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Cache County Recycling and GreenwasteService Study: Phase I Report

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FINAL REPORT

CACHE COUNTY RECYCLING AND GREENWASTE SERVICE STUDY

PHASE I: Recycling Behavior and Attitudes among Cache County Households, 2004

A Study Conducted for
The City of Logan, Utah and
The Cache County Service Area Number 1

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Section 1:
Introduction and Background

1.a) Origins of the Project

This report summarizes the results of a survey project examining the attitudes and behaviors of Cache County residents regarding recycling and greenwaste disposal programs. The surveys were conducted by Utah State University on behalf of the City of Logan and the Cache County Service District No. 1 in the summer and fall of 2004.

The purposes of the overall project were to gain a better understanding of the recycling behaviors of county residents, with particular focus on their views towards current recycling programs and feedback on the design of possible new county recycling efforts. In addition, we sought to evaluate the performance of two intensive recycling programs active in the area. These included the private "Sunrise Recycling" service (which is no longer in business) and the ongoing public curbside "Greenwaste" collection program.

Phase 1 of this project involved cross-sectional surveys of four samples: (a) former Sunrise Recycling customers; (b) current Greenwaste customers; (c) typical households in the Logan Metropolitan area; and (d) typical households in the remaining parts of Cache County.

Phase 2 of this project (which is ongoing) includes provision of 3 months of free curbside recycling service to randomly sampled households, and follow-up interviews with these households to collect information about their experiences with curbside recycling and their willingness to pay to continue the curbside service. It also examines whether participation in a structured curbside recycling program affects the views towards recycling and recycling programs among representative area households. Results of Phase 2 are not yet available, and will not be discussed in this report.

The USU investigators were contracted to conduct the surveys and present results to various audiences as part of the long-range county solid waste master planning process. Initial discussions regarding project objectives began in April, 2004. Phase I data collection began in May, 2004 and continued through October 2004.

People who completed the survey questionnaires were told that the Countywide Service Area (the organization that picks up all regular household waste now) is evaluating current recycling programs and will be offering new services beginning in the summer and fall of 2004. They were assured that their voices are very important to the people who will make decisions regarding future recycling programs.

1.b) Specific Objectives of the Project

The contract to conduct the surveys included six key objectives that guided the development of the survey instrument and the presentation of the results. These objectives were the result of extensive conversations between the principal investigators and representatives from the City of Logan and Cache County. The objectives were as follows:

1) To evaluate the Sunrise Recycling (SR) and Greenwaste (GW) curbside pickup programs
2) To obtain accurate information about attitudes and behaviors towards recycling among representative Cache County households.
3) To compare attitudes and behavior of residents of the Logan metropolitan area (Logan, North Logan, River Heights, and Providence) with residents of large and small communities throughout the rest of the county
4) To compare the attitudes and behavior of representative households with those who have participated in previous SR and GW programs
5) To evaluate what characteristics of recycling programs influence support from residents.
6) To see if there is a change in attitudes after exposure to structured recycling program (this objective is captured in Phase II of this overall project).

Though not discussed in this report, recent conversations between the USU team and the City of Logan suggest the possibility of a phase III effort, with an emphasis on understanding the ability of area households to rely on a 60-gallon regular trash container if they also participate in the curbside recycling program.

1.c) Overview of Report

The remainder of this report describes the methodology used to collect the data, and presents the results of the study. The results are disaggregated to reflect responses from each of the three main target samples (the Clarkston/Newton area, Logan City, and the rest of Cache County). In addition, the estimated characteristics and views of the adult population in the entire county are presented.

Section 2:
Methodology

2.a) Sampling and Survey Implementation

Phase I of this study involved cross-sectional surveys administered with four distinct groups. These sampling frame for all 4 groups were developed during the summer of 2004.

The first group included customers from the Sunrise Recycling (SR) Service, a private company that provided curbside recycling pickup service for households in Cache County on a subscription basis. Because the owner of SR ceased providing service in the winter of 2004, the city of Logan obtained the rights to the 'active' customer list (as it stood when SR went out of business) and had access to another list of former customers who had used the SR service in the past. These lists included 182 and 108 non-duplicative households, respectively. Because of the relatively small size of the total population of SR customers, the entire list of former and active SR customers was used as the sampling frame for this study.

The second group included households that subscribed to the Logan Environmental Division household Greenwaste (GW) curbside pickup service. In April, 2004, this list included 1,246 households. A random sample of 180 households was drawn from this list of GW customers.

All of the sampled SR and GW households were sent mail surveys May 2004. The mail surveys included a cover letter that explained the purpose of the study, a copy of the 6-page survey instrument, and a postage-paid return envelope. Approximately 10 days after the original survey was mailed, a reminder postcard was sent to all nonrespondents. Two weeks after the reminder postcard, a second full mailing (with a cover letter, new copy of the survey and reply envelope) was sent to remaining nonrespondent households. A final reminder postcard was sent 10 days after the second survey mailing.

The third and fourth study groups were designed to capture random samples of the general Cache Valley population. Specifically, two groups were approached: households in the "Logan Metro Area" – defined as residents of Logan, North Logan, River Heights and Providence – and households in the remaining municipalities and unincorporated areas in Cache County.

The Logan Metro Area sample was developed using a multi-stage cluster sampling technique. First, a list of all property owners and parcel numbers was obtained from the Cache County Clerk's office. Second, a random sample of 56 households was drawn from the master list of 12,800 homeowners in the four cities that comprise the Logan Metro Area. These households were drawn separately for each of the four municipalities, with 36 from Logan City, 8 each from Providence and North Logan, and 4 from River Heights.

The randomly selected houses in the Logan Metro Area were then located on a GIS map of waste pickup route maps in the area developed by staff at the Logan Environmental Division (LED). We checked against LED records to ensure that each selected house was participating in regular household waste pickup service. After eliminating a few large apartment complexes with

commercial waste collection service, we randomly selected a total of 25 households in Logan, 6 each in North Logan and Providence, and 2 in River Heights for the final sample clusters.

Next, we used graduate students from Utah State University to locate and contact the selected households. In addition, they were asked to approach up to 7 other households in the immediate vicinity (usually following along the same side of the street in both directions) until a total of 6 households were interviewed in each neighborhood. In this way, we effectively contacted 312 households across 39 neighborhoods in the Logan Metropolitan Area.

The Logan Metro Area households were contacted using a Drop-Off/Pick-Up (DOPU) method (Steele et al., 2001)[1]. This technique involves making multiple visits to each household until personal contact is made with a randomly selected adult in the household. The researcher explains the project, leaves a survey, then arranges a time to return to pick up the completed questionnaire. If a sampled respondent fails to respond after multiple attempts to deliver or pick up the survey, we left a copy of the survey with a prepaid envelope and instructions for the person to mail the survey in once completed.

For the fourth sample group – people who do not live in the Logan Metro Area – a sample of 199 households was drawn randomly from the remaining list of 11,021 property owners in Cache County. These households were mailed surveys in three waves (using techniques similar to those employed for the SR and GW samples).

2.b) Response Rates

Table 1 summarizes the size of the sampling frame, the contact techniques, the sample size, and the response rates associated with each of the various subgroups included in our study.

We received 200 useable surveys from the SR sample, and 122 responses from the GW sample, producing effective response rates of 87 and 71 percent, respectively. Roughly 20 percent of the Sunrise customer list was disqualified since they had moved from the area, were duplicates on both active and former customer lists, or had undeliverable addresses.

We received 231 useable responses from the Logan Metro Area sample (roughly 76 percent response rate). We also received 97 useable responses in the countywide mailing, for a response rate of 54 percent.

[1] Steele, J., Bourke, L., Luloff, A. E., Liao, P., Theodori, G.L. and Krannich, R.S. 2001. The Drop-Off/Pick-Up Method for Household Survey Research. *Journal of the Community Development Society*, 32:238-250.

Table 1: Response Rates and Sample Sizes, 2004 Cache County Recycling Surveys

	Purposive Samples				Randomly Sampled Households	
Response Rates	***Sunrise Active Customers***	***Sunrise Old Customer List***	**Combined Sunrise Sample**	**Greenwaste Service Customers**	**Logan Metro Area**	**Remaining Cache County**
Original Sample Frame	*182*	*108*	290	1,246	12,800	11,021
Contact Method	*2-wave Mail Survey*	*2-wave Mail Survey*	2-wave Mail Survey	2-wave Mail Survey	Drop-Off, Pick Up	3-wave Mail Survey
Sampling Technique	*Population*	*Population*	Population	Random Sample	Stratified Random Sample	Random Sample
Households Sampled/Contacted	*182*	*108*	290	180	312	199
Sampling Density	*100.0%*	*100.0%*	100.0%	14.4%	2.4%	1.8%
Households Disqualified	*18*	*41*	59	7	7	19
Eligible Households	*164*	*67*	231	173	305	180
Useable Responses	***154***	***46***	**200**	**122**	**231**	**97**
Nonrespondents	*10*	*21*	31	51	74	83
Response Rate (Responses / Eligible HH)	*93.9%*	*68.7%*	86.6%	70.5%	75.7%	53.9%

Section 3:
FINDINGS

3.a) Frequency of Recycling

The results of our four surveys indicate that most households in Cache County engage in some type of recycling activity. The frequency of various types of recycling behaviors are reported on Table 2 below.

The Logan Metro Area and Remaining Cache County samples are designed to represent 'typical' households in the County. During the 6 months prior to the survey, over two-thirds of respondents in these groups reported recycling some of their household waste. Most, however, did not recycle very intensively. In fact, 34 to 44 percent of the households who do recycle indicated that they recycle only "a little." Indeed, only 16 percent of recycling households (or 10 percent of all households) report recycling "almost all" of the potentially recyclable waste products that they generate.

Most households in Cache County rely on drop-off sites located around the county to recycle their sorted recyclable waste products. These sites require people to organize their recyclables and transport them to the drop-off site for disposal. Among the two-thirds of households who recycle in the valley, most report going to drop-off sites only 'rarely' or 'sometimes.' Only 20 percent of recyclers (or 13 percent of households overall) use the drop-off sites 'always' for disposing recyclable products.

Households were also asked to report the most important reason why they do (or do not) recycle. Non-recyclers were most likely to report that they did not recycle because recycling facilities are hard to get to. In the Logan Metro Area, non-recyclers also listed concerns about the time required for sorting recyclable products. Recycling households were most likely to say that they recycle because they (a) feel it protects the environment, and (b) feel it is their personal responsibility to recycle. A smaller group (roughly 13-20 percent of recyclers) indicated they recycled mainly to help conserve landfill space.

Table 1 also summarizes results from the Sunrise and Greenwaste samples. It is not suprising that former Sunrise customers were much more likely to be involved in recycling (after all, they had voluntarily subscribed to a curbside recycling program). What is surprising is the fact that Greenwaste customers are only slightly more likely to recycle than the general random sample of households. In fact, there is very little overlap between households that subscribe to the Greenwaste and former Sunrise Recycling services.

In addition, the random sample results suggest that roughly 3 percent of county households participated in the Sunrise recycling service, while 7-13 percent indicate they have ever subscribed to the Greenwaste curbside pickup service (higher in the Logan Metro Area).

Table 2: Frequency of Various Recycling Behaviors, by sample group

	Purposive Samples		Randomly Sampled Households	
Recycling Behavior	**Sunrise Recycling Customer**	**Greenwaste Service Customers**	**Logan Metro Area**	**Remaining Cache County**
Percent of households that recycled anything in last 6 month.	97.5	79.8	66.2	68.1
Percent of households ever subscribing to the Sunrise Recycling Service.	100.0	7.6	3.5	3.1
Percent of households ever subscribing to the City/County Greenwaste Service.	36.0	100.0	12.9	7.2
Among non-recyclers	*(n=5)*	*(n=24)*	*(n=75)*	*(n=30)*
What is the single biggest reason you do not recycle?				
No time to sort my items	**	**25.0**	21.1	6.9
Recycling facilities are not easy to get to	**	**33.3**	21.1	31.0
Don't know where to take recyclables	**	8.3	18.4	3.4
It is not worth doing	**	12.5	6.6	6.9
Other or Combination	**	20.9	32.8	51.8
Total	**	100.0	100.0	100.0
Among recyclers	*(n=193)*	*(n=95)*	*(n=147)*	*(n=68)*
What share of household recyclable waste is recycled				
A little	2.6	**35.8**	**34.2**	**44.1**
Less than half	6.8	20.0	28.9	27.9
More than half	27.4	16.8	21.1	11.8
Almost all	**63.2**	27.4	15.8	16.2
	100.0	100.0	100.0	100.0
When your household has recyclables, how often do you take them to a drop-off center rather than placing them in the garbage?				
Rarely	3.7	11.3	15.0	20.6
Sometimes	3.2	**32.0**	**36.6**	**35.3**
Often	27.9	29.9	28.1	26.5
Always	**65.3**	26.8	19.6	17.6
	100.1	100.0	99.3	100.0
What is the single most important reason you recycle?				
It makes me feel good	2.7	2.1	8.3	3.1
It protects the environment	**35.3**	22.1	**31.7**	**30.8**
It saves landfill space	11.8	18.9	21.4	13.8
I feel it is my responsibility	**40.1**	**34.7**	23.4	**35.4**
Combination of above	2.1	8.5	4.9	3.1
Other or not sure	8.0	13.7	10.4	13.8
	100.0	100.0	100.1	100.0

** = too few cases in this category to report reliable results.

3.b) Recycling Attitudes

3.b.i) Views toward recycling programs

The survey instrument included a number of questions designed to evaluate residents' views toward existing and possible future recycling programs in Cache County. Table 3 summarizes the percent of respondents in each sample group that agreed (or disagreed) with a number of statements.

Initially, it is apparent that most people in the county are aware of where to take their recyclable products. However, a relatively large minority (30-40 percent) of the Logan Metro Area and Cache County households indicated that they were not sure which products could be recycled. (Put differently, between 45 and 55 percent of households are sure which products they can take to drop-off bins).

Only 20 percent of households felt that existing recycling programs were sufficient (another 40 percent felt they were insufficient, with 40 percent undecided). This suggests that there is room for improvement and some support for an expanded recycling program. While 40-45 percent of respondents agreed with the statement that "recycling is convenient to do," roughly a third of households felt that recycling was not convenient. Moreover, almost two-thirds of our 'typical' Cache County residents felt that they would recycling at a higher level if the recycling programs were more convenient.

When asked if they would support a mandatory recycling program, the community appears to be fairly split. In the Logan Metro Area, roughly 40 percent support and 40 percent oppose mandatory recycling; in the remaining county areas, only 30 percent support, while 50 percent oppose mandatory programs. When asked who should pay for recycling programs, most respondents indicated that households should not be asked to pay extra for curbside service. At the same time, there was only mixed support for the idea that "all households should pay for recycling programs, whether they recycle or not," with roughly 40 percent supporting this approach and 45 percent opposing it. When asked if they would pay an extra $3 per month for curbside recycling service, 40-43 percent were willing to do so, while 34-38 percent were not willing.

A block of questions in the survey asked respondents how various features of a new recycling program would affect their likelihood of participating. The results are summarized at the bottom of Table 3. Initially, it is evident that providing curbside service and allowing people to dispose of unsorted recyclables would both strongly increase people's participation. By contrast, requiring households to sort items increased the chances of participation among 33-40 percent of households, while it decreased participation among a quarter of respondents. Picking up plastics would most increase participation, while picking up glass and newspapers increased participation to a lesser extent. Nearly everyone felt that a free service would promote participation, though 29-38 percent of respondents said that imposing a nominal fee would decrease their participation. Requiring households to keep recyclables out of their regular trash would increase participation by roughly a third of respondents, and decrease participation among another third of households.

Table 3: Respondent Views toward Recycling Programs and Policies

Percent who agree or strongly agree with statement (disagree or strongly disagree in parentheses)[1]	Purposive Samples: Sunrise Recycling Customer A/SA	Purposive Samples: Sunrise Recycling Customer D/SD	Purposive Samples: Greenwaste Service Customers A/SA	Purposive Samples: Greenwaste Service Customers D/SD	Randomly Sampled: Logan Metro Area A/SA	Randomly Sampled: Logan Metro Area D/SD	Randomly Sampled: Remaining Cache County A/SA	Randomly Sampled: Remaining Cache County D/SD
Evaluation of existing programs								
I know where to take my recyclable products	95.9	(2.6)	85.2	(10.4)	75.4	(18.1)	77.3	(13.4)
I am not sure what products can be recycled in this area	17.6	(75.9)	27.5	(59.3)	30.4	(55.9)	40.6	(44.8)
Existing recycling programs in Cache Co. are sufficient	16.9	(63.1)	17.9	(46.4)	20.3	(42.9)	20.9	(40.6)
Recycling is convenient to do	57.9	(22.3)	50.0	(23.7)	39.7	(33.1)	45.3	(29.9)
I would recycle more if it were more convenient	*na*	*na*	*na*	*na*	64.0	(14.7)	64.9	(10.6)
Recycling Policy Views								
I would support a mandatory recycling program	*na*	*na*	*na*	*na*	39.1	(36.9)	29.9	(52.6)
Those willing to recycle should pay extra for curbside service.	*na*	*na*	*na*	*na*	11.5	(67.4)	13.5	(71.9)
All households in Cache Co. should help pay for the costs of recycling progs. whether they chose to recycle or not	*na*	*na*	*na*	*na*	38.2	(44.4)	40.6	(43.8)
I am willing to pay an extra $3/mo. to get curbside recycling	*na*	*na*	*na*	*na*	43.3	(34.4)	38.5	(37.5)
How would the following features affect your likelihood of participating in a recycling program?[2]	I/SI	D/SD	I/SI	D/SD	I/SI	D/SD	I/SI	D/SD
Pickup of recyclables at household curb	81.5	(0.0)	81.4	(1.8)	76.1	(0.9)	77.7	(2.1)
Require households to sort recyclables into different bins	27.2	(12.6)	28.6	(32.1)	33.0	(24.9)	40.0	(25.3)
Allow households to put out unsorted recyclables	59.8	(6.7)	72.5	(5.5)	60.8	(6.9)	61.7	(6.4)
Pick up newspaper	71.2	(0.0)	73.3	(0.0)	62.2	(0.9)	61.5	(2.1)
Pick up all glass	81.4	(0.0)	78.6	(1.8)	67.0	(1.4)	62.5	(3.1)
Pick up all plastics	87.6	(0.0)	80.4	(0.9)	73.7	(1.4)	67.7	(3.1)
Offer service for free	64.0	(4.2)	84.4	(0.0)	79.7	(4.5)	80.2	(1.1)
Charge participating households a nominal fee[3]	41.2	(8.2)	28.9	(30.7)	29.2	(29.2)	30.6	(37.9)
Require households to keep recyclables out of their regular trash	52.9	(4.6)	34.2	(33.3)	36.1	(31.1)	31.6	(34.7)

[1] = A/SA = agree or strongly agree; D/SD = disagree or strongly disagree
[2] = I/SI = increase or strongly increase; D/SD = decrease or strongly decrease
[3] = Questions specified $4 to $6 per month for SR and GW samples; $3 per month for Logan Metro and Countywide samples

Not surprisingly, there was much stronger support for an aggressive recycling program among former Sunrise Recycling customers than among the general public. The views of current Greenwaste subscription service customers was somewhere in between, often quite close to the random sample households.

3.b.ii) Views on the costs and benefits of recycling

Previous research suggests that people's perceptions of the costs and benefits associated with recycling can influence their support of recycling programs and their own personal recycling behavior (particularly when recycling is not very convenient for most households). To determine the views of valley residents toward recycling, the survey included a number of questions designed to measure whether they personally feel a responsibility to recycle (personal norms), whether they feel recycling produces costs or benefits to society (views on the efficacy of recycling in general), whether recycling is convenient (personal benefits and costs), and other attitudes regarding concern about solid waste management issues (generalized environmental concern).

Table 4 summarizes the percent of respondents in each sample group that strongly agree or agree (or strongly disagree or disagree) with a set of statements regarding recycling's costs and benefits.

Initially, there appears to be a relatively strong sense among Cache County adults that recycling is a good thing that they should be doing. Almost two-thirds said they are eager to participate in recycling programs, 84-89 percent said that recycling is something they think they should do, and roughly 70 percent said they feel better when they recycle.

At the same time, most people feel that recycling should be a personal decision, and the community is split (roughly 40:40) about whether people should be required to recycle.

Proponents and opponents of public recycling programs have articulated a number of possible benefits and costs associated with recycling. The results suggest that most county residents agree with statements suggesting that recycling improves environmental quality, makes the world a better place, and can extend the life of the landfill. There is less support for the idea that recycling conserves energy. A very small fraction of respondents agreed with various statements that have been made by recycling opponents (for example, that recycling uses more energy than it saves, is not cost effective, or causes environmental harm).

While people think that society may benefit from recycling, the results indicate that a significant minority of households feel that recycling is inconvenient. Roughly 33-42 percent said that recycling takes up too much household space and that taking recyclables to drop-off bins is too much trouble (another 35-40 percent disagreed with both statements). A much smaller group felt that recycling takes too much time.

When asked about whether they were concerned about the environmental impacts of household waste disposal and landfills in general, it is apparent that 57-68 percent of households worry about the environmental impacts of trash disposal and think that modern landfills may pose dangers to the environment. Concerns about regular waste disposal were positively related to individual support for expanded recycling programs.

Table 4: Respondent Perceptions of the Benefits and Costs of Recycling

Percent who agree or strongly agree with statement (disagree or strongly disagree in parentheses)[1]	Purposive Samples				Randomly Sampled			
	Sunrise Recycling Customer		Greenwaste Service Customers		Logan Metro Area		Remaining Cache County	
	A/SA	D/SD	A/SA	D/SD	A/SA	D/SD	A/SA	D/SD
Perceived responsibility for recycling								
I am eager to participate in a recycling program	93.4	(2.0)	64.3	(8.7)	60.7	(10.3)	61.8	(8.3)
People should not be required to recycle	10.5	(71.4)	36.6	(34.8)	38.9	(38.9)	45.3	(35.0)
Recycling should be a personal decision	27.5	(58.4)	61.1	(22.1)	61.0	(20.8)	69.1	(17.6)
The county has an obligation to provide recycling service	83.3	(4.5)	66.1	(9.6)	69.6	(7.1)	66.4	(6.3)
Recycling is something I think I should do	95.9	(3.1)	84.0	(2.7)	83.6	(2.7)	89.2	(4.4)
I would feel guilty if I did not recycle	89.8	(5.1)	50.9	(22.3)	39.7	(23.8)	35.9	(27.2)
I feel better when I recycle	96.4	(0.0)	78.4	(0.0)	68.9	(3.5)	72.8	(3.3)
Everyone has a responsibility to recycle	88.8	(3.1)	61.6	(8.0)	61.2	(9.7)	60.9	(4.4)
I have a right to throw out as much garbage as I want	8.7	(80.9)	20.0	(59.1)	26.0	(47.1)	24.2	(45.0)
Evaluation of Recycling Costs and Benefits								
Recycling helps make the world a better place to live	95.4	(0.0)	88.6	(1.8)	87.6	(0.9)	88.2	(4.4)
Recycling would help extend the life of Cache Co. landfill	93.9	(3.6)	89.5	(4.4)	87.6	(2.2)	88.0	(6.5)
Recycling is an effective way to reduce enviro. impacts	93.8	(1.5)	82.9	(0.9)	76.4	(3.0)	75.0	(3.3)
Household recycling is a major way to conserve energy	61.0	(8.2)	47.7	(15.3)	46.2	(12.0)	42.9	(13.2)
Recycling costs the community more money than it saves	2.5	(71.6)	9.0	(42.3)	10.3	(43.9)	14.3	(38.5)
Recyling uses more energy and resources than it saves	3.1	(77.6)	9.0	(49.5)	8.4	(56.9)	11.1	(48.9)
Recycling causes more enviro. harm than other disposal methods	1.0	(88.7)	2.7	(69.1)	2.2	(68.1)	2.2	(67.8)
Recycling takes too much time	5.6	(88.7)	15.4	(66.4)	16.9	(56.4)	15.2	(54.4)
Recycling requires too much household space	9.2	(81.5)	34.2	(45.0)	33.5	(39.3)	38.0	(34.8)
It is too much trouble to take recycling to drop-off bins	17.4	(64.3)	30.1	(48.7)	37.5	(40.5)	42.4	(40.2)
Level of Concern about Solid Waste Issues								
I worry about the enviro. impacts of where my trash goes	81.1	(6.1)	61.8	(13.6)	56.9	(14.0)	56.5	(13.0)
There are no real enviro. dangers from modern landfills	1.5	(90.3)	4.6	(75.2)	7.2	(66.5)	3.3	(68.2)

[1] = A/SA = agree or strongly agree; D/SD = disagree or strongly disagree

As noted above, the Sunrise Recycling sample was much more positively oriented toward recycling. However, the views of Greenwaste customers on these issues were virtually indistinguishable from the Logan Metro Area households.

Overall, the results in Table 4 suggest that Cache County residents appreciate the benefits of recycling and feel a personal responsibility to recycle. However, concerns about the convenience and cost of recycling programs limit their participation, and views on personal freedom suggest a strong preference for voluntary programs that facilitate (but do not mandate) recycling behavior.

3.c) Characteristics of Recyclers

3.c.i) Social Context of Recycling

Many have argued that people develop a personal commitment to recycle through various socialization processes in family, work, and neighborhood environments. To better understand the social background and context of recycling in Cache County, we asked people to report previous recycling experiences and perceived pressures to recycle from family and friends.

The results in Table 5 indicate that only about 40 percent of Cache County adults recycle at work. Moreover, less than a quarter of adults report recycling at home when growing up. Much larger fractions report having lived in a community with curbside recycling (though many of these people may be referring to the Sunrise Recycling service or new City-run curbside service). As noted above, about 4 out of 5 respondents know where the recycling bins are located in the valley.

When asked what proportion of their neighbors and friends recycle, about 35-45 percent reported that their neighbors were recycling to some degree, and just over half said that their friends recycle. However, 50-60 percent were not sure how much neighbors recycled, and 41-45 percent indicted they were unaware of how much their friends recycle. Very few people indicated that none of their friends or neighbors engage in recycling behavior. Later in the survey, we asked people if they agreed or disagreed with various statements related to perceived social pressures to recycle. Very small proportions of our respondents indicated that they feel pressure from friends, family, or neighbors to recycle. Overall, this paints a picture in which most people perceive their social network as being moderately involved in recycling, but not one in which people feel very much social pressure to engage in recycling behavior.

The bottom of Table 5 presents information about the level of environmental activism that respondents are engaged in. It is immediately apparent that a very small minority of adults are members of environmental groups, donate money to environmental causes, display pro-environmental bumper stickers, or boycott products based on environmental policies of certain companies. The largest group – roughly a third of the sample – reported that they do try to buy products made with recyclable materials.

The results for Sunrise and Greenwaste customers provide interesting insights into the unique social background of households who sign up for voluntary subscription curbside waste services. The former Sunrise Recycling customers certainly appear to have much stronger backgrounds in recycling, and are in social networks that participate much more heavily in recycling activity. They are also deeply involved in a variety of pro-environmental social movements.

Table 5: Social Context of Recycling, by Sample Group

	Purposive Samples		Randomly Sampled	
Social Context	Sunrise Recycling Customer	Greenwaste Service Customers	Logan Metro Area	Remaining Cache County
Percent of Respondents who…				
Regularly recycle at work	68.4	49.1	43.4	40.2
Recycled at home when growing up	16.3	14.9	24.8	21.6
Have lived in a community with curbside recycling	53.6	26.7	34.9	20.6
Know where recycling dropoff bins are located	98.5	90.1	78.6	81.4
What proportion of your neighbors recycle?				
None	14.6	3.3	2.6	6.2
Some	60.8	41.3	32.6	39.2
Most	1.5	0.0	2.2	2.1
All	0.0	0.0	0.9	1.0
Not sure	23.1	55.4	61.7	51.5
What proportion of your friends recycle?				
None	1.0	1.7	3.0	6.2
Some	50.8	40.5	45.2	49.5
Most	31.2	11.6	5.7	3.1
All	1.5	0.0	0.9	0.0
Not sure	15.6	46.3	45.2	41.2
Percent who agree or strongly agree:				
I recycle because other members of my family want me to	9.8	11.7	13.2	6.5
My friends and family think recycling is a waste of time	7.2	4.6	6.7	16.5
I feel pressured to recycle because my neighbors do	0.0	0.0	2.2	1.1
Percent who have:				
Joined an environmental group	40.5	4.1	7.8	6.3
Donated money to environmental cause	67.5	28.9	19.5	17.9
Signed pro-environmental petition	54.5	24.8	13.0	11.6
Usually purchases products made with recycled materials	64.0	38.0	28.1	36.8
Boycotted products due to environmental concerns	36.0	16.5	9.5	6.3
Displayed bumper sticker or pin supporting pro-environmental issue	16.0	4.1	4.8	2.1

Greenwaste customers, by contrast, are actually less likely to have grown up in a recycling household or recycling community, feel less social pressure to recycle, and are less involved in some types of environmental activities than the general household sample. This confirms earlier observations that the Sunrise customers were relatively atypical households, while the Greenwaste customer base looks more like the general public and does not express unusually high pro-environmental views.

3.c.ii) Sociodemographic Characteristics

Table 6 below summarizes the basic sociodemographic characteristics of respondents in each of the four samples.

Table 6: Sociodemographic Characteristics of 2004 Cache County Recycling Sample Groups

Characteristics	Purposive Samples: Sunrise Recycling Customer	Purposive Samples: Greenwaste Service Customers	Randomly Sampled: Logan Metro Area	Randomly Sampled: Remaining Cache County
Percent female	70.5	61.2	59.6	64.9
Percent who own their home	97.0	97.5	76.0	95.8
Percent with any children living at home	57.8	61.2	56.3	64.9
Mean number of people in home	3.2	3.5	3.4	3.6
Mean years lived in this particular community	19.9	21.0	15.4	19.6
Mean years lived in Cache County	24.6	26.5	21.4	29.2
Median years lived in Cache County	21.0	20.0	16.0	25.0
Percent who have lived here all their life	6.0	12.4	19.6	31.6
Percent by years living in Cache County				
Less than 5 years	3.0	20.0	21.3	7.5
5 to 9 years	11.0	15.0	14.8	8.6
10 to 19 years	30.0	20.8	18.7	20.4
20 or more years	56.0	44.2	45.2	63.4
	100.0	*100.0*	*100.0*	*99.9*
Percent by age group				
Under 30	1.5	6.7	31.7	11.0
30-44	25.8	31.7	27.3	35.2
45-64	55.6	38.3	25.1	42.9
65 and over	17.2	23.3	15.9	11.0
	100.0	*100.0*	*100.0*	*100.1*
Average age	52.0	51.8	43.0	46.9
Percent by education level				
H.S. diploma or less	4.0	9.3	17.0	17.9
Some college, no degree	12.0	28.8	30.1	32.6
2-year degree (trade school or A.A.)	5.0	7.6	10.5	11.6
4year degree (B.S. or B.A.)	28.0	30.5	24.0	26.3
Graduate school or professional degree	51.0	23.7	18.3	11.6
	100.0	*99.9*	*99.9*	*100.0*
Percent by Income Class				
Under $15,000	0.0	2.8	11.3	3.4
$15,000 to $24,999	2.7	5.5	14.8	4.5
$25,000 to $34,999	3.8	7.3	11.8	14.8
$35,000 to $49,999	11.4	23.9	19.2	25.0
$50,000 to $74,999	25.9	31.2	23.6	40.9
$75,000 and over	56.2	29.4	19.2	11.4
	100.0	*100.1*	*99.9*	*100.0*

Initially, it is worth noting that the profile of respondents in the Logan Metro Area and Remaining Cache County samples do look fairly similar to estimated characteristics of the Cache County homeowner population as reported in the 2000 U.S. Census of Population. The main exception is an apparent overrepresentation of women, older individuals, and persons with higher

levels of formal education. These differences mainly reflect our sampling technique, which emphasized contact with homeowners (and excluded many rental properties that rely on commercial waste pickup). Since our results were meant to generalize to the population of adults that would potentially participate in a county recycling effort, the profile of random sample respondents are viewed as representative of the population of interest.

The most interesting results on Table 6 reflect the strikingly different characteristics of former Sunrise Recycling (SR) customers. Specifically, the SR group tends to be older, much more highly educated, and wealthier than typical Cache County households. A majority of SR respondents had a graduate or professional degree and reported household income of over $75,000. By contrast, customers that subscribe to the Greenwaste service had sociodemographic characteristics that were much more like the general public samples.

3.d) Diversity of Recycling Views by Recycling Intensity Group

In order to understand the diversity of views among Cache County residents, the respondents from both the Logan Metro Area and Remaining Cache County samples were combined and grouped according to the intensity with which their household recycled. Specifically, respondents were placed in one of three groups: (a) Non-Recyclers (NR) who did not recycle at all in the previous 6 months (roughly a third of the sample); (b) Moderate Recyclers (MR) who recycled at a moderate level, by recycling less than half of the total possible recyclable household waste; and (c) High Recyclers (HR) who recycled at a high level, by recycling more than half of their recyclable waste.

The views toward recycling across these three groups are summarized in Table 7 below. Because traditional models of recycling behavior have emphasized that internalized personal and social norms toward recycling are important precursors to recycling behavior, we were interested in whether or not high recycling households had stronger pro-recycling norms. Our survey distinguished two types of norms: personal and social norms. Personal norms reflect a sense of personal obligation to engage in the behavior. Social norms reflect external pressure to engage in recycling that respondents may feel from friends, family members, and/or neighbors.

The results suggest that people who engage in more intensive recycling behavior also express stronger pro-recycling personal norms. While, an overwhelming majority of respondents in all three groups felt like recycling is something they should do, those who recycle more are notably more likely to feel guilty if they don't recycle and worry about the environmental impacts of where their trash goes. Meanwhile, people who recycle less were more likely to agree with the idea that recycling should be a personal decision, and a significant minority of NRs indicated a belief in their right to throw out as much trash as they want. Interestingly, although the NR group expressed low levels of personal obligation to recycle, over half said they were eager to participate in a recycling program.

Table 7: Agreement with Various Attitudinal Statements, by Recycling Intensity Group.

Percent who agree or strongly agree (disagree/strongly disagree in parentheses)	Non-Recyclers		Moderate Recyclers		High Recyclers		
	A/SA	D/SD	A/SA	D/SD	A/SA	D/SD	
Personal Norm							
Recycling is something I think I should do	74.3	(6.8)	84.9	(1.4)	98.6	(0.0)	***
I feel better when I recycle	56.7	(5.4)	70.9	(3.5)	87.6	(0.0)	***
Everyone has a responsibility to recycle	48.7	(19.0)	60.7	(5.0)	84.9	(2.7)	***
I worry about the environmenal impacts of where my trash goes	45.9	(23.0)	51.4	(12.9)	83.6	(8.2)	***
I would feel guilty if I did not recycle	19.0	(33.8)	33.6	(24.3)	78.1	(9.5)	***
Recycling should be a personal decision	71.9	(16.9)	63.9	(16.0)	46.0	(33.8)	**
I have a right to throw out as much garbage as I want	37.9	(33.8)	25.4	(44.2)	12.8	(74.3)	***
I'm eager to participate in a recycling program	53.5	(15.5)	56.2	(9.0)	86.3	(1.4)	***
Social Norm							
My friends and family think recycling is a waste of time	9.5	(52.7)	7.1	(62.8)	11.4	(71.5)	n.s.
I recycle because other members of my family want me to	6.9	(53.4)	11.3	(63.4)	15.1	(67.2)	n.s.
I feel pressured to recycle because my neighbors do	2.7	(67.2)	1.4	(73.5)	1.4	(88.7)	**
Perceived Convenience of Recycling							
Recycling is convenient to do in this area	13.7	(43.8)	45.1	(28.5)	69.9	(21.9)	***
It is too much trouble to take recycling to drop-off bins	56.7	(18.9)	37.8	(35.7)	8.2	(82.2)	***
Recycling takes too much time	29.8	(44.6)	13.7	(48.6)	1.4	(89.1)	***
Recycling requires too much household space	40.6	(27.1)	43.1	(27.0)	8.2	(78.1)	***
I would recycle more if it was more convenient	72.6	(5.5)	66.0	(9.7)	53.6	(30.4)	**
Programs							
I think the county has an obligation to provide recycling services	65.3	(9.7)	70.2	(6.3)	73.6	(5.6)	
I would support a mandatory recycling program	33.3	(43.0)	30.8	(43.4)	56.2	(27.4)	**
Those willing to recycle should pay extra for curbside service	9.7	(70.8)	11.8	(65.3)	10.9	(72.6)	
Everyone should help pay the costs of recycling programs, whether they chose to recycle or not	31.9	(54.2)	34.3	(43.4)	65.3	(26.4)	***
I am willing to pay an extra $3 per month to get curbside recycling	39.1	(39.1)	43.7	(34.0)	50.7	(32.9)	

*Significant differences across the three groups noted by: * = p<0.05; **=p<0.01; ***=p<0.001; n.s.=not significant.*

Indicators of social norms suggest that few residents in our study area feel much social pressure to recycle. Although perceived social norms from family and friends were slightly higher among the HR group, these differences were not statistically significant. Meanwhile, perceived pressure to recycle from neighbors was actually lower among the NR group.

The bottom of Table 7 presents information about the proportions of respondents in each recycling group that agree with statements regarding the convenience of current recycling opportunities and their support for possible expansions in future recycling programs. Recall that at the time the surveys were administered, most households had to sort and take their recycling products to designated drop-off sites distributed around the county.

The results suggest that perceptions of the convenience of recycling vary dramatically across our three groups of households. Those who are more involved in recycling were most likely to see recycling as convenient, and least likely to report that recycling is too much trouble, too time consuming, or takes up too much space. Conversely, those who didn't recycle were most likely to believe that recycling is inconvenient. Overall, those who recycled the least were significantly more inclined to believe that they would recycle more if it were more convenient.

A majority of all three groups of respondents agree that Cache County has an obligation to provide recycling services to the community, and few believed that people should have to pay extra to receive curbside service. However, when asked if they would support a mandatory recycling program, those who already recycle were significantly more likely to agree than people who were moderate or non-recyclers. Similarly, almost two-thirds of the HR group felt that the costs of recycling programs should be shared by all households (whether or not they recycled), while barely a third of respondents in each of the two other groups agreed with that policy approach.

3.d) Evaluation of Greenwaste and Sunrise Recycling Programs

3.d.i) Greenwaste Program Feedback

The detailed surveys sent to current customers of the Greenwaste (GW) curbside service included a page of questions designed to help evaluate the performance of this program. The results in Table 8a indicate that most people sign up for the GW service because of convenience (in order to get curbside pickup of yardwastes, not because they necessarily support composting). Nevertheless, most GW customers recognize additional benefits to the landfill and local environment.

Overall, GW customers appear to be extremely satisfied with their service. Almost two-thirds of respondents were 'very satisfied' with the convenience and reliability of the GW service, and virtually all were at least satisfied with these features and the customer service. While just 30 percent were very satisfied with the cost of the program, over 90 percent were at least satisfied with the cost.

Table 8a: Specific Feedback on Greenwaste Service (Greenwaste Customer Sample Only)

How important are the following reasons to your decision to sign up for the Greenwaste Service?	Not important	A little important	Important	Very important	Mean score
Wanted curbside service	1.8	4.4	36.0	57.9	3.50
Feel it is moral obligation to compost	12.5	27.9	37.5	22.1	2.69
To conserve landfill space	4.5	9.1	45.5	40.9	3.23
To protect the environment	8.2	17.3	30.9	42.7	3.13
How satisfied are you with the Greenwaste Service?	**Very unsatified**	**Unsatisfied**	**Satisfied**	**Very satisfied**	**Mean score**
Cost	2.7	5.4	62.2	29.7	3.18
Convenience	1.7	0.0	40.0	58.3	3.54
Reliability	0.9	0.0	42.5	56.6	3.55
Customer Service	0.9	2.8	49.5	46.8	3.42
Overall	**1.8**	**0.0**	**51.4**	**46.8**	**3.43**

Respondents were also asked two open-ended questions inviting them to list the "best" and "worst" things about the GW service. The results summarized in Table 8b suggest that curbside yardwaste disposal is most appreciated for its convenience and because it helps get rid of waste materials from around the subscribers property. Far fewer people cited environmental rewards as a principal benefit from participation in the GW program.

Nearly half of respondents did not list anything as a 'worst' feature of the GW program. By implication, this suggests the majority of respondents had a fairly unambiguously positive experience. Among those who did list negative features, the most common responses related to the fact that it costs extra to get GW pickup service. Moreover, since GW customers are charged on a monthly basis year-round, a sizeable minority of customers appear to be annoyed that the pickup service is provided for just part of the year.

Other issues cited by small groups of respondents included: lacking enough space in the container for all their greenwaste at certain times of year, material left in the container after pickup (and the associated smells), confusion about when the service starts or ends, and concern about missed pickups and cans that were tipped over by the pickup trucks.

Table 8b: Best and Worst Things about Greenwaste Service

		Percent Reporting This Reason	
Best thing about Greenwaste Service			
Convenience			
	Convenient and easy	33	25%
	Weekly pickup/curbside service	15	11%
	Don't have to haul myself	13	10%
Space			
	Gets rid of grass clippings/Cleans up yard	26	20%
	Extra space for regular trash	12	9%
Environment			
	Helps the environment	9	7%
	Like to get the compost	9	7%
	No answer	15	11%
		132	100%
Worst Thing about Greenwaste Service			
No problems (and no answer)			
	No answer	32	25%
	"No problems"	31	24%
Cost			
	Financial cost (generic)	9	7%
	Financial cost (pay yr round, service 6 months)	4	3%
	Financial cost (didn't use it enough)	3	2%
	Financial cost (shouldn't have to pay to be socially responsible)	3	2%
Other			
	Messy or smells	8	6%
	Container too small	8	6%
	Length of pickup season too short	7	5%
	Inconvenient (space for container, hauling to curb)	6	5%
	Not sure when service starts/ends	5	4%
	Missed pickups	4	3%
	Material left in bin after pickup	3	2%
	Didn't use the service much	3	2%
	Can was left tipped over	2	2%
		128	100%

3.d.ii) Sunrise Program Feedback

Similar questions were administered to the sample of former customers of the private Sunrise Recycling (SR) service.

The results in Table 9a suggest that people signed up for the SR service for a wide range of reasons. The most important reason (overall) was a desire to protect the environment. Almost everyone indicated that this was important to them. A sizable majority of customers also said that conserving landfill space and moral obligations contributed to their desire to sign up for the SR service. Least important was the desire to get curbside service.

Overall satisfaction levels among SR customers were notably lower than for the GW customers. People were most satisfied with the convenience of the service. They were least satisfied with customer service and reliability. In general people found that the cost of the SR service ($6.00 per month) was satisfactory.

The detailed comments (summarized in Table 9b) indicate that there were significant problems with customer service, reliability, and billing that created negative impressions among a large fraction of the SR customer base. Anecdotal evidence suggested that the SR owners had great difficulty maintaining trucks and a regular pickup schedule toward the end of 2003 and early 2004. These difficulties contributed to the negative experiences of many SR customers.

These same customers indicated that the convenience and curbside pickup was the best thing about the service (with significant numbers of respondents also indicating that being able to send most types of items at once was important). It is worth noting that some SR customers found it inconvenient to have to sort their recyclables, that the containers took up too much space, and that it was hard to protect the containers from the weather and remember when to put the recyclables out on the curb.

A comparison of responses from the GW and SR samples suggests that the motivation for subscribing to the curbside yardwaste service is quite different from that behind participation in a subscription curbside recycling program.

Table 9a: Specific Feedback on Sunrise Recycling Service (from Sunrise Recycling Customer Sample Only)

How important are the following reasons to your decision to sign up for the Sunrise Recycling service?	Not important	A little important	Important	Very important	Mean score
Wanted curbside service	2.2	10.3	45.9	41.6	3.27
Feel it is moral obligation to recycle	1.6	5.9	32.3	60.2	3.50
To conserve landfill space	1.1	2.7	33.3	62.9	3.58
To protect the environment	1.1	0.5	26.5	71.9	3.69

How satisfied are you with the Sunrise Recycling service?	Very unsatified	Unsatisfied	Satisfied	Very satisfied	Mean score
Cost	2.7	3.8	50.5	43.0	3.34
Convenience	2.2	4.3	45.1	48.4	3.40
Reliability	4.3	16.2	49.7	29.7	3.05
Customer Service	7.1	12.6	51.1	29.1	3.02
Overall	**2.2**	**6.5**	**59.2**	**32.1**	**3.20**

Table 9b: Best and Worst Things about Sunrise Recycling Service

		Percent Reporting This Reason
Best thing about Sunrise Recycling Service		
Curbside pickup (didn't have to haul elsewhere)	76	40%
Picks up most types of items	34	18%
Convenience	28	15%
Regularity, dependability	22	12%
Glad service was available; support recycling	19	10%
Reasonable cost for the service	6	3%
Considerate employees	6	3%
TOTAL	191	100%
Worst thing about Sunrise Recycling Service		
Left Blank	21	10%
"No Problems"	8	4%
Customer Service		
Missed Pickups	32	15%
Scheduling Problems and Confusion	24	11%
Bad customer service/difficulty contacting company	24	11%
Company Terminated Unexpectedly	18	8%
Unreliable Service	16	7%
Billing Problems or No refund	11	5%
Convenience		
Inconvenient (difficulty sorting)	20	9%
Didn't take certain glass or plastics	19	9%
Inconvenient (too many containers, tough to keep dry)	12	5%
Inconvenient (remembering, space)	9	4%
Too expensive	6	3%
	220	100%