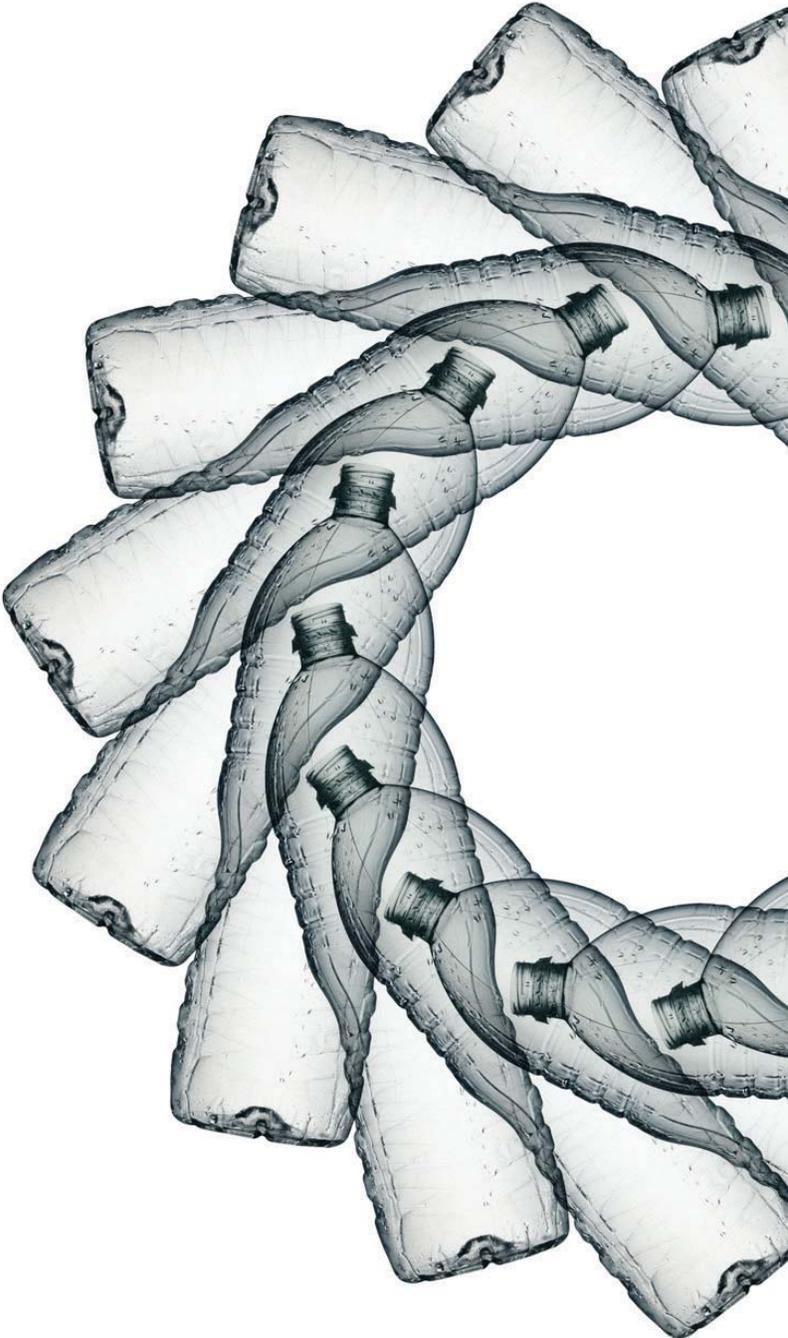


Recycling Behavior Study White Paper

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Abstract

As part of the 2013 Washington Utilities and Transportation Commission (WUTC) Revenue Sharing Agreement, Waste Management, in partnership with King and Snohomish Counties, decided to gain a better understanding of WUTC residents and how to best educate and encourage residents to recycle. In order to do so, the team implemented a comprehensive residential recycling behavior study with households in the WUTC areas of King and Snohomish Counties.

The goal of the study was to determine the barriers and benefits to recycling specific materials in order to better understand household garbage and recycling behaviors. In addition, the results would determine which marketing and communications tactics would be most effective in creating behavior change among the WUTC audience.

This paper summarizes the process of conceptualizing the behavior study, the methodology, key take-aways for future recycling outreach, and finally, benefits to the region as a result of the study. The paper comments on the strategic value of collaboration between the private and public sector and elevates the recycling conversation to show behavior-based research studies can help lead to more strategic and effective consumer communication. For a complete list of partners who worked on this project, please see the last page of the report.

Background

Recycling has many benefits, from easing the burden on regional landfills, to creating jobs, building more competitive manufacturing industries, and contributing to the growth of local economies. Therefore, improving residential recycling rates is a top priority for many jurisdictions in the Puget Sound region of Washington State.

Although there is high consumer awareness around recycling and curbside service is available to most residents in the Puget Sound area, still a large percentage of the waste stream is comprised of easily recycled materials.

Historically, city and county governments have taken a variety of actions to improve residential curbside recycling rates, from public education campaigns to mandatory recycling laws. King and Snohomish Counties, which constitute 39 percent of the population in Washington State, have not made residential recycling mandatory, but instead have been working to promote voluntary curbside recycling through a variety of grassroots marketing and consumer education tactics over the last three years, in partnership with Waste Management.

As is the case with many jurisdictions across the state and country, in King and Snohomish Counties a lot is known about what is in the residential waste stream through waste characterization studies. However, little is known about why and how it ended up there. Past phone surveys and focus groups have yielded some insights, but the results have not been statistically significant and have contained a degree of self-reporting bias. For example, in a 2003 phone survey in King County, approximately 90 percent of residents surveyed said that they recycle everything they can, yet more than 60 percent of what ends up in King County's residential waste stream could have been recycled.

In 2013, Waste Management, in partnership with King and Snohomish Counties, set out to conduct a residential recycling study that would directly correlate what is found in residential garbage with household recycling behaviors. The decision to conduct this behavior study arose from the need to gain a better understanding of the household barriers and motivations surrounding recycling and to ultimately determine the most effective methods for educating and encouraging residents to recycle more.

Community-Based Social Marketing Approach



Over the years, several campaigns and marketing tactics had been used with local residents. With this behavior study, Waste Management, King County and Snohomish County saw the opportunity to take a proactive, forward-looking approach to future consumer education. This behavior study is the first step in the planning process for a Community-Based Social Marketing (CBSM) campaign that will roll out to residents beginning in 2014. CBSM is a process that involves behavior selection, identifying barriers and benefits, innovative tools of change, pilot testing, and evaluation (McKenzie-Mohr, 2011). The team

chose this approach because the initiatives help remove barriers to desired behaviors, such as recycling more, and emphasize the benefits of the desired behavior.

The goal of the study, which took place between April and June 2013, was to determine the barriers and benefits to recycling specific materials in order to obtain a better understanding of household garbage and recycling behaviors.

The study yielded several key findings that Waste Management, King County and Snohomish County will use in developing CBSM initiatives in 2014 and beyond. Some examples include:

- » People want to do the right thing. They believe recycling is “very important” and believe it’s “not at all difficult” (except for food waste), yet lots of recyclables are found in their garbage.
- » Although residents said recycling is important and that they recycle most of the time, the waste characterization study showed that 98 percent of households had at least one type of recyclable material in their trash
- » Confusion over how to prepare materials for recycling and what can and can’t be recycled contributed to items ending up in the garbage can.
- » Inconvenience, laziness, forgetfulness, and smell or mess are the largest barriers to recycling food scraps.
- » 56 percent of households with children stated that children were least cooperative when it came to recycling.

The results of the behavior study also indicated that more one-on-one research was needed, thus additional focus group research was conducted in December 2013.

Methodology

The behavior study utilized innovative methodology—a combined waste characterization and in-person household survey. The waste characterization study data was linked to the household survey data. This provided a unique way to learn about recycling attitudes associated with the residents' actual behaviors.



Garbage carts from households across King and Snohomish Counties were collected and sorted from April to May 2013. On residents' regular garbage collection day, garbage carts were emptied by the research team, contents were bagged and tagged at each household and were held at the Shoreline Recycling and Transfer Station for sorting. The garbage sorting procedure entailed: (1) sorting the garbage into separate baskets by material type; (2) photographing any unusual or foreign-language materials in the sample; and (3) recording the weight of each material type in a customized database.

Using data collected during the garbage-cart sorts, the team then developed the script and plan for in-person (door-to-door) surveys in King and Snohomish Counties. Residents were asked about the barriers associated with recycling the specific categories of materials that were found during the garbage cart sorts—nearly all households had mixed paper, coated containers and plastics in their trash. The response rate for the in-person surveys was 60 percent.

This innovative research method allowed Waste Management to: (1) identify current baseline gar-

bage and recycling behaviors; and (2) identify the values, attitudes, and beliefs related to recycling and garbage behaviors for specific materials.

While the garbage sorts and in-person surveys yielded a wealth of information, it also generated more questions. To further explore the results, Waste Management conducted additional research that utilized online journals and focus groups.

A total of four focus groups were conducted; two in King County and two in Snohomish County. One group in each County was made up of people who had previously participated in a research study for Waste Management.

Participants were asked to complete a five-day online journal at home before attending the in-person focus groups. They tracked their recycling and composting behaviors, noting what was being recycled/composted, what preparation (if any) was done, and in which bin the item was placed. In the focus groups, customers answered questions regarding household recycling and composting behaviors and attitudes.

The following table outlines each focus group that was conducted:

Focus Group Participants

COUNTY	RESEARCH INVOLVEMENT	DATE & TIME	LOCATION	NUMBER OF PARTICIPANTS	GENDER
King	Previous	12/17/13 5:30-7:30pm	Kirkland	11	7 Male 4 Female
King	New	12/17/13 8-10pm	Kirkland	6	3 Male 3 Female
Snohomish	Previous	12/18/13 5:30-7:30pm	Everett	9	5 Male 4 Female
Snohomish	New	12/18/13 8-10pm	Everett	10	5 Male 5 Female

Results

The results from the garbage cart sorts were consistent with the most recent county-wide waste characterization studies. The top four recyclable materials found in the garbage carts were (see charts below for exact percentages):

1. Food scraps and food-soiled paper
2. Mixed paper such as junk mail, magazine, detergent boxes
3. Plastics such as water bottles, yogurt and liquid soap containers
4. Coated containers such as ice cream, soy milk and juice boxes

Materials that Belong in the Recycling Cart

ITEM	PERCENT OF HOUSEHOLDS WITH ANY (N=225, Survey Households)
Mixed paper	89.3
Plastic	85.3
Polycoats	64.4
Newspaper	36.9
Tin cans	35.1
Aluminum cans	33.8
Glass	30.7

Materials that Belong in the Yard-Waste Cart

ITEM	PERCENT OF HOUSEHOLDS WITH ANY (N=87, Survey Households)
Food Scraps	97.7
Food-soiled paper	96.6
Yard waste	25.3
Bioplastics	6.9

The results from the in-person surveys revealed the following key findings:

MIXED PAPER:

Almost 60% said they just recycle it or don't have any trouble in recycling it, yet was found in 89% of garbage carts. Most cited barriers were:

1. Contain personal info – 15%
2. Confusion over whether some types were recyclable or not – 14.5%

PLASTICS:

26% said they recycle it, yet 85% had plastics in their garbage carts. Most cited barriers were:

1. Need to rinse or clean before recycling – 40%
2. Confusion over what types are recyclable – 26%
3. Confused over caps and lids recyclability – 20%

POLY-COATED CONTAINERS:

16% said they recycle it, yet 64% had poly-coated containers in their garbage carts. Most cited barriers were:

1. Need to rinse or clean before recycling – 39%
2. Confusion over whether its recyclable – 24%

FOOD SCRAPS AND FOOD-SOILED PAPER:

57% of King County residents said they knew they could put food in the yard waste cart, and 62% in King County with yard waste service said they put at least some food in the cart. Barriers cited by yard waste subscribers were:

1. Inconvenience/lazy/forgot – 21%
2. Smell and mess – 18%
3. Use garbage disposal or other method – 13%
4. Didn't know you could – 12%
5. No indoor container – 12%

Residents are highly motivated to recycle—they consider recycling to be a very important thing for themselves and their neighbors to do. With the exception of food scraps and food-soiled paper, residents also stated that recycling was not difficult.

Overall, the focus group study results reiterated what Waste Management found in the first phase of the behavior study. Customers have an overall feeling of doing a good job, but tend to point the fingers at others when discussing recycling "mistakes." More education is needed on the "why" factor and where recycling goes after it is picked up from the curb. Lastly, the focus group research pointed to the fact that people think that recycling is important, but many do not see composting as important as recycling. In general residents do not seem to understand why it is important to compost food and food-soiled paper.

Other findings include:

- » Residents feel that full recycling bins are a sign of recycling success
- » Many residents are still following old recycling rules and requested that new rules be communicated to them
- » Residents use different terminology than Waste Management (such as 'bins' instead of 'carts'), which can make instructions less clear
- » Residents are not familiar with what happens once recycled items are picked up by Waste Management and are curious about the process
- » Residents that are avid recyclers are not necessarily composters
- » Residents feel they are doing a good job composting their food scraps, but compostable items are still showing up in the garbage
- » Residents would like an easy way to know what can or cannot be composted in the form of a comprehensive reference guide
- » Residents would like monetary incentives to encourage them to change their behavior
- » Residents are filling their recycling bins much faster than their garbage, which leads them to throw recyclable items in the trash
- » Residents indicated that most children recycle at home, but some kids were reported as lazy or inconsistent
- » Residents would like their kids to be taught to recycle in places outside the home, like their schools
- » Residents requested additional reference tools for quick reminders and prompts to recycle or compost

Conclusions

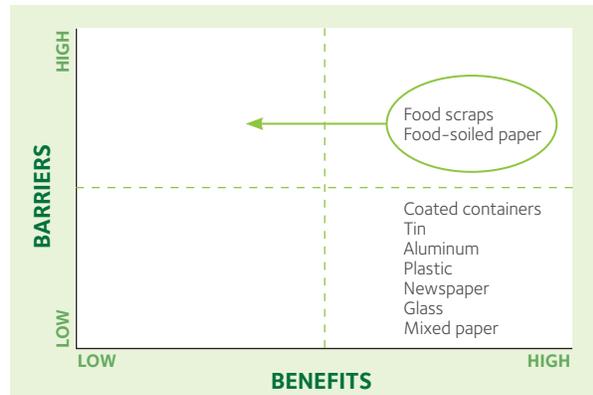
Drawing on behavioral science, the *CBSM Behavior Change Tools* chart below summarizes what tools have been shown to be most effective, based on each combination of low versus high barriers and benefits in CBSM. This chart was used to help interpret where respondents fell on the continuum of barriers and benefits for each type of recyclable material based on their survey responses

The survey results indicated that for mixed paper, plastics, poly-coated containers, newspaper and cardboard, glass, aluminum cans and tin cans, residents:

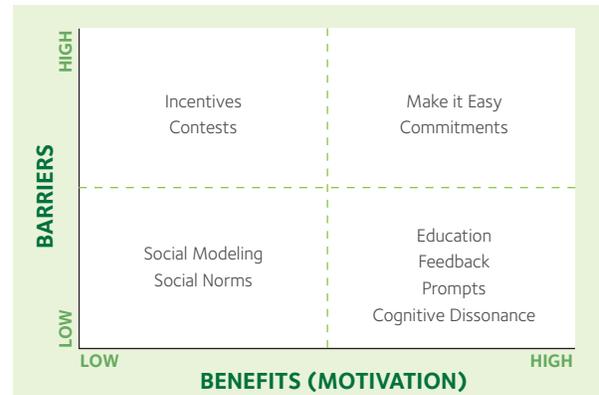
- » Saw high value to the environment in recycling them (High Benefits) and little difficulty in doing so (Low Barriers)
- » Rated recycling as over "9" on scale of importance from "0" to "10"
- » Rated the difficulty of recycling as less than "3" for all seven garbage cart sort materials on a similar scale.

For these items, then, benefits are high and barriers to recycling are relatively low. See the *Barriers and Benefits for Garbage Cart Sort Items* chart below.

Barriers & Benefits for Garbage Cart Sort Items



CBSM Behavior Change Tools



Both charts from Schultz (2013). *Strategies for promoting pro-environmental behavior: Lots of tools but few instructions*. Used by permission of the author.

Using the tenets of the above CBSM approach, the findings point to using specific strategies to help move the residential recycling needle:

- » For items that belong in the recycling cart, communication tactics should be used that leverage high motivations (want to do right thing) and low barriers (think it's easy), including:
 - *Cognitive dissonance*: Remind residents that they believe recycling is important and encourage that they be consistent in their behavior.
 - *Education*: Provide targeted information on items that residents have lingering doubts about. Resident confusion primarily surrounded:
 - Poly-coated containers (highest difficulty rating of any material);
 - Mixed paper, which might be coated or glossy or contain plastic parts; and
 - Plastic containers, which come in a variety of types.
 - *Feedback*: Provide residents with information about how well they and their neighbors are really doing with respect to target behaviors and how they can improve performance levels.
 - *Prompts*: Because forgetfulness was cited, provide recycling prompts in close proximity to where and when the behavior should be performed.
- » Focus on getting existing yard waste customers to put food/more food in their carts, rather than trying to get people to sign up for new yard waste service.
- » Emphasize how easy it would be to switch from putting food in one container (garbage cart) to the other (yard waste cart).
- » Provide or suggest suitable kitchen containers for saving food to recycle.

- » For food and food-soiled composting, communication tactics should be used that leverage high barriers (no system, smell/mess, etc.) and high motivations (want to do right thing), including:
 - *Convenience*: Make it easier to participate.
 - *Commitments*: Encourage them to make a public commitment to recycle all of their food scraps (e.g. signing a commitment card and place a sticker about food composting on their property).
 - *Education*: Provide targeted information on how to recycle food and food-soiled paper.
 - *Prompts*: Because forgetfulness was cited, provide recycling prompts in close proximity to where and when the behavior should be performed.

Benefits To The Region

The Waste Management Behavior Study is a model for how other jurisdictions can approach efforts at changing recycling behaviors in their own communities. Measuring what residents are throwing away and correlating it to what is motivating them or hindering them from recycling more, will lead to more strategic and purposeful marketing and outreach campaigns. Furthermore, conducting a study like this before implementing community initiatives provides the opportunity to measure the results of the campaign.

CBSM provides a useful framework for changing recycling behavior. The CBSM approach dictates that the specific behavior-change tools that will be most effective depend on the combination of barriers and benefits to the target behavior. Drawing on behavioral science, CBSM utilizes strategies such as commitment, incentives, prompts, social modeling, and social norms to promote change. Importantly, each of these tools is matched to the behavior and the context, and some tools work better in some situations than others.

By examining where respondents fell on the continuum of barriers and benefits for each type of recyclable material based on their survey responses, Waste Management is able to determine decisions about what type of approach will be most likely to produce meaningful behavior change.

Communities and organizations in the region should keep the following in mind when thinking about future effective education and marketing opportunities:

- » Tell residents what they can do and be specific on how they can recycle better.
- » Focus on target materials (can be combined with broad awareness) and focus on them one at a time.
- » Consider piloting community outreach with targeted outreach tactics by material and measure outcomes.
- » Address directly the reasons residents gave for not recycling (preparation, confusion) and then explain how to overcome those.
- » Educate about how to properly prepare recyclables for recycling and encourage region-wide consistency in message (e.g. video, media, materials, etc.).

For more information or to work with Waste Management on a project similar to the behavior study project, please visit Waste Management at **www.wmnorthwest.com**.

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