that.

KM: Alright, well, those are my questions.

PD: Well, it's a place to start, and I will... like I said, and since you're not really interested in commercial, I don't think this is... I'll send you a couple links to our website that give an overview of our program, but really I feel like, I should have recognized your residential interest earlier and set you over to our residential program because that's fairly fresh too.. You know, they've got... even though, our bureau has been pursuing residential composting program for some time, it's really been active, truly active, for only the past three years, and especially the last two years, one year, three months. So they're going to have what you need in order to give the City of Austin some good information, some quality information on how one program has been able to work through some of their challenges, and, I think, produce a pretty solid product. They've done a lot of good work over there.

KM: Great.

PD: Can I just email and introduce you to AS? Can I forward the email you sent to me?

KM: Yeah. That would be wonderful.

PD: And then I'll have her... I'll give her a heads up that you'll be contacting her via email to try to set something up. I think that things are still buys over there, still hopping obviously with a launch of October 31st. It's still working out some details. That being said, I think she should be available to chat with you and fill in a lot of those gaps that I just wasn't able to address.

KM: No, that's great though. Thank you so much for your time, and I appreciate that. I'll... and I think too, until I talked to the city I thought that they might be able to do both or leaning toward commercial, so I apologize for that. But I appreciate you for your time and insights. It's wonderful what you guys are doing.

PD: Certainly, and if they do ever want to pursue commercial, I have a lot more solid ground to stand on with that, even though I don't have the old, old... I don't have detail on the old things that we were pursuing commercially, so the very beginnings of our program. But I do have quite a bit of understanding and resources around how we're moving forward with it. So, you know, that being, feel free to contact if need any help in the future. Otherwise, I think AS would be the right contact for you. Alright?

KM: Great. Well thanks again, PD.

PD: You bet, Katie.

KM: Alright, have a good day.

PD: You, too.

KM: Ok, bye-bye.

Transcription: City of Portland - 2

Date: 09-22-11, 1pm CDT

Interviewee: AS

Interviewer: KM

KM: I was wondering when your program was initially launched - the residential, curbside collection program.

AS: It has not launched yet.

KM: Ok.

AS: It will launch October 31st of this year.

KM: Ok.

AS: We have – we launched a pilot program in May of 2010. And it's been going for the past year and a half.

KM: Ok. And what kind of planning did you have to do for – in order to do the pilot?

AS: That's a broad question. So there's been planning going on for over ten years to start a composting. There's been a lack of facilities in the region that can accept food scraps. But it's been at least 10 years, probably longer that there's been an interest and desire to do this. In 2007, we developed a plan called, Portland Recycles Plan, that was identifying actions that we could take to reach a diversion goal of - or recycling rate of 75% by 2015 and it identified a number of actions on the commercial side as well as the residential side. Phase 1 brought us [common goals] recycling and roll carts for our recycling and yard debris. And Phase 2, which was outlined in the plan as well, was adding food scraps to yard debris that was collected; moving our yard debris collection (which is currently collected every other week) moving that collection to weekly, once the food scraps are added; and then switching into every other week collection of garbage.

AS: So that was outlined in 2007 in the Portland Recycles Plan adopted by our City Council. But once again, we were waiting for a facility to open that could accept food scraps. Recently, we've had two facilities - composting facilities - open up in the region that are permitted to accept food scraps, and so we went ahead and launched pilot program to learn about the best way of setting up the program and reaching out to residents. And so we're now launching the program city-wide based on what we've learned in the pilot program.

KM: And it sounds like from my conversation with PD the commercial food composting has been occurring for a while and then you started the residential, or you're in the process of starting the residential program?

AS: Yes, so the material for the commercial program has been taken to a facility near Seattle, and that was a short term solution. We thought, at the time, and we thought the facility was going to open relatively quickly, and then it didn't. So we put on hold expansion plans to the residential because we just didn't have the capacity and it was - to ship that much material up to a faraway facility.

KM: Ok. That makes a lot of sense. Who were the key players in getting the residential pilot off the ground?

AS: Well, once we had a facility where we could take the material, we also had really good, strong support from our City Council, particularly the mayor of Portland is – this is a real passion of his. He was really pushing the timeline. As soon as we had a place to take it, he wanted to jump right in. I think there was a lot of political support.

KM: Ok.

AS: But then also we needed to get some haulers on board that could. The way that our residential system is set up we have a franchise with 19 haulers across the city of Portland. We asked for volunteers to participate in the program – in the pilot program. Four haulers said, “Yeah, we’re interested,” in setting up a pilot and learning about how this will work. So they were key partners as well.

KM: And moving forward, are you – what is the structure of the roll out that you’re going to be having? Are you going those four partners...?

AS: So all of the 19 haulers will be offering this new program starting on Oct 31. So all of them are involved and getting on board.

KM: And where are they taking – you said that you’ve got two new facilities = are now permitted to accept food scraps – where are they taking them? To one or a mix?

AS: There are existing facilities that they’ve gone through the permitting process to and upgraded their facilities in order to accept food scraps. One of them is a little almost an hour and a half, maybe hour and 15 minutes south of Portland. One of them is 40, 35 minutes, west of Portland. Those are where the materials – the food scraps and yard debris will be actually turned into compost. But when the trucks are going through the neighborhoods collecting the material and they get full. They need someplace close by for them to unload their material. So we also have – another piece of the puzzle is a transfer facilities where they can quickly go to unload without having to drive an hour and 15 minutes and then to get back on route. So another piece of the puzzle was the transfer facilities. We will have four transfer facilities – two public and two private - that the material can be transferred at before it is taken to the composting operation itself. Once a hauler unloads material at transfer facility, the transfer facility gets to decide where they want to take material. So if they have a relationship with a particular composting facility, they will probably go to that composting facility. Or they may just

base it purely on economics and how much it costs to transfer versus how much the tip fee is. Some of the material will go to each of the two composting facilities, but I can't say how much of each.

KM: And these transfer facilities are new?

AS: No, they, no – two of them are public transfer stations that transfer garbage and that are going to be available to transfer the food scraps and yard debris as well. And then one of them is a privately-owned transfer station that also – it's a similar situation. It's a garbage transfer station that is making – is also willing to transfer this material. And then one of them is a Material Recovery Facility that is going to transfer the material.

KM: Ok.

AS: So these are all existing facilities that are now taking this material that have appropriate permits to do that.

KM: Ok. As far as collection goes, what kind of trucks are they using - is it going to depend on these 19 haulers and what they deem the most feasible?

AS: Yeah.

KM: Do they – do you have a standard, you know, we're going to collect trash in one half of the truck and the other half will be recycling, and then composting will have it's own service? Or how do – do you know how that is going to play out?

AS: No, each individual hauler make own determination for what works best for their business. In general, it's my understanding, that they're all - no one is using a split-body truck for like garbage and recycling, for example. I don't believe that's how they do it. I think maybe there are some split-body trucks out there – we keep our glass separate from the rest of our comingled materials, so some of them may have a glass versus their comingled material split in their truck. But other than that, they're just separate trucks for garbage and the composting material.

KM: So how – you said it's a franchise situation – I'm not entirely sure I know or understand what that means. Does the city provide carts and the city contracts with these 19 haulers to provide this service?

AS: We have an agreement. We've set up these individual areas of city and then we allow companies to provide service in that specific area so they're kind of guaranteed a certain amount of business if they own that franchise. So you can buy and sell franchises. They buy the carts and the carts are then part of rate, so our rates are set up generally on a "Cost of Service" model. So you know the cost to provide the service, what the rate is, is used to recover the cost of providing service through the rate. So the carts are part of that. So the way it's set up also is in the rate is an opportunity to make a return, make a profit so that companies are given that

opportunity. And it depends on the company's costs. Some of them are more efficient than others, able to recover - to make - be more efficient and get more of a profit. But the rate includes that. We set the rates and we set them to include the opportunity for a certain percentage of profit.

KM: Ok. And is that - you said it's a cost of service model - is that also a Pay As You Throw model?

AS: Uh, yeah. It's more expensive to have a 90 gallon container than a ...

KM: What is their current compost program budget?

AS: Our budget is for the entire program. The rate is suppose to - we have staff here - so part of the rate includes the franchise fee. Haulers receive - the customers pay their bills to the haulers. We get 5% of revenue for the program. This pays the staff budget. We do outreach materials, education as well as media ads. There is a team of folks who work on solid waste and recycling. There are multiple projects. Food scraps is just one of them. I don't know what percentage of staff time is spent on composting. It's all one program - solid waste, recycling and food scraps. Staff work on all aspects of these programs. I could provide spending by area - such as how much we spend on ads. The city isn't billing its roll out as food scrap/composting program, rather it's calling it its "New Curbside Collection," because they're moving garbage to every other week collection and compost to weekly. There are multiple changes occurring. Haulers may re-route their routes. There may be service day changes. Composting is only one part/change in the new curbside collection program. Before, the city collected solid waste and recycling weekly and yard debris every other week. With the new collection program, recycling and yard waste and food scraps will be weekly, with solid waste every other week.

KM: What is their current compost fee structure? And how does it compare to their current garbage fee structure?

AS: They have a Pay As You Throw on the garbage side, but not yard debris. 60 vs. that's just on the garbage side, not pay as you throw yard debris. The Pya rate base on including recycling yard, food scrap collection automatically. They have four carts for garbage - 20 gallon, 35 gallon, 60 gallon, 90 gallon. Recycling & composting have two carts sizes - 35 gallon or 60 gallon.

KM: What educational and programmatic materials have they used?

AS: Part of pilot's purpose was determine the best messages that folks respond to, the best way to get the word out to folks and change behavior. The Pilot provided each household - sent each household a letter from the city regarding the pilot and the changes they would see. It also said customer's rates may change. A week before starting the program, the city put tags on household garbage carts stating there would be a "change next week." The city also provided kitchen pails to help with collection and a brochure in the pail to explain what materials could go in the pail, how to do it, a frequently asked questions list, a magnet for their refrigerator, and

their new collection schedule. They also explained they would be moving to every other week garbage collection. This was the tool kit for the pilot, which they followed up with a newsletter in the fall and the spring, answering questions they'd heard from customer service. They provided more detail because originally they didn't have a "yes/no" list. Originally they just had images, but customers wanted an explicit "yes/no" list, so they created, and set it out to pilot households. For the roll out, they use the pilot of survey and focus groups to determine which materials pilot participants recalled & and found helpful and the materials where they retained the most information. They realized the magnet was not useful so they didn't include in the roll out. They did include the letter – an official letter was actually sent out this week – telling residents their service would be changing, that there may be a possible rate change, and how to get more information and help. They will send a newsletter out at the end of September to provide an overview of the changes. In mid-October, the city will send out a packet overview piece, with a collection schedule, a rate card and a new curbside collection guide for all carts, which will include what can and can't go in the garbage, recycling, composting, how to deal w/hazardous waste, and other types of non-curbside recycling. A kitchen pail will be delivered during the last two weeks of October with a brochure on how to take care of the pail and green roll cart, including how to clean it and use liners. The city will also use ads and media - a media ad campaign.

KM: When you say media campaign, will you use the new social medias like facebook and twitter?

AS: The city does have a facebook page they will utilize, but when they say media they mean primarily community newspapers, ads in newspapers/print, earned media, radio or tv or newspaper, magazines. They will have ads on transit, but not billboards, as well as have a big radio presence. The city will not use tv ads.

KM: How does the city assess success? How does the city measure program size (e.g., geographic coverage, volume)?

AS: The three main metrics that they tracked in pilot that are helpful and plan to use for city-wide are:

1. Program satisfaction - based on surveys. We have a lot of baseline data because we've been asking for years and know current satisfaction rates.
2. Participation rates or how many people regularly putting food scraps in green roll cart on a regular basis. This is based on surveys as well as field teams that go out and weigh containers and quarterly basis. We'll ask them to do visual survey, looking for food scraps,
3. We also look at what percentage of food we are diverting from garbage. The pilot achieve 50% diversion, so we're hoping to get at least that. It may take some time to get up to there because in larger groups it seems to be harder to pull everyone along. We do waste composition studies, and take samples of the loads that come in on the garbage and composting side, sort into components, and see how much is in the green cart versus the garbage. We will hire a contractor for that.

KM: What does your program do to ensure historically disadvantaged participate in the program and/or have to the finished composted product?

AS: The compost is owned by the facilities. They market it based on their own business models. It is often sold in bulk to landscapers & agricultural users. It may or may not be available to the public. Compost is used in the area to nourish the soil, but it likely doesn't come back to residents of Portland. How are we reaching out to those that need it most? We do a lot of outreach, including door-to-door. We plan to do the same thing in spring once residents have a chance to try the program out. We have folks tabling at events throughout late summer & fall. We knock on doors in neighborhoods targeted based on language, household size, can't remember all used to identify. We translated their materials into 4 different languages, and hired additional customer service staff who speak multiple languages.

KM: It sounds like you're defining "historically disadvantaged" as non-native English speakers"?

AS: Just to be clear, our program isn't targeting "historically disadvantaged" populations specifically— we're targeting areas that have difficulty changing behavior, understanding program, and getting on board. We look at who needs additional help? While these tend to be areas that are historically disadvantaged, that's not always the case. It's more about behavior change. For example, it's been our experience that larger households create more garbage and have more difficulty with every other week garbage. We found similar situations for age and income and language. If they can't read the brochures they won't be able to understand the program. We needed to make sure to get the right materials to those that need it. We were surprised, though. We expected we'd hear more from people with young children, folks with diapers in households. However, most of the feedback we heard was based purely on size of household.

KM: You mentioned age and income. How did those affect behavior?

AS: Income – both higher and lower groups had a harder time with the program. Folks in middle, low end to middle fared better than either ends of the spectrum. One of our worst pilot groups was in an upscale neighborhood. A lower end area also was lower performing. We weren't sure why the latter, we didn't nail down the reason. We thought maybe because people there have more people helping them out and they're not paying as much attention. However, those are only guesses at this point.

KM: Did your program draw from research that analyzes how people make decisions about participating in waste diversion programs?

AS: We have a whole outreach - whole section in their bureau dedicated to training, education, and outreach. They do a lot of work in that area, as far as what are the best ways of encouraging behavior change. We didn't go into specific research for the pilot or roll out. That group works on behavior change in many different areas of the bureau, which is the Bureau of Sustainability, which works on green building, food policy, planning and other sustainability measures, and waste reduction. They work on number of campaigns at any given time. They

have resources they have leaned on to develop methodologies and techniques. AS can pass me on to someone in that section to learn more.

Transcription: City of Toronto

Date: 09-08-11, 10am CDT

Interviewee: VS

Interviewer: KM

KM: So I guess my first question is who the key players in starting your compost program?

VS: Who are the key players? Well there are a variety of key players. So, our composting program was [designed] about a decade ago. And we have a curbside collection program where the residents separate organic waste into a separate container which is collected curbside. And then, we take that material and process it, most of it, internally – I say most of it close to 60% internally within a processing facility ourselves and then we send it to other private facilities. So then, key players are really the Council and the residents, and their political will to undertake such a – it's really, it is a significant change if the residents have been historically just putting everything into one bin or doing very little sort separation at home, then you're asking them to modify their behavior. So there's going to be resistance. And that will involve an extensive education campaign. And that also - first and foremost requires support and buy in from residents. Because my sense is there's going to be resistance from the local Council to introduce such a program, based on the fear that it will not be supported by the local residents. So you would, I would first engage the public - public houses, community workshops, what-not and engage them and get support that such a change in service will in fact be received, well-received, and accommodated. With that type of support, you'll hopefully have the political will amongst your Council to consider programs weighing both the environmental benefits but also the costs associated with such a program. And I think no one should try to fool themselves - there will be a cost, there is an additional cost associated with custom which is primarily just garbage flushing. I don't know if Austin has a recycling, a curbside recycling program.

KM: They do.

VS: They do? So there's a separate recycling program for collecting packaging and newsprint?

KM: Uh, huh.

VS: Ok. So that's good. At least there is a – there is some history there. (3:00) But this is an additional cost. I don't know if Austin has contracted out its collection service to a private sector company or whether they have their own in-house staff that does that. So then you have to, if it's collected out, you have to determine whether it's in the best interest to put out a different contender for the collection of the material or do you want to work with your existing contractor. If you work with your existing contractor, and that contractor has a set term within the contract year, then since you're reopening the contract and there will be additional costs associated with this. If you do it in-house, you have to then consider do need additional trucks, do you need more staff, and so forth. So it's, then you then you have to look at do you have the

staffing or your contractor to get their input. And then, of course, you have to find a place for it. I don't know if Austin or Texas, in fact, has a lot of processing facilities that will take organic material - waste - and essentially process it into a compost that can be land-applied for beneficial use. So, if there is no composting facilities in a certain radius that makes economic sense to deliver it – to haul it to that facility so that, you're really have a hard time doing it.

KM: Uh, huh.

VS: So one you have to figure out - determine - if in fact our existing processing facilities in Texas. I don't know where Austin is, right on the border? I don't know if it's right in the center of Texas, or if it's near a border, or what not, I don't know. Excuse my ignorance with respect to where Austin is.

KM: Oh, no. Not a problem.

VS: So you have to look at the processing facilities available. If not, then how do you engage the private sector to set up a process? Or does Austin want to set up its own processing facility like we did, but they're very expensive both in capital and operating to do so. Ok?

KM: Uh, huh.

VS: So there are... there is technology that has been around for years and we're [organizing] proof that it can be done. So the issue then comes as how much money do you want to spend on that capital and operate to do such a program? And does it, in fact, outweigh any benefits or, in fact, does not undermine the benefits that are supposed to enter with composting with respect to waste management, with respect to environmental management and so forth. So there are a whole variety of issues that involve various stakeholders, [lawyers,] and planners that you have to deal with in order to determine if in fact such a program, if it's going curbside, is in fact feasible for the City of Austin.

KM: Alright, well, I... Thank you. I know Austin has a yard waste collection program, curbside, that they mix with the leaves and grass and that thing. They mix with their wastewater.

VS: Sewage sludge. Yes. You can do that. You can in fact mix sludge also with organics. You need to determine if, in fact, it's in the best interest to mix leaf and yard also with organics such as food. That's the other thing, what kind of organics do they want to collect? We collect, in the city of Toronto, food, spoiled napkins, diapers, pet waste. So those are all products that are included in our system. But that's because of the processing facility that we use. We use an anaerobic digestion system. There are other aerobic digestion systems that cannot accept diapers or pet waste. So one has to ask themselves, do you want to utilize aerobic or anaerobic? And if so, then based on that, can effect the mixed in of waste and yard. I don't know if the state of Texas has standards with respect to the protection of compost and whether on the quality of compost in order for it to be suitable of it to be land-applied for either for agriculture purposes or recreational or home purposes. In Ontario, we have standards that determine both the feedstock and the output, and that standard must be satisfied in order for that product to then classified as biocompost that can be land applied for a beneficial purpose. Ok? And I don't know if that exists in the City of Texas, I'm sorry, state of Texas. In the state of

Texas has no such regulation, whatsoever, then you have to then determine if, in fact, what will be the final quality of the compost material if you mix food, spoiled napkins and whatnot into with [leaves and] yard waste. And because they have high quality of metals or and other parameters that your constituents which may deem the final product unusable. So one would have to look in fact if a processing can combine both. We don't. We don't mix our leaf and yard waste with our food waste. We keep them separate in order for us to meet our standards that we need to do that, ok? So in Austin's case they need to determine if in fact they can be mixed or whether they have to have a separate process as well.

KM: Alright. And why don't you mix the leaf and yard waste? Is it because they've got pesticides?

VS: Because of the quality. Yes. The standards that we have in Ontario that determine both the quality of feedstock and the quality of the final compost that is produced.

KM: Got it. Ok.

VS: And mixing those two we would not be able to meet that standard. And thus could not call it compost and where can I sell it or find a market for it?

KM: And you do sell it?

VS: Uh, we do sell it but, yes we do. Most of it we do. Some of it we just allow our residents to pick up free of charge.

KM: OK.

VS: At our facility. So we do some selling, not much. But we also just allow our residents to pick it up free of charge.

KM: And when you started, you said the program's almost 10 years old,

VS: That's right.

KM: How long was your pilot program?

VS: Oh, well what we did is we staged the implementation. We didn't introduce it uniformly across the city. We picked certain geographically areas first. So we divided into, I think, four or five geographic areas and slowly introduced it. So the last part of the city [got on] the program in 2006 or 2007. I think it was 6. So we slowly introduced it. So what we first did was determined if in fact we're getting the results that we were expecting. And I think the pilot was a couple years, year to a couple years.

KM: And how did you pick the geographic areas?

VS: Um, I believe we picked – I wasn't here at the time - but I believe the decision to pick up that area was primarily because of convenience. I don't know if you've ever been to the city of Toronto, but it's an extremely mixed development city and by that I mean, half of the city lives in single family dwellings, the other half lives in multi-residential dwellings – apartment, condos,

and whatnot. I have some areas of the city that are comparable to a new subdivision. Some areas where the downtown, it's so dense and so built up, you know, it's totally different in terms of how we collect one area from another. So I believe the area that we did collect first was because of either convenience primarily everybody in that geographic zone lived in single, multi- I mean single family homes and it wasn't as difficult for our trucks to collect those residential bins. And plus it just was not as difficult for the residents seeing [as they were] single family homes it wasn't as difficult for them to have another bin for them to store in a garage or anywhere else on their home. It was practical, practical reasons why we chose it. And maybe I believe that area had a history of being more active or participatory in recycling programs.

KM: Alright. And you kind of mentioned, actually, a little bit earlier about behavior modification, and with this recycling, have you – did your program or department, draw on any research that kind of looks at how people make decisions in participating in waste?

VS: Yeah, well we were one of the first ones, one of the first major urban centers to do such a program. So there wasn't much research available to fall on in terms of secondary research. So most of it was done primarily, was primary research, whether it be through surveys and focus groups and whatnot. So there wasn't much primary research – I sorry there wasn't much secondary research at least I don't think so in Canada. We were one of the first ones to introduce the program of this size. I don't – I'm not aware of any – and you can correct me certainly if there are similar cities in North America with 3 million people living in a major urban center that has a separated green bin program that is collected curbside. I'm not aware of that. So there wasn't - we had to sort of go along and just constantly do surveying and monitoring and whatnot to make sure that we're working [fine]. So as we were probably implementing the pilot, just doing ongoing research for the program and probably asking questions and trying to solicit information from those who were on the program to determine if, in fact, it was working or not. And how difficult it was, what mistakes were made, what changes needed to be applied and so forth.

KM: Got it. And you said that you implemented the program kind of in stages, where you picked a geography then you added another geography and then the final geography was added in 2006?

VS: That's right.

KM: And so did you start the program around 2001?

VS: 2002, it was. [I believe]

KM: 2002, ok. And that was when the pilot started or?

VS: Yeah, the pilot started a little before that. Actually yeah in that time period.

KM: Ok.

VS: And then as we saw the pilot was, in fact, being well received and was successful in terms of participation rates and contamination rates weren't high and so forth, we started introducing it across the city.

KM: And so it's been running at full capacity or throughout the city for the last five years?

VS: That's right.

KM: Alright. And was there any kind of special planning that you did prior starting to implement the program or was it kind like you said, continuing focus groups and surveys and learning as you go and learning as you implement?

VS: Right, well, so first of all. Even to start at the beginning, that original first community we had to do all the homework that I mentioned before, right? We had to look at – we decided to process our material within our own capabilities so we put out a tender to have a company design, build and operate a composting facility. You know we looked at, at that time we collected a mix of contracted out collection and internal. So we did all that analysis prior.

KM: Ok.

VS: So everything I talked to you about before, we did all that analysis. So after the analysis, we recommended that it was in the best interest of the city to have this composting program. So we did all that analysis. So then as we introduced it from one community to another, yes we certain lessons learned but the one thing that was critical and was consistent throughout the application was the education process, the communication process, in terms of informing our residents about this new program and how they were to participate. Because we're only going to be successful based on how the residents participate in the program. So there was quite bit of money invested into communication and education to make it happen, to make it work properly.

KM: Ok. And how does the city access its success?

VS: I'm sorry? How do we measure success?

KM: Yeah.

VS: Well, we measure success based on diversion. We were in a situation where – ok can you hold on for one moment please? Ok, so where were we again?

KM: How does the city measure success...?

VS: Oh, yeah. How do we measure success? At that time, most of our – well, close to 70% of our garbage was going to the landfill. And the landfill, we were taking our garbage to Michigan. And that was not a long-term solution for us. So in order to reduce our reliance on disposal, which is finite, we had to introduce diversion programs to essentially redirect food material out of the waste stream into a diversion stream. So we measure success based on the fact of how much garbage we were able to divert out of the waste stream and the organics program had a significant impact in terms of increasing our diversion rates so that we're less reliant on disposal. So it's had a significant impact in increasing my diversion rate over the last ten years. So primarily over the last five years [that was when our program began] but nevertheless we success based on the fact it has increased our diversion rate.

KM: Ok. And do you also look at participation rates or...?

VS: Oh, yeah. Participation rates are fabulous. We have like a 90% participation rate in the program. And we also look at the quality of the material and by that I mean are the residents, in fact, putting in the proper material in the green bin? We found that the contamination rate was extremely low. So it's like in the mid 90s, which is a strong indicator, those who are participating are doing the right thing. So yes, diversion rate is strong it's had an impact on my diversion rate in a significant way and that it has a strong participation and low contamination rate.

KM: And do you still ship your garbage to Michigan or...?

VS: No we stopped, we stopped doing that last year. We bought a landfill site in Ontario.

KM: Alright. And then, you said that education and communication we really important for your program success. Do you have any examples or any methods, I guess, that you would recommend to other cities?

VS: Yes, I'm mean you're essentially asking people to modify their behavior. So you have to present the information one, that is understandable, simple to read, simple to understand, simple to learn, and also build on a sense of why they're doing it and how it's benefiting them and how it's benefiting the city as a whole. So you have to demonstrate that it's not a challenging exercise, and two, what they're doing is, in fact, producing some positive results so that people know that there's value in what they're doing. If someone is participating in a program and it's not achieving the results that they'd been sold, then you'll lose them. So we've constantly been providing updates, letting our residents know that, in fact, their participation has been meaningful and has contributed to improving our diversion rate, and, in fact, it has achieved the results that we had hoped for. So you have to reinforce that message over and over again: of how simple it is to use, and that it's in fact a positive, has positive outcome.

KM: Great. Alright. And then, what is your current compost program budget? Do you have an idea?

VS: Oh, my budget for composting? I don't have that off the top of my head. Perhaps I can have that emailed to you.

KM: That sounds great.

VS: Ok.

KM: And you're fee structure, how is that set up?

VS: We have a utility - we're a utility rate so we have a Pay as You Go. So we charge for our garbage. So it's a volume-based rate program, it's essentially user pay system, where we provide four different types of bins: small, medium and large, and extra large, and you pay a different rate based on the size and the revenue that we generate through those - through that program - essentially pays for all of our waste management system. We get revenue, as well,

from other sources – through the sale of recyclables of course, but the majority of my revenue is [] user-pay program and it's a program based on volume of bin size. That's what the price is.

KM: And that's where the incentive to divert is?

VS: Precisely. You stay... Exactly, you divert more, you get a smaller size bin and you pay less. Exactly. So it's a financial incentive.

KM: Great. And then have you had any populations that have been historically disadvantaged or left out of the system that you've worked to incorporate into the system?

VS: Uh, yeah. We're working now towards now incorporating apartments and condominiums. So it's not as easy, as you can imagine. What we did was we provided for our single family homes - we provided a bin that they roll out to the curb. But we also gave them what we call a Kitchen Catcher. It's small bin that you can put under your sink and that's where you can put your, you know, you can line with a paper or plastic bag and then just throw into your larger bin out there, right? Well, that type of convenience is not as accessible or readily-available for multi-res.

KM: Uh, huh.

VS: So we're now introducing the program for our multi-res where we give Kitchen Catchers to everybody, all the units, but then they would then place all their compostable bags or material into a larger bin - a segregated, dedicated bin, a large bin not like the ones that we give to our single families. These are like four or five or six cubic yards bin that you have probably seen at apartment buildings that would be dedicated for single – I mean - for our organics. So slowly, over the last two years, we've been now introducing the program with them.

KM: Alright, just so I understand, each apartment gets their own Kitchen Catcher and then...

VS: Yeah, all the units, yeah, all the tenants get a Kitchen Catcher.

KM: And then there's a larger shared bin for all the apartments.

VS: Yes, to put all their material into one large shared bin, that's right.

KM: Ok, ok. Great. And are there any other populations that have kind of either been more difficult to get on board or...?

VS: Those are the ones we serve, we serve residential. We do service some small commercial. Customers like restaurants or your local corner variety store or whatnot, but the restaurants that are in our program, we offer a green bin program for them to do as well. I mean they pay for us. They're on a user pay system as well but we provide a premium organics program, where we'll pick up organics five times a week. It will cost a little bit more but some of, there's like a restaurant will likely take advantage of that. It reduces their garbage. So we do offer some programs for our commercial clients.

KM: Great. And is there any - the city just services the residential side. Are there any other organizations that service the commercial side, the larger commercial properties?

VS: We don't serve larger commercial properties. We leave that to the private sector to do that.

KM: Ok. And has anyone...?

VS: We have a limit, we have a criteria in terms of the size of the commercial establishments we will service. The larger ones, the ones that exceed that criteria, we just – we allow the private sector to manage those. We have no authority o that's a provincial or state level. Local level doesn't have jurisdiction over those.

KM: Got it. Has anyone in the private sector taken that on?

VS: Not that I'm aware of.

KM: Ok, I think it's the same in Austin.

VS: Probably.

KM: The city services smaller areas and then leaves commercial to the private. Alright. Thank you so much for your time, Vincent.

VS: No problem, Katie. So what I'll do is email I'll you the budget.

KM: That sounds wonderful.

VS: And if you have any other questions you can certainly email me or call me, ok?

KM: Sounds good. Thank you again for your time.

VS: Good luck. You don't sound like you have a Texas accent. So I'm assuming you're not from Texas.

KM: No, I'm actually from Wisconsin.

VS: Oh, Wisconsin, oh, ok. So, in any event, good luck with that. If you need any more information just let me know.

KM: Ok, sounds good. Thank you. Ok, good bye.

VS: Bye bye.

Transcription: City of Austin - 1

Date: 09-06-11, 10am CDT

Interviewee: JK

Interviewer: KM

KM: So I'm doing research of what Austin might be able to do for a composting program in the future. So I'm trying to get an idea of what its current programs are, and then what it's got in the works and a little bit of history and what you think might happen in the future.

JK: Ok.

KM: My first question is, and if you don't have this information, we can email or send reports or whatever it is. But I want to get an idea of what the city of Austin's current solid waste program budget is.

JK: Ok, hang on real quick. There are certain pieces of information that you'll be able to get online.

KM: Ok.

JK: So I can direct you to all of that information, but before we get started, how much research have you done on this department and how it functions?

KM: I haven't done much to be honest. I've looked at... I know you have the Dillo Dirt program which is kind of your yard waste and sewage sludge or sewage waste program. But I don't know really much about how the city operates.

JK: Ok, I can give... let me do this. I can give you brief overview but I don't want to spend too much time doing that. I think you need to take the time and do that research so you can have more detailed questions because there is a lot to cover in relation to organic composting programs as far as what the limitations are and what the challenges are. And so, let me ask, "What are is the purpose... what are you trying to achieve with this project? What is your goal?"

KM: So the structure of this project of my research is to talk to a number of other cities that are composting and to see what they've done and the purpose of talking to the city obviously is to see where the city's at and then maybe look at some recommendations of what the city might do to move closer to starting a composting program.

JK: And is this for a client or is this for your own personal research?

KM: This is for... I'm doing a professional report, like a thesis, to graduate from the program.

JK: So it's for your own professional report?

KM: Yes. It will be published within the university's system so people will be able to look at it, but it's not for a client...

JK: Ok, yeah. I did this. I graduated from UT as well. I got my master's from the LBJ school. So you're basically doing a master's thesis.

KM: Yes, exactly.

JK: Ok, there is... let's see. Let me give you. Am I being recorded now?

KM: Yes. I am recording you now.

JK: That's fine. Let me give you a brief background and then I'll direct you to. There's a lot of static. I'm not sure if you hear that? But I do.

KM: I don't. Is this a little bit better?

JK: Yeah. It comes on and off, just so you know.

KM: Ok.

JK: Let me give you background, we'll start there, and then I'll direct you to places where you should be able to cite more detailed information rather than try to pull those numbers myself because we're going into a new fiscal year.

KM: Ok.

JK: So I won't have the most up-to-date numbers on that. But we'll start off with what solid waste services does, the services we provide, I'll give you context of our limitations what we call "circle of control" and "circle of influence." And then where organics fits into that. Ok?

KM: Ok.

JK: Solid waste services department is an enterprise department, meaning that we charge rates in order to fund our programs. We are not part of the general fund so our funding sources are based primarily off of the rates that we charge our customers. So we are part of the utility bill. If you look at the city of Austin's utility bill, of course Austin Energy manages it. Austin [...] solid waste services as well as two other utility funds. The drainage fund and transportation fund also come out of the utility bill. If you take your utility bill and you actually looked at it, it actually breaks down out each of those departments.

KM: Ok.

JK: You'll see a solid waste services line item. That's your rate and we work off of what we call a pay-as-you-throw rates structure. That means there's a base rate. The base rate is basically the amount of money that we charge a customer to provide services. And then you have a cart fee on top of that. You choose your cart size based on your usage – the cart sizes are 32, 64 and 96 gallons. The larger the cart the more you pay the smaller the cart the less you pay. So you have those two main fees and then on top of that you have an anti-litter fee, which is a fee which

handles all other street sweeper services, basically look at anti-litter fee being a community wide service so things that prevent waste/litter so think litter control, downtown street sweeping, street sweeping in through neighborhoods and things that the community wants and as a group pays a flat rate. Does that make sense?

KM: Yes.

JK: So that's how we're funded. This last... this past fiscal year I think our budget was about \$68.1 million, about that much. We have about 400 employees total, three quarters of which are out in the field. So they are the guys that take out and are on the ground. The remaining quarter is mainly service staff. [They] are the finance, or HR all the people that help make all the other people's lives easier out in the field. Does that infrastructure? Does make sense to you how we function?

KM: Yes, yes. I get that bill and I've look.... I knew about a cart fee. You said, did you say \$58.1?

JK: 68.

KM: 68.

JK: And if you've been onto the city's website. Have you explored at all the city's website?

KM: Yes, I looked through the Zero Waste plan and the Technical Reports that were done I think two years ago or a year and a half ago. 7

JK: Ok if you want to see the budget, when you go to the city's website you just go to... there's a column and on the left hand side it says "City Government." When you scroll down you'll go to the city managers office budget department. You go to the budget department. It will tell you... You'll see the whole budget for each department. Now the easier way to do it. Super fast, easy way to do it. Is when you go to the city's website, and you click on that... there's like a search engine on the city's website. You put "EPerf" meaning "e performance measures" or "electronic performance measures." You click "Find" and it'll say e performance measures. It'll go through all our performance measures so you can search by department and what we do. That should also include... I'm looking and if it doesn't. It actually breaks it out line item by line item.

KM: Ok.

JK: Ok. So that will probably be the easiest access to a lot of data that you may need. And I would encourage you, if you're looking for something in particular and you don't find it there, then ask. But look there first. It tells you how much tonnage we pick up. How much gets to the landfill, much gets recycled, much gets composted, all of that.

KM: Ok. Awesome.

JK: So that's just e performance measures. You can search that on the city's site. So let's talk about organic collection.

KM: Ok.

JK: The city of Austin. We provide... so context first... Solid Waste Services provides up to curbside collection to single family homes up to 4 dwelling units. Beyond that it's kind of [an evaluative] service. In other words, what we do is we look to see whether or not you're eligible for service - if you can get into your site and you can't use commercial service. So let's focus first on our customers. Our customers are single family homes all the way up to four dwelling units. So think about duplexes, triplexes and [in a sense] four-plexes. All of those properties are provided service by the city of Austin. The city of Austin is only physically capable, on staff, to provide cart service. We do not have access to dumpsters. We do not own dumpsters. Nor do we have trucks that service dumpsters. We're a cart-based service only.

KM: Ok.

JK: Ok. So that limits our ability to provide service to large-scale commercial companies. So that's the context. Our customers are only people who can handle cart-level service. If can't handle carts, you need dumpsters, then you can't come to us. We're not going to be able to.

KM: Got it.

JK: Now there's another wing of what we do and that is the downtown. It's an anomaly. So I'll get into it a little later. But let's focus on cart service. So on our cart services. Our Pay As You Throw structure is based off one fee - it's your base rate plus cart fee. That determines how much you get charged per week, or per month. And right now that fee covers the cost of your garbage service, your recycling service, your yard trimming service and a portion of your bulk collection and brush collection. So there are services that you get weekly, which are garbage collection, recycling collection, and yard trimmings collection. Like everybody likes to do their yard work once a week so that's what I mean by yard trimmings collection. And then sometimes there's season collection, which we call... you get every two years. We call that large bulk collection you get twice per year. So large brush collection you get twice a year and then brush collection is like when you're pruning your trees you have large brush. So those are seasonal and that's every two years. So that's your curbside service. And when we say curbside it means we are literally picking up at your curb. So those services are all covered under that rate. And basically the concept is that it's a bundled service so the more you... our goal is to create situations where if you put more into your recycling or your yard trimmings and you get big containers for those and you get... you can choose your cart size. So the smaller the less you pay, right? Then, if you recycle more and if your yard trimmings in a yard bag for yard collection rather than putting it in your trash, you can and get it out of the landfill and you can go to a smaller cart. Does that make sense?

KM: So you're being charged by the size of your garbage cart?

JK: That's correct.

KM: So you want to... Ok, that makes sense.

JK: Ok, so you... let's say for example most people – the vast majority of the people in Austin – single family customers have a 64 gallon cart or a 96 gallon cart. 63 gallon is right now the grey

one. We're going to change color structure and everything like that as we implement the master plan, but right now it's the grey one. What cart do you have?

KM: I think I've got a blue one.

JK: Ok, a blue one is for your recycling.

KM: Ok.

JK: So that's the 96. Is there another cart? You should have two carts – one recycling, one trash.

KM: Yeah, I just moved from a multi-complex to a house so I haven't taken out the trash. My roommates have. I'm guessing grey – I think that's the other color I've seen.

JK: Ok, so the grey is the 64 gallon cart.

KM: Ok.

JK: so there's one smaller one. It's a 32 gallon cart. Your 32 gallon cart is \$4.75/month. Don't forget you have a fee – a \$7 base fee. Everybody pays \$8.75 base. Ok? So your green cart, which is 32 gallon cart. Don't worry about the colors as much as the size. 32 gallon is \$4.75. A 64 gallon cart, which is the grey that you have, is \$10. The next size up is a 96. It's brown right now. That cart costs \$33. So if you were, are you living by yourself or do you have roommates?

JK: I have roommates. Ok. How many roommates do you have?

KM: There are three of us. There's four of us total, so I have three roommates.

JK: Ok. So if you look at a... I have two people at my house, me and my husband, that's it. We can fill up, think of a 32 gallon cart and filling up two bags of 13 gallon trash. The average trash bag holds 13 gallons.

KM: Ok.

JK: Ok, that's two bags of trash per week. Think about how much your house generates in terms of trash per week, not including parties, not including guests over and figure....then you would figure out what size cart you would need. My guess is, if you're recycling a lot and you're recycling all the things you're able to recycle, you could probably go down to a 32, not including parties.

KM: Cool.

JK: And then, if you have a party there are other ways to handle it. But you can reduce waste in different ways. So does that... can you see the incentive that we're trying to create? That allows people to divert appropriately so that they can go with a smaller cart.

KM: Yeah.

JK: Ok, so let's look at the big picture. All the yard trimmings. So you've got the recycling side down. Now we've increased it to single stream. Single stream means that big 96 gallon cart - you throw everything in there. And then we pick it up and sort it for you. In the past, it was set up in what we call dual stream - you had to separate everything out. And there were only 14 gallon carts. It was half of the size of those carts. It was just a tub actually. So we went to single stream and now we're quadrupled the size and you can recycling more.

KM: Ok.

JK: and then we'll keep adding to the types of materials you can add over the years. So you know we're looking to add things like foil, things like those juice boxes, cartons so that you can increase your diversion even further, right? So yard trimmings. A lot of people used to put their yard trimmings - their leaves, their grass clippings, weeds and things like that - they'd put them in the trash. Well if you take all that bulk and stick it in a yard trimming bag...so it's like a brown [craft] bag that you can get from Home Depot or any of the garden stores. You can do that or you can get a reusable garbage can. [] We do reusable containers and put all your yard trimmings in that. And then you've diverted again, you haven't wasted space in your trash can and now you're able to [send that away] so that doesn't go to the landfill. You're yard trimmings are collected by a separate truck and taken to Hornsby Bend. Hornsby Bend is operated by Austin Water Utility, and they process that material into Dillo Dirt, compost it, combine it with water sludge that comes from the waste water system and then convert it Dillo Dirt. And then it's sold out on the market.

KM: Ok. And is that...?

JK: So that's your basic [composting]. That's how things functions. So now let's focus on organics. We'll focus on it from a single family home perspective. I don't want to get on commercial side now, focus on the single family home perspective. So the idea is that through the master plan the City of Austin will begin exploring, through pilot scale first, organics collection. Organics means anything that... you've got food scraps, you've got anything that can be converted back into soil. So all your food scraps, anything that can really be, your plate scrapings that think of it that way, would be combined with your yard trimmings. City of Austin will probably provide you with a third cart so that you can put it all in there and then it would be collected weekly.

KM: Alright.

JK: And then hopefully, by taking all those food scraps and all that stuff that you would normally, even if you were just cleaning out your fridge, think about how much that takes up in your trash, right? Then that would reduce the amount of waste that you're generating. So the only, there should become a situation package that isn't recyclable.

KM: Got it.

JK: Ok? So food scraps, organics in general, take up... So when we talk about that we're also talking about napkins, think about paper napkins, think about paper plates, things that you use in a house, you probably don't really have paper plates in the house. It's a waste to me,

personally. I'm like just use another plate. But a lot of people use paper napkins. I don't personally. I mean that's kind of a waste, too, but you can get reusable towels. But a lot of people use paper plates - I mean paper towels. Paper towels are something that can be composted. Because once paper gets soiled with water, it becomes very difficult. The value of it isn't as high. So anything that is oil, soap, food. So pizza boxes are a really good example of things that can't be recycled but can be composted. So all that material will go together. And it takes up about 50%, on average, 50% of waste stream from a single family home. Is [compostable].

KM: Ok.

JK: Ok. So that's percentage of waste, that means about, right now we're probably recycling about 30%, of a single family home is recyclable. So you get 80%, maybe 40% is really the goal for the recycling. Once we're able to expand for the number and types of materials. With juice boxes, people are really using milk cartons and juice boxes are some of the things people use at home right now that we don't currently accept but within the next year we plan to be able to accept. So once you can expand the amount of recyclable you can get, the goal is to make it down to 10% of your waste stream becoming landfilled.

KM: Wow, that's great.

JK: You know what I mean? If you look at your waste stream, and you say 50% of it is compostable, 40% of it is recyclable once we're able to expand to all the materials that are possible for recycling, that means only 10% really needs to go to the landfill.

KM: And so, would you move to less frequent waste collection once we got to that point?

JK: Potentially yes. Right now, state law says that cities have to pick up putrustibles, that's the term, putrustibles once a week. Putrustibles include meaning it's just right now the thing is putrustibles are combined with all your waste. For most communities, putrustibles are the putrid stuff, the things that smell. The things that smell are your organics. So most if there's a way to create a situation, where... And sometimes the stuff, the 10%, we call it inerts, because it doesn't break down. It doesn't really smell, it's just stuff you can't recycle, you can't compost. To get to the point where potentially you could go to twice a week collection for those inerts and once a week collection for recycling and composting. That's in years. That's kind of out in the future – 2030, 2040.

KM: Alright. And you said that the city of Austin is starting pilot programs. Do have a timeframe on when that might occur?

JK: It could be in a year or two. We first have to pass our master plan, which we expect will go to Council in November or December time frame. And then once we get that blessing then we'll begin looking at a timeline to implement a pilot program for that.

KM: And do you have any idea of where you could start that? Or where you might target?

JK: What we do, when we start pilots we look at the city as a whole. Just like the single stream, it was, it took two years to pilot it, because you have to go through two seasons, especially city-

wide. When you look at yard trimmings especially you look at the drought situations we had, things like that, it would have to be a two year to three year pilot program, because it's dependent on the seasons. Your pruning seasons, all the different [earth]. But what we'd do is take a snapshot of the community and we would random... select routes that were diverse in terms of their participation rates, because when you pilot you're not just testing the ability to process material, you're testing participation rates and contamination levels, you're testing education and marketing and what works and what doesn't. So it's truly, an experiment on how it works, what works and what doesn't. So we look at the city as a whole and would select certain routes to introduce it. Try it there first, test that for two to three years and then we would launch it city-wide if it worked.

KM: Ok. You said that there are... all your statistics are online. And I'm assuming, are those the metrics the city uses to assess its success - is tonnage collected, or contamination rates?

JK: Yes.

KM: Ok. Is there, you said that you're going to take a snapshot of the city when you do finally start the pilot. Is there anything that the city has done or might do to ensure that areas that are... that maybe haven't received the best service or that have been historically disadvantaged are able to participate? E.g., I don't know if bilingual advertisements and things of that nature or trainings...?

JK: Yeah. That's exactly why we do the pilots. We take communities that are a mix. We don't look at communities. We don't...we want to get the challenging and the not challenging areas. So the areas that are participating right now we want to get but we also want to get the areas that aren't. And figuring out what the challenges are and educating them to participate.

KM: Ok.

JK: So if it's a language barrier, if it's whatever it may be. So if it's economic, whatever and we're going to try and hit those neighborhoods.

KM: Ok. And then you mentioned the commercial side. Did you want to talk about that a little bit?

JK: So the commercial side, as I said, we don't have a lot of control over. So I kind of mentioned, I hinted to the phrase "circle of influence" and "circle of control." Our circle of control are single family units residential units all the way up to four dwelling units. It's mainly three but we end up leaning into four, too. Our circle of influence deals more with properties we don't directly serve. So those are the commercial sector restaurants, grocery stores, large scale generators is what we like to call them. People who, organizations and facilities that generate more waste than a cart service provides or a cart service can handle. So they generally... because of the volume that they're generating. There is a movement right now to change the universal recycling ordinance. So we just passed the universal recycling ordinance just this passed year and that states that all commercial properties and multifamily properties, phased in over time depending upon size – is how each year phases in, but by a certain date within 2015, I think, [...] provide the recycling of five materials. Those materials are: glass, paper, plastic – plastics 1 and

2, EPE and HDEPE, those...that's what plastic 1 and plastic 2 are – those chemical components. And then, aluminum and glass, so they have to recycle all those materials. And in addition to that, that was phase one. Phase two, we're in the process now of saying how do we apply this to event venues and hotel/motels, grocery stores, restaurants, and can we also require composting? And so there are only two service providers in the region, right now, that are permitted to provide composting collection and processing bulk. Now there are some that can collect but they don't process, they take it to one of these two facilities. But there are only two facilities that are permitted to process. Those two facilities are Texas Disposal Systems and Organics By Gosh. Now the city has obviously Hornsby Bend that it can take its organics to so we're not talking about those. We're talking about commercial level stuff. Right? So high rises multifamily, huge apartment complexes things like that.

KM: Got it.

JK: And the goal is to create a situation where, by ordinance, these properties are required to eventually compost. Now because the volume is so momentous, huge, it has to be processed by commercial facilities. It cannot be processed... can't be taken to city facilities are going to handle all the single family stuff. So these commercial service providers will have to manage [that] and we'll phase those properties in over time as well.

KM: Ok. So you said that there are many collectors, but only two processing facilities. Are there plans for other collectors to start other processing facilities, or are these processing facilities likely going to be able to handle or grow so they can handle that?

JK: Well from what I've been told, commercial processors are able to handle the volume. [And commercial facilities]. It's not necessarily the processing capacity that's an issue when it comes to composting. What you find is a battle between, no I don't want to call it a battle, it's just an issue... There are points of conflict, points of concern between composting and certain regulations that we have in place for health and sanitation. And so sometimes there is a concern by the companies that, especially given our climate, it's hard to maintain some of this product without addressing things like fruit flies, stinky odors things like that so it's not really the processing, but the collection and cost to collect. Because if you separate out, just like a [?], if you just only have a bag of food waste, you have to put that out more frequently than if you just had a bag of materials that you can recycle or landfill, right? So it would, inerts, what we call those inerts that can't be recycled, can't be composted, really wouldn't create an odor, wouldn't create a problem. But what they do, is whenever you put your food waste and all your other stuff together, some of that odor gets soaked up by the rest of your trash, right? So that obviously there's just ...there's liquids and "groaties" that kind of get stuck into the food and then it goes to some of your papers or some of your other stuff and the odor gets soaked up. But when you separate those two, now it needs to be taken care of a little more frequently perhaps. And so now you have a cost issue, and then you've also got a frequency of collection issue. Frequency of collection, to me, translates as more trucks on the route, more cart service perhaps, more dumpster service, things like that.

KM: Alright, and maybe a different kind of cart that seals a little better than those that are currently being used?

JK: Potentially. I don't know. I mean that's going to be the commercial side of it. What I will say, if you want to look at a city that is doing it right, take a look at San Francisco. Now the problem with San Francisco, though, is that it is the only kind in the nation. The way it's set up, no other city can set up the way it's been set up. And the reason that is is because of certain laws that they have in place. San Francisco, they have one service provider throughout the entire city. That was [set up] in the 1930s, through carter. So if you've ever seen how the city has to change it's charter here, it's quite the intense community group. I don't see that happening here.

KM: Yeah.

JK: I don't see any city doing that.

KM: Yeah.

JK: So, San Francisco is very unique and certainly is a great model, but it's not a model that can be necessarily replicated, not without tremendous changes to ordinances.

KM: So how many service providers are in Austin? So the city does single family to four dwelling units. So that's obviously one, but you said that there are multiple collectors?

JK: There are tons. You can really only get it through just a list, but the major players in Austin, major like large- scale, national organizations here or highly recognized ones – Texas Disposal Systems, Waste Management, Allied/BFI (same company), Balcones which is only a recycler they don't do trash, RESI and CTR which is Central Texas Refuse. Those are the ones off the top of my head, top five. Now the challenge though, you've got some smaller guys coming up, like Wondering River Recycling, Some of these companies, these top five they don't completely and only some of them do landfill only, some of them do landfill and recycling and some of them do all three (landfill, recycling and composting). In all honesty, I only know one service provider in all of the region that does all three, and that's Texas Disposal Systems. There are a landfill company, they started composting, and they now provide a single stream recycling facility. But that just happened less than eight months ago, so that's very new.

JK: They were primarily a landfill company, then they started composting, and now they've started recycling. And they've only been recycling since maybe I think April or March or something like that of this past year, I think, I don't know for sure. So it's actually telling you how new it is to this community - for one service provider to provide all three services.

KM: Alright.

JK: So some don't even provide recycling and landfilling, you know? Some of them just provide landfilling. So think of it from a restaurant owners perspective, maybe I'm just a small mom and pop shop, so I have to go through three different companies to provide my trash, provide my recycling, provide my composting, right? And then are you getting a cut or a break on the deal like with single family homes? Single family homes if you recycle and compost less – or more – then your trash goes down. But if you have three separate service providers you don't get that same break.

KM: Kind of like the idea of bundling.

JK: Yeah, right, exactly. That's why bundling is so nice for a lot of people. I just want to with one company, I just want one bill, please just make it one bill. But even with TDS, right now with the way they've set things up, there's no guarantee by composting and recycling you're going to get a smaller trash bill.

KM: Got it.

JK: Even their rate structure is not pay-as-you-throw rate structure. Now I can't guarantee that, I don't know for sure. You'd have to talk to one of their customers to see if that's what they do. A lot of their negotiations are very private. So my guess if you call them and ask them, "do you do this pay-as-you-throw stuff?" they may or may not be able to tell you that.

KM: Ok.

JK: It's a very competitive industry, so.

KM: Got it. And then, as far as the city goes, when they start the piloting program, are they going to be sending the compost – or the organics, the food scraps – to Hornsby Bend or would they be sending it to Texas Disposal Systems or is that to be determined?

JK: Say that one more time.

KM: When the city does start its food scrap collection would that be going to be processed... would those food scraps be going to Hornsby Bend or would that be going to one of these larger facilities?

JK: The city plans to send its food scraps to Hornsby Bend.

KM: Ok.

JK: That's the plan right now.

KM: Got it. And so it would continue to send the yard trimmings, it would add the compost, and then Hornsby Bend is Austin Water Utility, so they would be mixing it with the sewage sludge.

JK: Uh huh.

KM: Whatever that...I'm not sure if that's the right terminology. Ok. Alright, well. I think, well I guess my other question is does the city transfer its garbage and recycling? I guess, as far as composting goes, I'm trying to figure out if the city would collect curbside and then drop off at Hornsby Bend or if there's a processing like a transfer or midpoint that the compost would go to. Or that currently garbage and composting goes to.

JK: Wait. Ok. Start one more time. Help me understand what you're trying to find out again.

KM: Yeah, no. I'm trying to find out if the city currently has transfer stations for recycling and garbage.

JK: No.

KM: No.

JK: No, we used to. But that is the plan. We plan... So a transfer station is a very strict term in the solid waste world. So let me make sure I speak from where you're talking about. Transfer facilities, for some people, are often called drop off points. And drop off points for the single family residential and for the multifamily customer from a customer's perspective, drop off points are ones you want to scatter all over the place, like Ecology Action. Do you know the Ecology Action facility downtown?

KM: I do.

JK: You do?

KM: Yes.

JK: Hello?

KM: Yep, I'm here.

JK: Do you know the facility downtown called Ecology Action?

KM: Yeah, it's on 9th street by I-35. Yes.

JK: Yes.

KM: Yes.

JK: Ok, that facility is what we call a drop off point for customers. A transfer facility from the solid waste industry's term, is a facility like, let's say for example, all our routes go out and pick up a bunch of stuff and they drop off or they transfer all that material to a drop off point and it's commercially collected, no one else can enter it, no one else can... its only for city use. It's all collected in one area and transferred at that point in a big truck, combined into one big truck and sent somewhere else.

KM: Yeah.

JK: So that's what I think of a transfer station.

KM: Yes. Ok. And the city.

JK: So whenever we talk about transfer points. The city is exploring that. Because we have such a large city now. We have our Hornsby Bend facility located southeast. We have our service center, which is where all our trucks leave from at the south service center, too. And so the city is thinking in its master plan is whether or not we should have two service centers, not necessarily a transfer center, but two service centers, one for the south side that services everything south of the river and one on the north side of town which services everything north. You have trucks in each location. They're still working through all of that right now.

KM: Ok.

JK: And then you would have drop off points... so you wouldn't necessarily have to transfer, right? You'd just in and out. You might use it as a transfer to go to the final landfill spot. You might use the north facility as a transfer spot. So, they're still planning that and that will come out in the master plan. We expect the master plan to come out, just so you have it, I believe we're looking at October 5th.

KM: Ok.

JK: For it to go to the public.

KM: Great.

JK: So I don't know how that works for your needs/schedule.

KM: That might actually work pretty well.

JK: Ok, so yeah, all the finances will be in there, the metrics, need everything that we're going to need in order to... everything we're planning to go to [Council] to get a blessing on.

KM: Got it. Ok.

JK: And including a section on organics collection.

KM: Great.

JK: And it think timeline will be discussed in there too.

KM: Ok.

JK: Alright. And so, the service center is not a transfer station but it might be used that way for collection.

KM: And where does the city currently take its garbage?

JK: TDS landfill, Texas Disposal Systems out in Creedmoor.

KM: And is that also where it sends its recycling?

JK: Yes, currently.

KM: Ok.

JK: But effective October 2012, 2012 next year, it will go to two facilities. It will go...40% of it, which is south of the river, will go to Creedmoor, and the other 60% will go to Balcones Resources.

KM: You said that 40% will go to Creedmoor?

JK: Well, Texas Disposal Systems in the city of Creedmoor.

KM: Ok, got it.

JK: City of Creedmoor.

KM: And you said the remaining 60% will go to Balcones.

JK: Right.

KM: And that's the north side?

JK: Yes. North of the river. So think of, when I say river I'm talking about Town Lake or Lady Bird Lake.

KM: Got it. Alright. Well, I think we pretty much covered everything I was looking at. I'm going to go through the website and see if there's anything else I missed. Would you mind if I either gave you a call back or shot you an email with any follow up questions?

JK: Sure, no problem.

KM: Great. Thank you so much, JK for your time. I really appreciate it.

JK: No problem. If you have any other questions, just holler back at me or if you want shoot me an email. Sometimes it's easier for me to respond by email if I find that questions need more of a detailed response, than I'll just let you know.

KM: Ok.

JK: And we can schedule another time.

KM: Sounds great. Thank you so much.

JK: Alright, bye-bye.

Transcription: City of Austin - 2

Date: 09-27-11, 1pm CDT

Interviewee: BG

Interviewer: KM

BG: Zero Waste, I'm not sure if you're familiar with that process?

KM: Yeah, I believe I spoke to JK in your department, and she said they're going to be sending that to City Council around November or October?

BG: Yes, I have a PowerPoint presentation I'll give to City Council on November 3 and the document will be distributed in about ten days. So we're getting real close to finalizing the document. There is one chapter in that master plan that addresses compost and our needs to encourage composting and capture more of the organic waste stream. And by the [] of the residential waste stream, what we can control, the residential waste stream about 40-45% of that residential waste stream is organics that can be compost. And so it's a huge fraction of the waste stream, and we collect a certain amount, I don't have the tonnages in front of me, but we collect a certain amount at the curb right now through a bagged program. People buy craft bags and they can put at the curb and we pick it up once a week. That's a fairly minor program. I plan on replacing that program. And in the last two, three, four months we've been exploring what our options are.

KM: Ok.

BG: So very relevant topic here. What we're settling in on is two approaches. They're not exclusive of each other, they're complimentary of each other. One is to encourage people to compost at home. The lowest carbon footprint for capturing organics is at the home base, home composting program, because you don't send a truck to pick it up, people take it off their lawn, out of their garden and so forth, and they compost on-site and generate more compostable material for their garden. So it's a back-to-nature type cycle. That's the approach and most economical approach to capture organics. The problem with that approach is most communities that I've researched, the maximum participation level is 10% of the households, of single family households. Maximum...

KM: Wow.

BG: Yeah. [If summing] the number of people who will not compost, it's just an activity that's not part of American lifestyle.

KM: Uh, huh.

BG: And 10% is the high mark in most communities. I'm looking at Kings County, Washington, San Francisco, some areas of Los Angeles. Vermont has a very aggressive home composting program. Who else have I looked at? Boston, some Midwestern places like Dubuque, Iowa, and

De Moines, Iowa, Indianapolis, looking around the country and seeing who's promoting composting and what their participation rate and the maximum seems to be 10%.

And what we're doing is we're promoting a rebate. If somebody goes to store and buys a composter at the store, it's around \$75-100, on average. And we rebate up to \$75 on that purchase if they attend a workshop, a composting workshop. We want to make sure people are composting correctly, they don't try and give up on it.

KM: Uh, huh.

BG: So we're really trying to find ways to get the public to these workshops. I think our staff have done maybe 20 of them this year, 20 different workshops. It is on our website, the list of them. And they're always full, every one of those workshops are full. So we feel like we're capturing the attention of a certain part of the population. Less than 1% of our residents right now home compost. And our goal is to try to max out, perhaps up to 10%. I have no dreams that that's gonna be a successful program beyond 10% of the single family households.

KM: Uh, huh.

BG: So our second step, that's the best thing we can promote at this moment in time. It's the lowest cost, lowest carbon footprint activity. We want to do that for the next two years as we are planning and preparing for the second step. The second step is to deploy 96 gallon plastic wheeled carts, what we call "toter carts," at the curb for every single family house. That's a 183,000 households. We want to supply a 96 gallon cart. In that cart, they can put all their yard waste and food waste – like organics in general, food waste from the household, the plate scrapings, the kitchen scrapings, the garden scraps as well as all yard trimmings can go into that cart, and any food-soiled paper. So like pizza boxes that can't be recycled certainly can go into this compostable program. And then we'll take that to a composting facility that's co-operated by my department and water over at Hornsby Bend. And we'll co-compost that material. And we're hoping to pilot that in 2014 and go city-wide in 2015.

KM: Oh, wow.

BG: And the cost is high, it's about a \$12 million project. And that's why it's not happening this year. We have to prepare for it, we have to present the case to City Council; City Council has to approve the budget for that. We're in the planning stages before going to City Council for the approval, and it will be discussed with City Council in November but they won't approve it in November. This will be the leap off point to get the conversation going. But we're expecting about a year from now, City Council to approve the project and then we start buying the trucks and the carts, and deploying in 2015. But it takes a bit of planning years, and in the interim, we're promoting home-based composting, backyard composting. Trying to push that as hard as we can.

KM: Ok. And I forgot to ask you, is it- I think sent it out in an email, but is it alright if I can record our conversation just so I can go back through and transcribe it.

BG: Absolutely. I was assuming that. Yes, absolutely. No problem.

KM: Ok. And I don't know if you can hear this but I'm also typing a little bit so if that gets annoying let me know. But I'm trying to take notes and record just in case my recorder goes out and I'm like "oh, what did we talk about?"

BG: And I recognize I talk fast, so you can always slow me down.

KM: No, that's fine. I've got the recorder going, so I think I should be ok, but I'll ask you to clarify, if I have any questions. I did have one question, you mentioned that you've got the bags, the yard trimmings program currently. And you said you can buy a bag at Home Depot. What kind of bag is it? Is it...?

BG: Yes, that's a good question. It's a paper bag, it's what they call a "craft paper bag," which is a thick paper, you know how the old style grocery paper bags are? It's about twice as thick of a paper bag as that and it's about 30 gallon, 30-32 gallon paper bag. It carries quite a bit. But people fill it up with yard waste, roll the top and set it at the curb. And the reason why that's a favored procedure in the past years is that the it – the whole bag itself is compostable. So when we collect it, we dump it at the composting facility and we don't have to empty the bags.

KM: Uh, huh.

BG: We hate plastic bags, we absolutely hate plastic bags because they have to be [] they're not compostable. So that's our general pattern for now. But the problem with that process is that it's less than 1% of the population using it and it's low volume. It's simply because the container - you have to go out and buy those paper bags, and they're small, and they're inconvenient, and I think there's too many barriers to public participation there.

KM: Ok. And when you said that you're replacing that program, you're talking with the curbside collection with the 96 gallon organics?

BG: Yes. Yes.

KM: Ok.

BG: Now, currently we collect at the curb trash every week and recycling every week. We're playing around with whether we need to pick this material up – once we deploy these 96 gallon carts, do we pick it up once a week? Or do we every other week on the weeks when people are not putting out their recycling carts? That's still under consideration. We're playing around to see what is best for the public on that.

KM: OK. And as far as - you said that you're co-composting with the Dillo Dirt program. Does that mean that you'll be mixing the organics with the water, the sewage water – all together to

create the compost? Or are you co-composting just in the same facility – at the same site, but not mixing the all the materials together?

BG: Yeah, our plan is to enlarge the Dillo Dirt program, so it's with the waste water treatment plant and their Dillo Dirt program. We would co-compost this food waste and organic material with current Dillo Dirt, not separate.

KM: Ok.

BG: The interesting part is that the waste water treatment makes the pathogens and bacteria inert, and pretty dead. The pathogens are pretty dead through the process. But it's very rich in nutrients. And so the output of the waste water is very, very beneficial to the composting process.

KM: And you went with this, did you consider alternatives to this model? And I'm assuming the reason why you went with it was because it's already established and working and costs and all that?

BG: Yeah, we always have the option to compost separate from the Dillo Dirt program, but that requires capital investment. That requires new land, new equipment. And the cost - I calculated it out - our current program with Dillo Dirt pays for itself, through the sale of Dillo Dirt. So it's a self-sufficient, revenue-generating, system that doesn't – we do dedicate staff time and trucks and [delivery and so forth], but it tends to self-pay for itself. And if we created a system separate from Dillo Dirt, our cost is anywhere from \$50-60/ton. And that's very high, when landfilling is \$20/ton. It doesn't seem right to spend \$50-\$60/ton for compost. So I'm always conscious of the capital investment that's required.

KM: Ok. And you're – I believe – your funds don't come from the General Fund with the solid waste program, you..?

BG: That's correct. We self-fund all programs through utilities fees. So we're a utility, we charge a monthly fee for our services, and that totally pays for all of our services. We draw nothing from the General Fund.

KM: Ok.

BG: Or any other tax source. We're a fee-based system.

KM: And I guess, I was wondering what - you mentioned that garbage is \$20/ton, are there any techniques you're considering to encourage organics recycling outside of your sphere of control? So, on the commercial side?

BG: Yes, definitely. There's a huge amount of tonnage. I don't have the numbers in front of me, but there's a large amount of tonnage of organics that's still available for capture. And the Universal Recycling Ordinance, we passed the universal recycling ordinance with City Council in

October – or no November - of last year. And we're going through customer stakeholder meetings, particularly with the commercial sector, and plan on going to City Council next summer with a revision to that universal recycling ordinance. That revision would include compostables. We want to require the collection and composting of organics in the commercial sector. And that's a very complicated task, there's a lot of restaurants, and food servers, and food processors and producers that affected by that [exemption?] that we're meeting with a couple times a month, for the last six months in stakeholder meetings. And we fully intend to go to City Council with the requirement that commercial enterprises compost their food waste and their yard waste – that's all their organics. Just last week, I met with the fast food industry, McDonald's, and Jack in the Box, and so forth. And this ordinance would affect them as well.

KM: Ok. And I believe when I was talking to JK she mentioned requiring composting or encouraging composting at different venues and events?

BG: Yes.

KM: is that something else you're looking at?

BG: Yes, and in fact, we'll be implementing that next year. We are looking at, what we call, a "Green Events Ordinance," that will require vendors that produce events throughout the city, like ACL, Austin City limits or South by Southwest, or any of the other events. This ordinance would require them to "green" their activities, by providing recycling and organics collection. And we've talked to a few private vendors and they're ready for it. The private vendors that have licenses to compost, they're prepared to provide the service to the events. There's two loose ends that we need to work out. One, is getting the vendors to acknowledge that they need to do it. That's part of our stakeholder meetings [in] the ordinance. The other part is the consumer or the visitor at the event, how do they handle their material to get into the right container? So we're looking at recycling and composting stations with proper signage, proper visibility. Maybe even in the first year staffing at these collection sites to advise visitors on what goes in what bin. That's the complications involved there. We're definitely heading down that path of events for organic collection.

KM: Great. And have you done any - is there any way to look at the fees? You mentioned the cost to landfill is \$20/ton and that, you know, composting is \$50-60/ton isn't competitive. Is there any economic incentive that you're considering to encourage composting?

BG: Yeah, if - the economic incentives are in our rate structure in long term. Unfortunately, not upfront. You know, I mentioned we have the \$75 rebate for home composters. I'd love to develop something like that for using the new organic carts that we deploy. When looking at our rate structure and how we can incentivize our rates for those who recycle an appropriate amount and use the yard waste trimmings and the compostables cart more effectively, we're exploring those concepts. WE really don't have a good answer to that question right now. We're looking towards – when we deploy the new carts in 2015, I'd like to restructure our rates so that those that are using those carts are paying a lower rate than those who aren't using those carts. We're exploring different rate structures on the utility bill.

KM: Ok. And is there any way to kind of influence tipping fees or things like that, you know? I suppose taxes are not very popular at the moment.

BG: Yeah, taxes are a very sensitive topic at the moment. The tipping fees at the facilities are controlled by the private operators. The way this city works – and every city does it differently – this city on the residential end, we collect the material – organics or recyclables or trash – with city trucks, city employees, city infrastructure. However, the processing or the disposal of the material is always done by the private sector. So it's a private-public venture where we're the collection agent. The private companies or the processors, or the landfill operators, or the recycling facility processors, composting facility operators, so forth, that's all private sector. Except for, one exception is the water department, the Hornsby Bend facility for Dillo Dirt. And that's operated by two city departments: Austin Water & our department. But all other facilities are operated by private sector and they control their tipping fee. Not in - by contract, that's somewhat controlled by the city, but limited control.

KM: Ok.

BG: Pretty much by bidded contract.

KM: And what are – this is kind of a broad question, I realize – but what do you see the goals for this composting program?

BG: Uh, that's a good question. The overarching goal of our effort is 50% diversion from the landfill by 2015 and 75% diversion by 2020. That's by Council mandate, that's council ordinance - or not an ordinance - but resolution. So all of our programs gear towards those two goals – the 50% by 2015 and 75% by 2020. And then our futuristic of 90% by 2040. With the composting, that assists us in reaching those goals. If we did not do organics collection and an aggressive composting program, we would not reach those goal. So it's hand and hand with our diversion goal. And the other major activity is recycling, more aggressive recycling. So when you pair aggressive recycling and organics collection and composting together in a very effective way, you can reach 75%.

KM: Ok. And have you done any work with the local food movement? That's actually how I kind of got involved in this project. But is there - does the city have an eye towards how this composting is going to be used?

BG: Ah, yeah. We're working with the US Composting Council and we're going to be setting up standards, user standards for the production of compost. Because, right now, compost is generated with many different inputs from different entities. And what is called "compost" to the consumer can vary quite a bit. If you go to Home Depot or Lowes and ask for compost, you get different types of products there. And so we're going to be developing an end user classification system, is what we call it. And we're going to work with the private companies as well as with city department to try and develop a user classification system and a variety of different compost products in the market place. We want to have five or six different compost

products available to residents to use and labeled appropriately for end use. And that's part of the picture of aggressively capturing those organics and making sure they're not going to the landfill. But you have to have a market for it. You have to collect it, process it and market it. And the marketing is very weak right now. So we need to be working on that.

KM: Ok. I spoke to Phil Gosh from Organics by Gosh, and he was talking about these different composting products and value-added products. Is that also something included in that?

BG: That's exactly the same discussion – Phil and I have talked about this topic many times.

KM: Ok.

BG: And he has the same end goal that I have, too. And so he produces five, six different types of compost based on inputs but there's no consistent labeling process. And that works against him and his operation. So what we produce as a classification system will help Phil in his operation.

KM: And these different products would, I'm assuming, likely target different areas, like for example you might use one type of compost with a landscape contractor and another type of compost if you were a fruits and vegetable organic farmer in East Austin. Is that accurate?

BG: That's exactly right. That's the whole point. For example, organic farmers do not want to use Dillo Dirt, because of the biosolids added to it. So what we would do is we would produce – we would classify and produce a form of compost that has traceable organics that has no fertilizer impacts, no herbicide impacts, no biosolid impacts, and kind of a fairly clean process, and then that end use classification of that type of product, with a fairly pure generation stream would be for organic farmers. Conversely, on the other side of scale, Texas Department of Transportation (TxDOT) in developing highways has bank stabilization issues, they've got erosion control of the banks of roadways where there are hillsides. And they would love to have Dillo Dirt, or any type of lower grade compost, even that has some plastic bag shreds in it. That's not good for home gardening. TxDOT could use that for hillside stabilization. So that many different ways to use the material and we plan on classifying that based on the input.

KM: Great. And you've worked with another city or cities to set up composting programs. How does Austin's outlook look compared to where you've worked in other locations – you've worked in California, is that right?

BG: Yes, I worked in Fresno, California, Indianapolis, Indiana and Cincinnati, Ohio, and I find that the infrastructure's a little weaker here but the public support is extremely strong here.

KM: Ok.

BG: I would say that we have a very strong future because the public support is there. The problem that we're experiencing is slow start up because the infrastructure's not there.

KM: And are you saying infrastructure both in terms of physical but also maybe policy infrastructure.

BG: Yes, that's very true. The physical infrastructure is not strong enough to carry the large volumes that are available. And the policies can drive those volumes. We don't have the policies in place to require the collection and the processing of the material. It's a "Catch 22." Which do you drive first? The private companies feel, like Phil Gosh and others, they can build their capacity based on incoming volume, but their volume is low right now. And so we need to get the policies in place to drive the volume, but we also need to make sure the volume can be handled at the processing capacity level.

KM: Uh, huh.

BG: We need to be working at both ends, basically.

KM: Ok. Alright. Well, I think I'm just going to go through to make sure I asked all my questions.

BG: To relate what you're going through, I finished my master's degree about two years ago. And my last project just drove me crazy.

KM: [Laughing.]

BG: I did it on extended producer responsibility and it ended up being a 54 page document. It was just quite a burden to get it done.

KM: [Laughing.] Yeah, I feel like I've been working on this for a while, but it's really interesting and it's great talking to people like you who are really excited and positive about the experience, and kind of pushing the city to take the steps that it kind of obviously needs to take.

BG: Yes. We have a good future here, and I'm very excited about it with the composting and the organics as well as they recycling program. There's a strong public desire to have these programs in place that I didn't experience in the other cities I've worked in. That's what drives me, that that public desire is there.

KM: And is that both – when you say public desire – do you mean laypeople as well as throughout government and some of Austin's government agencies?

BG: More so on the laypeople, on the general resident. When we have public meetings, the general laypeople, the general public, they're main question is "Why aren't you providing these services? Why aren't you doing this?"

KM: Uh, huh.

BG: You know? And the background behind it is it takes some monetary resources and planning to get there. But it's very pleasing to hear that from the public, that they're asking for the

service and they're questioning why it's not provided. That's good. That gives me energy on the topic.

KM: Is there anyone in government who is helping move this forward as well? Do you have any political allies that - I don't know if the mayor or any of the council people are excited also?

BG: Yes, we have very strong support from City Council. All seven Council members are very supportive. I'll be presenting this master plan to them on November 3. They'll ask a lot of questions, ask for more things to be added in, but in general they are extremely supportive of this direction. And all of them are interested in the composting program, all of them are. We also have very strong support from the Solid Waste Advisory Commission. And I meet with them once a month, and they're always asking, "What can we do to increase composting?" So that's been a topic of discussion at this last meeting. The Solid Waste Advisory Commission [has met] for the last two years or so. So very strong support there as well.

KM: Great. And as far as looking out for the City of Austin, you've got the residential pilot starting in a few years and then rolling that out city-wide, the requiring of generators to compost, do you think we'll stay on task and is there anything else you see that might be unfolding in the future?

BG: Our master plan will unfold a lot of different programs. We're trying to look at the waste stream as resources. So we're looking to expand our reuse programs, our recycling and composting programs. We're definitely extended our producer responsibility programs conversation with the manufacturers. We're looking at pharmaceutical take-back, battery take-back, expansion of [HHW] services. So we're looking at it from many, many different directions. And the main focal point is this is a waste stream that shouldn't be wasted. This is a waste stream that is full of resources that need a secondary life. That's the way we're looking at it. And that's how I'm looking the organics stream - is this material doesn't belong in the landfill, it belongs [with] a secondary life to it.

KM: Great. Yeah, I think that's wonderful. I think that waste is definitely something we've invented not something that is natural.

BG: I think that's very true, and what's interesting is when you talk to somebody, you get a critic in the crowd, ever once and a while, that says you're just wasting time and resources, just throw it in a landfill. I run into those people every once and a while and the basis of their belief is that waste is a natural bi-product of human activity. And I disagree, I disagree. And I go back to a conversation that Bunkminister Fuller, in the 1970s. Bunkminister is an American Philosopher, scientist, architect, he invented the geodestic-dome. In the 1970s, he lectured around the country to businesses and his main point to businesses is: if you have a waste of any sort - energy waste, water waste, solid waste, hazardous waste - if you have any waste coming out of your business, that's an operational inefficiency of your business. And that's turned the tables off of that philosophy. The old philosophy is that waste was just a nuisance, it's a bi-product, it happens. He turned that upside down and said that's a business inefficiency. And if you're into operating your business as efficient as possible, you need to deal with your waste flow in a

better way. And he was promoting waste reduction as well as recycling and the outcome of those discussions was the ISO environmental standards, I.S.O. environmental standards that require companies to be certified through the ISO system to have good environmental controls over their waste stream. And that includes electric waste, as well as water waste as well as solid waste.

KM: That's, yeah.

BG: It's a mind-shift, it's a paradigm shift. It's thinking about waste not as a natural bi-product, but rather as some went wrong to create that waste.

KM: Yeah, I 100% agree.

BG: Haha. Well, I'm glad you do. And I'm glad a whole lot of more Austinites do, too.
[Laughing.]

KM: Yeah, Yeah, exactly. I think that's it. [BG], thank you so much for your time. If I have any follow questions would you mind if I shot you an email.

BG: Yes, please do. Shoot me an email. You can always call me. Because the difficulty is, when I'm in meetings I don't answer emails and I don't answer phone calls. I will get back to you if I'm in a meeting and you're trying to get a hold of me.

KM: Great.

BG: Yeah.

KM: Wonderful. Well, that you, again, so much for your time and insight. It's been a really wonderful talking to you.

BG: Well, good luck with the project there.

KM: Thank you so much.

BG: Ok.

KM: Alright, bye-bye.

BG: Bye-bye.

Transcription: PODER

Date: 09-13-11, 9am CDT

Interviewee: SA

Interviewer: KM

KM: Great. So I guess my first question is, "Has PODER addressed any environmental issues regarding siting of Locally Unwanted Land Uses like waste disposal sites, waste processing facilities, or anything like that?"

SA: Yes, one of the biggest sites that PODER took on was the relocation of the BFI that was industry. That's when the city started its recycling program and you put out all your recyclables. Well what people were not aware of at the time was that right 350,000 recyclables were coming to East Austin right at the intersection of Baum and Airport Blvd in a residential area. So our whole thing was that yes, recycling is good but you have to look at it from cradle to gravel. And what people didn't know was that when they put out, we first started the blue bucket recycles was that all of those were coming to an east Austin residential area. And so that was one of big, um, our campaigns, was to relocate BFI site to a location where it didn't impact the residents and didn't impact the environmentally sensitive area. Uh, because people in East Austin where having the big recyclable trucks come into the community almost every 30-45 minutes, uh, you know, disposing those recyclables.

And it got so bad that the TX Health Dept had to intervene and come and give everybody in that community rat poison, which we felt was not the solution. Because recyclables attract rodents and insects and roaches and all kinds of things. And the smell is of recyclables pretty unbearable. Uh, people, you know, people don't rinse milk jugs and beer bottles and all that. Those are things people don't think about. So really our whole thing was you know, addressing uh, how the city needed to look at an alternative site when it came to recyclables.

KM: Great and when did this happen?

SA: Uh, this happened in the mid- to late-nineties and it was a campaign. And we actually didn't, we didn't... we put together a stakeholders meeting, uh, with owners and city and that process took about two to three years. And the city ended up having to take BFI to court because well the city had the contract with them, it had the major contract. So when they (city) tried to get them to move they (BFI) wanted more money than the city was willing to offer. So the city had to, um, declare eminent domain and then, uh, they went to court and they ended up settling I think it was \$3 million or something to get them to relocate. And that finally happened I think in March 2002. Was when that agreement was finally, uh, made with the city of Austin and BFI to relocate.

KM: Great. And so kind of the issues with the recycling center was the smell, the noise, the traffic, and you said, uh, the health department came in and they, you said, the rat poison, you said they had to come in and kill the rats?

SA: No, they came in and gave poison to everyone because there was an epidemic there. You could see the rats crossing the street and over the power lines, that they were going into the community. The recycling plant was just across the street and that's where it was, literally was 30 or 45 feet from residences. It was in a residential area. *Wow*. It was just right across the street. So the rats, of course, I mean, they were breeding there and then they were coming into the households, into the garden neighborhood area. *Wow*.

KM: Ok, um, so, do you have any experience working with the city on infrastructure like composting facilities? I know that recycling is actually really close to composting, but...? Have you worked with the city on issues of equity associated with infrastructure like composting facilities? If so, how?

SA: No. But um, I really hadn't seen the city doing any composting, uh, projects. I know they've done some classes and they've put together and so forth. Uh, but, and I actually remember emailing them when I got the email about them doing some classes and training and asked them about if they could host some in east Austin because they weren't being held in. They were being held way out there close to Sunset Valley. And so I immediately shot them an email about well this sounds good but could you do training and workshops in east Austin?

KM: Great. Ok. Um, alright. Do you have any concerns as far as the city setting up a curbside, residential composting program? Do you have any concerns for a curbside, residential food scrap/composting program (e.g., patterns of distribution)?

SA: Well, I think it has to do a lot of education. Just like recycling. Uh, as far as when people got their recycling bucket they weren't quite sure what could and could not go in there. And so, there had to be a whole campaign on what exactly could and shouldn't go into recycling bin. And so they had to come back with this whole education program. They always seem to move backwards. I always think they need to start educational program first. You know, target the schools, target the children so they can inform the parents to talk. Target the churches. You know. A really grassroots things they can do. They can come and present at local neighborhood associations and groups. The other thing they can do is contract, you know, I think one of the failures they do is contracting a group. Every time they have a program or something right away they email PODER. Can you put a group together? OR they want a focus group. Or they want this. But they never want to share their resources. Our issue is that why not share the resources? And sort of like "Train the Trainers." You're training these groups and these groups go out and do the work. And it's because they know how to communicate with the people. I think the city sometimes has a real hard time communicating with grassroots people. They talk like everyone talks in bullet point. And they don't know how to tell stories and have good communication with people. And so that's always a big concern of mine whenever they ask me to put something together. You have to be very patient, you have to be listening to people, and you can't talk to everyone as if they have a college degree.

KM: Thank you. Do you have any, um, concerns about where they might, um, kind of the patterns of distribution as far as they might site the facility?

SA: Certainly when you're composting, it would happen in East Austin. Where else could it happen? You know, anything that, um, people feel might not be the best at odor or attracting other insects or anything like that, you know, something like composting a lot, it can('t) go anywhere but East Austin. I'm sure it's where they do all the different composting. When they do the Christmas Trees, the Amaradillo Dirt, all this stuff is in East Austin. You know, none of this stuff is going to go in West Austin. So I'm sure that will be a discussion where this major composting will be taking place.

KM: And as far as, um, I'm not entirely sure how the city would set up, um, kind of how it would sell the final compost. Right now I know they have the Dillo Dirt program where they take, um, the waste water and yard waste to make a compost. Um, I'm not sure if they would simply add food scraps to that. They might go about creating the final product. But do you have any concerns as far as who might have access to that and cost of the compost?

SA: Yeah, well you know the city is usually going to be selling it to, um, people who are using it like big landscapers, people who have big gardens. I don't think it's usually small scale people there might be a few. But it's usually big consumers, you know, who would use major compost. Is it somebody like Urban Roots who has a big farm or someone else like that. Who would be using that? Because if it's not accessible, it's going to be way far in East Austin and you want a small bag. It depends on where they're going to have the smaller product available to people. What's the access to using the compost? Are they going to have it at the local Home Depot where people can then access it. When it comes down to grassroots people, it comes down to access. And cost. Access and cost.

KM: I know we kind of talked about the educational campaign. But are there any other recommendations you have for the city to set up the program?

SA: Well, like I said it needs to hire local residents to do those educational campaigns to teach people what goes into the composting bin and what doesn't go into the composting bin. It has to have that education campaign, that outreach campaign. All of that has to, you know, start at the grassroots and work its way up.

KM: Alright, and, um, how might you want to work with, or be involved with the city in setting this up? Obviously, the outreach and campaign but is there any, um...? How might you want to work with, or be involved in, the city developing/siting/implementing a curbside, residential food scrap/composting program?

SA: You know, before the city does anything it usually puts together an advisory committee or task force committee. And so that's usually some of the things they do before they begin to embark on a major project to make sure they're get input. And I think they need to make sure they get representation from the different east Austin constituents. You know, to be looking at this project also.

KM: Great, well those are my questions. Ok great. Thank you so much for your time. I really appreciate it.

SA: Thank you. Great. Bye bye.

Transcription: WF

Date: 09-29-11at 2:30pm

Interviewee: JM

Interviewer: KM

JM: Like I said, I... my only stipulation is that I have to say that I'm speaking on my own behalf, and I can't speak on behalf of the company. So, you know....

KM: Yeah.

JM: Nothing that I say can be published as "this is Whole Foods policy." You know?

KM: Yeah. No, and that's not...probably how it's going to come out is something like... "here are some of the concerns of large grocery stores in Austin," and the general concerns, not like "Whole Foods says their policy is x, y, z."

JM: OK, cool.

KM: I'll be careful about that and because I have this recorded that will be really nice too that we have that on record. I will be able to use that. And most of these questions are fairly general, so I don't think anything is going to be too specific. And I guess if I do have more specific questions, maybe you could direct me to a report that you have or maybe somebody else in your company that might be able to...

JM: Yeah, totally. I can... if you need... Yes, absolutely. If you need Whole Foods official word on anything I can direct you to those people. But, like you said, if that's not really the nature of the conversation, feel free to ask away.

KM: Ok. Great. So my first question is, and I think I know the answer, but does Whole Foods receive composting services....or does it have it's own composting service that it uses for itself?

JM: Yeah, so Whole Foods is a very decentralized company. And especially with things like utilities, it has to be. So everything is done on a store-by-store basis, because there are composting services available in some counties and not in others. It also varies by landlord. What we've run into a lot of times is even though we are willing to reach out and make connections and even, in some cases, sponsor composting services... Whole Foods is actually we just rent the exterior and then we finish out the interior. So a lot of times our landlord won't let us compost for various reasons: because they think it will smell, because they think they'll get complains, etc.

KM: Ok.

JM: I can tell you that the Lamar store, the flagship store here at 6th and Lamar, they use TDS, Texas Disposal Systems. From my experience, we've had a really good run with them. They started doing our composting maybe three to five years ago. We have, I want to say, we have a

ten yard container but it may be bigger, and they pick up several times a week, and they take it out to their ranch. And hopefully you're familiar with Texas Disposal Systems and the Gregory family that runs it.

KM: Uh, huh.

JM: They're really innovative people and they're really transparent. They invite us out all the time to come and tour their composting facility. And it's really amazing. They have this wildlife ranch down off of I-35, and it is just acres and acres of wildlife from Texas and Africa. And then, they have their composting right out there. And it's amazing because you drive up and there are zebras and you can't smell anything, even though there's landfill and compost going on at the same site. They're doing a really good job... you know they're doing it right, because it's a pleasant place to be, basically.

KM: Cool. And you said that it's taken several times a week and in fairly large containers. What are the materials that you compost?

JM: So we started by composting anything that came from a living organism, was the directive to team members or employees at Whole Foods. Since then it's really been trial and error with TDS. And they've basically gotten back to us, I can't remember how many months I want to say six to nine months process from the time it's picked up here until the time it is fertilizer-style compost, a finished product. So they've basically just been in constant communication with us, about hey after nine months, these "compostable" whatever - flatware or sample cups -aren't breaking down. So then we've removed them from our compost stream, which is kind of unfortunate because it means that basically you can't always believe manufacturer's claim that something is compostable or biodegradable. But then it also varies by composting process. So we've just gone along with whatever TDS's process will break down.

KM: Ok. And, do you know who the key players were in starting your compost services?

JM: That's a really good question. I don't know, I could find out for you and follow up. My guess would be that it was a combination of some of our green mission team members, which is basically this on-going task force of employees that are personally passionate about different sustainability principles. And so they'll start projects on their own. And they get empowered by the company to do that through an allocation of paid time (like paid hours per month) and also space in the store to promote themselves and whatever project they're working on them. It would be a combination of them, the store manager who deals with facilities stuff like utility companies, and then also our guy that runs the receiving downstairs, because that's where everything - he receives everything, but he also is the output. That's where the compost dumpster, the trash dumpster, recycling that's where everything lives.

KM: Ok. Do you know if there's any sort of economic incentive for stores to move towards composting, like as a way to reduce your trash bill you could move to composting?

JM: Oh, hell yeah. This is a company therefore we look at the bottom line all the time, and it really is smart to compost. I'm going to stop the recording real quick so I can pull up actual numbers for you. Real quick.

KM: Ok.

JM: So TDS can run a report for us per week. Basically, we call them up, and we say, "hey, what was our tonnage this week?" And, just as an example, for the last week in July it was 24,000 pounds a week in trash versus 50,000 pounds a week in compost, so that's over double the amount that goes to the landfill. This was... July is considered one of our slow months, but the facilities guy expects that the proportions would remain about the same: 60% for compost, 30% for trash, and 10% recycling every month from Whole Foods.

KM: Wow. So, if your compost bill... if the cost of compost is less expensive than the cost of landfill, you're saving a lot of money.

JM: Yeah. And I can try to get you those numbers as well... You could also probably call TDS and say, "hey what are your rates or what are your fees?"

KM: Actually I haven't talked to them yet, I'm in the process of that. I've heard they're very hush-hush about that type of information. They don't say their fees. Maybe if I... I don't know if they'd tell me their fees, but that's kind of a side note. Do you know, I asked you who started the composting program, but do you know why it was initially launched?

JM: I would say that it was the same thing, it made sense, the thing I said earlier. The green mission task force is constantly looking for ways to make Whole Foods greener. And so it would have been, "Hey we should do this. Look at all our wasted food." And then I would expect that they showed there was value there, like a return on investment on the bottom line, got the regional on board and got the manager on board and that was it. I don't think there was any kind of single moment that occurred to compost.

KM: Ok.

JM: A lot of things with green mission, they're just part of our culture. And I'm just speaking to my experience at Whole Foods, but it's a culture of green. Thinking and acting so they're always coming up for incentives for carpooling or riding your bike to work. This, among other things, just kind of organically comes out of the kind of people who work for the company. That sounds really cheesy but..

KM: No, I do think that makes sense. Because you've got Whole Foods not your culture, but also the people you serve, your branding is that as well, it would make sense that this would permeate throughout the company. That it wouldn't just be "Oh we're green but we don't do these other things."

JM: It really does and is always kind of a hot topic always - all the way up to the top of the company. Whole Foods gets a lot of flack for not having "the Chief Executive Officer of Sustainability" or some designated post, but really... a lot counterparts in the industry, like Walmart and Target, they've really gone the that direction. And the reason we haven't is, because we're so decentralized, we don't want decisions coming down from up above. We really want the employees at the bottom of the food chain basically to be empowered to have great ideas and start projects and the let that permeate upwards as well. And a lot of sustainability

measures really don't make sense across the board. When we're looking at things like composting, there are different hurdles in different states. And then, when you look at the bigger picture, like rainwater harvesting or even solar panels, some make sense in Florida what wouldn't make sense in MA. So things like that.

KM: Yeah, I think that makes perfect sense. Talking about materials. You said anything that comes from a living organism does that a cheese and meat are composted?

JM: TDS is able to process a lot for us. They process wet paper products they can even process the wet wax boxes that come from produce distributors, they process all food scraps, including bone, including meat, including dairy. I can't think of anything they don't compost in terms of actual food waste.

KM: And then you said that everything beyond that has been trial and error, like with the compostable cups or flatware or whatever it is. They give you feedback on whether their system, their process can take it?

JM: Exactly.

KM: Are there any educational or programmatic materials Whole Foods has used to ensure compliance with composting, like/or an educational seminar where here are the products we can compost and this is how we ensure it doesn't get sticky back there or anything like that?

JM: Whole Foods has a share point site, which is basically a repository for training materials. We also have something called WSMU (Whole Foods Market University). Share point is full of trainings that team members have created, both for store composting and also a lot of trainings for home composting. If team members learn to how to do it here at work, and they're not doing it at home and they want to, there's a lot of self-generated training there. The WSMU has more of our videos and things that are more general for the company. I don't know that there's one specifically on composting, but there's one on recycling, composting & and I don't know, general green initiatives.

KM: Ok.

JM: There's also signs above most of... I don't know if you've been... I guess this is more specifically about Lamar store as an example. But if you've been in there recently, they have a bunch of three compartment containers now that are single stream recycling, landfill, and compost. And everything is very visually oriented to be clear and educational. So the containers themselves have cut outs of food products on the composting side and bottles & cans on the recycling side. And then, there's also employees, if they see that maybe some of their fellow employees aren't using them correctly or guests aren't using them correctly, they make signs and so there are signs posted, too. There's a lot of communication going on visually.

KM: Ok. And is there any kind of trial and error and the landlord what...? Well, maybe I'll ask you a little more about the barrier with the landlord. What are...have you experienced issues with the landlord at Lamar or any specific issues with landlords elsewhere?

JM: Most of the landlord issues we have are with our more densely urban stores. So there's a lot of restrictions up in New York. And there's also a lot of weird lag time in the Midwest where we're noticing that there's more social barriers or legislative barriers than there are say, on the west coast. Midwest a lot of their stores are just rolling out there composting programs. Where California, Texas, we've been on line for a number of years.

KM: Do you think that has to do with the landlord or more other infrastructure issues, like maybe there's not composting facilities or composting companies?

JM: I think it's a combination. Because on the one hand, you have Austin being home base for Whole Foods and so we have a really good relationship with our landlord, because we've been here for 20 some odd years. Twenty... what are we? Twenty-two now. So they know us, they trust us more than, for instance, a landlord that we're just entering into our first lease with in some regions. That in combination with the progressive nature of Austin and TDS. Like you're saying, there aren't composting facilities available in a lot of areas of the country still. But we happen to get really lucky here and have some really forward-thinking businessmen.

KM: And what might be some opportunities? Do you see other opportunities for diverting waste or increasing your composting? It like you're doing a quite a bit, but do you have ideas for expanding or things the city could do to make services you receive easier or more convenient?

JM: Yeah. We are always looking at how to improve our practices. And honestly, it's so weird. I don't know what building code... if there's any restrictions with building codes and composting or having on-site compactors. There's rumors that there are and we're looking into that, currently doing some research. So that might be something you might look into with the city is actually having the on-site I forget what you call them... bio-something, Bio-beta box or something like that. I can send you that name, too. Some people think that the city won't let us have one on-site because it's kind of a weird thing.

The other thing we're trying to wrangle right now is food waste before it hits the compost bin. And I don't know how much you're going to go into this. But I really think it's a hidden issue in the compost industry or maybe connected. We try to, first off, when food can't be sold on the retail floor, it gets cold. Wait. I'm talking out of order here.

The big issue is that the health department won't let us donate a lot of decent food, a lot of usable, edible food so a lot of donations end up going straight into the compost. Now, this is an issue where we don't want to increase our compost, we want to decrease our compost by reeling in that consumer cycle earlier. Just like when you're looking at different energy streams of "reuse, recycle," every step down the line loses a little bit more energy in that cycle. And so what we try and do, especially at the Lamar store, I can talk from experience, but I know a lot of stores are really pushing this, is a cold program where it's actually internal. And we have a close loop system in terms of things coming into produce, for instance. Say, I don't that there's a box of bananas that comes in brown because of mishandling by the distributor. They show up and we can't sell them to retail customers but they're still perfectly good because visually they look spoiled but they're still perfectly good on the inside. So what we'll do is the produce department will contact the prepared foods department and see what they can use them for. Prepared foods does all kinds of things from freezing them, and supplementing the banana

supply that they buy for making smoothies. They will also have a special flavor of gelato for the next two or three days that is banana split. We try to use everything in-house that we possibly can. Produce will send them to the bakery, and they'll make banana cream pie and put those out as a one-off special. So we try to have really flexible in-house menus and buying processes so we can adapt for things like that. Then things that don't get used in-house get donated at the end of the day. So a lot of our bread gets donated at this point, but beyond that, we aren't allowed to donate food that isn't packaged because of health code. So there is so much food that goes straight from our departments to the compost that it really is an opportunity for change in the city health code. It's really an opportunity to save a lot of waste.

We've been looking at a bunch of studies recently that talk about how 24% of our food nationwide goes to the dumpster when it's perfectly edible and that's based on households and commercial, that statistic.

KM: Wow.

JM: So when you're talking about compost - compost is definitely progressive and it's definitely a step forward, we might be composting a quarter of our compost stuff that could actually be donated, if the health code allowed us that capacity. So I don't know. It's a separate but related issue. I don't know if you'll talk about that at all. But it's worth talking about.

KM: Oh, yeah. Composting is the last step and it's moving from landfilling to composting, but you're right moving up the stream is actually where you'll have the most impact. I'm glad you mentioned it. I do think this should be on the city's radar.

JM: Yeah. If Austin Energy is looking at how the city could improve, I would say reach out to your connected departments.

KM: And so you're saying that currently Whole Foods does have this closed loop system where they try to use anything that visually can't be retailed as produce but could be used in some sort of food prep?

JM: Exactly.

KM: Ok. But you're coming across the issue that the produce you aren't able to... tomatoes that you can't get into a sauce or whatever it is... are going straight to the compost pile when they're perfectly edible and could be donated or used for something else. And it's because it's not processed or packaged that that's not possible currently.

JM: Which is messed up because processed foods going to food banks and all of the fresh, organic food going to the compost form.

KM: Uh, huh.

JM: So that's something we're really trying to tackle right now in a lot of our stores with varying degrees of success depending on the city. There was something else I was going to mention. I don't know; it will come back to me.

KM: Ok. Are there any concerns you would have if the city started... probably you wouldn't have any concerns with the city starting a residential program. But are there any concerns you'd have if the city encouraging commercial composting or at some point making that a requirement?

JM: No. Personally, I think that it makes sense on the triple bottom line. I can't speak on behalf of the company, but I haven't encountered any doubt among my coworkers that that's true. That this is we should be doing and something that everyone should be doing.

KM: And I'm assuming you'd likely support... in general, because Whole Foods is already composting, that they would support efforts to encourage that practice.

JM: Definitely. We actually do a lot of conferencing, attend a lot of conferences and expos and stuff related to sustainability and business stewardship and things like that. Where, like I said, a lot of big wigs in the industry and we'll trade ideas with them. It's about innovation and it's about getting everyone closer to being green and being zero waste and so there's a lot of communication between the big corporations about "how do we do this?," "how do we make goals, realistic goals? or even "reaching goals and how do we meet them?"

KM: Great. Well I think that is... are all of my questions. If I have anything I need to follow up on would you mind if I emailed you?

JM: No, that's fine. And I'll actually send a couple of emails. We have... I just noticed we got an email. Here, I'm going to stop the recording and look at the email.

Notes from Conversation: ObG

Date: 09-25-11, 3pm CDT

Interviewee: PG

Interviewer: KM

KM: What composting services do you currently offer?

- Grocery, hotel, restaurant
- bag & bulk compost
- Retailers, homeowners – bulk or bagged, landscape contractors;
- Comm. maintenance – buildings & grounds,
- Landscape contractors –
- No agriculture currently, do give to Sustainable Food Center (SFC)

KM: What barriers are there to your composting business?

- Are there any legal, environmental, fiscal or other barriers do you have?
- Competitors
- TCEQ -educate inspectors, to support, vs. regulated.
- Political
- Travis County – was told there are certain areas can't service

KM: How have you educated customers about what to compost?

- Don't understand.
- Fear of garbage, mentality, dairy, negative perceptions and reactions.
- Time, concern re location of composting sites loc.

KM: What are the opportunities you see for being a part of a residential, curbside food scrap/composting program?

- Waste/landfilling is inexpensive in Texas. Only \$20/ton in Austin vs. \$100/ton in Seattle and Toronto.
- Trash is charged by the ton. When you remove organics which are mostly water and heavy, trash becomes lighter and reduces transportation costs. While the weight of organics increases transportation costs. An alternative to charging by weight, is to pay for organics recycling by the yard/volume.
- Would like to see a higher value attributed to compost and to have the public see compost products as a resource.
- Wants to find a way to generate revenue/income, while keeping costs down.
- Possible city mandates for composting?

KM: Would you support city efforts to start a municipal (e.g., residential and/or commercial) composting program?

- Yes, want to be involved.

KM: What concerns might you have if the city started a residential, curbside food scrap/composting program?

- Wants to make sure the city keeps the ball rolling and helps to expand markets.
- Wants the city to support by promoting compost & higher value products, partnerships & investments, land, opportunity, and removing obstacles. Wants the market to be open and equitable, and not prefer/served by one person.
- Requires capital, timing.
- Is concerned about competing with the subsidized Dillo Dirt program, which not only has a deflated price, which doesn't help prop up perception of compost. But Dillo Dirt is a also low grade compost product, which doesn't improve image of compost.
- Can't charge tipping fees, difficult to enter field/market. Highly competitive field.

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