



# Final Report - King County UTC Area Multifamily Recycling Pilots

Culturally Competent Strategies for Increasing Recycling  
at Properties with Hispanic-Latino Residents

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Prepared for

**Waste Management of the Northwest  
and King County Solid Waste Division**

Prepared by

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*Project Partners Meeting – May 2013*

## EXECUTIVE SUMMARY

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This report describes the King County Utilities and Transportation Commission (UTC) Area Multifamily Recycling Pilots (2013 RSA Task 5), including the pilot approach and methodology, pilot implementation and evaluation activities, and key lessons learned and recommendations.

The project's key objectives were to increase the volume of recyclables captured and decrease the amount of garbage in recycling containers at pilot test properties. The results and recommendations are intended to inform the design and implementation of future recycling projects.

For this pilot program, Waste Management (WM) and King County worked with several consulting partner organizations to design, implement, and evaluate a multifamily pilot project focusing on the Hispanic-Latino population of King County. The development of the pilot methodology was informed by design strategies created by the consulting partners, international case study research, WSRA WAMRS! research findings, and regional field studies conducted in 2012 and early 2013. This research identified strategies that have achieved measurable improvements in multifamily recycling.

WM and King County, with additional project team members (Cascadia Consulting Group, ECOSS, Eco-Lógica, and T.D. Wang Advertising Group), selected strategies that were considered to reflect culturally competent design. These strategies were divided into a set of five "best practice basics," including four related to recycling infrastructure and one related to resident engagement. These strategies were implemented at all pilot test properties. Two additional resident engagement strategies, including a community event and distribution of recycling reminder cards to residents, were implemented at two subsets of test properties to assess additional impacts.

Pilot properties were selected based on initial waste audits conducted at 26 multifamily properties in King County. These properties were located in unincorporated King County Waste Management service areas where waste collection is regulated by the UTC (described in this report as "UTC areas"). Properties were selected based on King County's priorities, which were to test outreach strategies targeting multifamily complexes with: large numbers of Hispanic-Latino residents, low recycling rates, and high levels of garbage in the recycling collection containers (recycling contamination<sup>1</sup>). The project team selected eight test properties and three control properties that met all project criteria. Please see **Table 1** below for profiles of the pilot test and control properties.

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<sup>1</sup> *Recycling contamination* is defined as garbage and organic materials found in recycling collection containers. *Garbage contamination* is defined as recyclables and organic materials found in garbage collection containers.

Table 1. Test and Control Pilot Property Characteristics

Pilot Group	Property Name	Total Units	Neighborhood	% Hispanic-Latino*
1	Chao Apartments	6	Boulevard Park	100%
1	Vinh Apartments	7	Boulevard Park	>50%
1 (control)	Rustic Chalet	8	Boulevard Park	30%
2	Centerwood	36	White Center	50%
2	Shorewood	36	White Center	>50%
2	The Avenues	100	White Center	>50%
2 (control)	Strength of Place Village	30	White Center	Unknown
3	Glen Crest	18	Boulevard Park	60%
3	Beverly Park	18	White Center	>50%
3	Coronado Springs	332	White Center	Unknown, likely high
3 (control)	Park Terrace	52	White Center	Unknown

Once the pilot properties were selected, the project team mailed letters to property managers at the test properties. The letters outlined the process of participating in the recycling pilot project. Outreach staff met with property managers to determine property-specific recommendations regarding on-site waste and recycling infrastructure, including collection service changes.

The project team designed a variety of materials and tools for resident engagement and pilot evaluation, including reusable tote bags for residents to take recyclables from inside their home to outdoor recycling containers, educational magnets, outdoor container decals, illegal dumping signs, and recycling reminder cards. The project team discussed engaging and culturally appropriate images and content to be included in these materials, and selected messages and images that were thought to resonate with the targeted Hispanic-Latino community.

Pilot strategies were implemented from August through November 2013. In addition to providing property managers with technical assistance to optimize on-site recycling infrastructure, outreach staff also conducted three rounds of door-to-door resident outreach at each test property. A total of 99 percent of all of the 535 occupied residential units (households) were provided with a tote bag and accompanying educational resources. Of 1,064 door knocks, outreach staff engaged in a total of 406 resident interactions, with 30 percent conducted in Spanish.

Pilot evaluation activities included waste audits at all test and control properties throughout the duration of the pilot program (March-December 2013). The first audits were performed before any changes were made at the selected properties. Once the schedule for pilot strategy implementation was established, the project team developed an audit schedule that began after infrastructure changes started and ended after all strategies were fully implemented. Other evaluation tools included resident recycling quizzes and surveys, administered at the outset of initial door-to-door resident outreach and then again after all strategies were fully deployed.

The main objective of this pilot program was to increase recycling volumes and decrease recycling contamination at the participating test properties. **Table 2** below shows that recycling volumes increased in all three pilot test groups (column A). Recycling contamination levels decreased in two of

the three pilot groups (column B). This data is based on waste audits that were conducted over a period of six to nine months.<sup>2</sup>

**Table 2. Change in Recycling Volume and Contamination**

Pilot Group	A. % Change in Volume of Recycling	B. % Change in Recycling Contamination
<b>Pilot Group 1 (Best Practice Basics)</b>	<b>13%</b>	<b>13%</b>
<b>Control 1</b>	<b>-47%</b>	<b>35%</b>
<b>Pilot Group 2 (Best Practice Basics + Community Event)</b>	<b>342%<sup>3</sup></b>	<b>-31%</b>
<b>Control 2</b>	<b>929%<sup>4</sup></b>	<b>50%</b>
<b>Pilot Group 3 (Best Practice Basics + Recycling Reminder Card)</b>	<b>85%</b>	<b>-19%</b>
<b>Control 3</b>	<b>-15%</b>	<b>27%</b>

The waste audit results indicate that all pilot strategies had an effect on reducing contamination rates. Compared to control properties, which had an average recycling contamination rate of 48 percent post-pilot, test pilot groups had a substantially lower average recycling contamination rate of 20 percent post-pilot. Furthermore, the test pilot groups had an average of a 23 percent decrease in garbage contamination as a result of the pilot strategies implemented.

Waste audit results also indicate that the community event as an additional resident engagement strategy helped further increase the amount of recyclables collected and recycling contamination levels at test properties. Recycling reminder cards in Pilot Group 3 may have helped further decrease the recycling contamination rates at test properties. The community event may have been slightly more effective at reducing recycling contamination rates than the recycling reminder card.

Additional materials were collected for reuse and recycling through the community event, including 96 pounds of clothing, 207 pounds of household goods, and six televisions weighing an estimated 300 pounds combined. A total of 51 percent of all units from Pilot Group 2 test properties attended the community event despite severe inclement weather.

For properties at all three pilot groups, resident recycling knowledge was assessed through a recycling quiz administered by outreach staff to residents at their doorstep. The recycling quiz featured photos of common household items, and asked residents whether these items belonged in the garbage or in the

<sup>2</sup> All but one of these baseline audits occurred between 2/26/13-3/6/13 (Strength of Place's baseline occurred on 8/12/13). Follow-up audits occurred between 9/24/13-11/27/13.

<sup>3</sup> All three properties in this group at least doubled their weekly recycling collection capacity as part of the technical assistance. The Avenues (Pilot Group 2) quadrupled their recycling collection capacity.

<sup>4</sup> No recycling collection capacity changes were made at this control site, but the baseline audit showed only 5 percent of the recycling containers were full while subsequent audits showed much fuller recycling containers (60 percent average fullness).



recycling container. Across all eight test properties, the average resident score remained virtually the same - at 73 percent pre-pilot to 74 percent post-pilot. Bottle and other container caps were the most confusing item for residents, and were correctly identified as belonging in the garbage only 25 percent of the time.

In the resident post-pilot survey, almost three-quarters of respondents said they are now recycling more as a result of the pilot. Nearly all respondents (99 percent) indicated that their household participates in recycling at their property, compared to about 75 percent pre-pilot. A majority of respondents (81 percent) noticed changes to their outside recycling containers, and 90 percent of respondents said it was now easier to recycle as a result of these changes.

The pilot evaluation also included an assessment of the cost and time investment for each strategy employed in this pilot project. The table below summarizes this information.

**Table 3. Cost and Time per Pilot Strategy**

Strategy	Property and residential unit count	Cost (per property and per residential unit)	Time
<b>Property manager technical assistance</b>	8 properties 535 units	\$2,182/property \$33/unit	13 hours/property
<b>Door-to-door outreach<sup>5</sup></b>	8 properties 535 units	\$3,592/property \$54/unit	32 hours/property 29 minutes/unit
<b>Community event</b>	3 properties 172 units	\$3,929/property \$71/unit	86 hours
<b>Recycling reminder cards</b>	3 properties 172 units	\$1,160/property \$9.69/unit	12 hours/property 5.9 minutes/unit

The final section of this report addresses lessons learned and recommendations for future technical assistance efforts, resident outreach strategies, and effective project evaluation. Highlights include:

- **Start with the “best practice basics.”** Working with property managers to ensure that the “best practice basics” are in place is crucial to increasing recycling and reducing contamination at multifamily properties. The basics include: container decals, signage, and posters; color-coded and co-located dumpsters or carts; no-dumping signs; and adequate on-site recycling collection capacity.

<sup>5</sup> All units received up to three rounds of door-to-door outreach. Units that were reached on the first round were not visited again; however, outreach staff came back a second or third time to attempt to reach units that were unavailable during previous visits.

- **Bilingual outreach staff enhanced resident interactions and pilot design.** The project's bilingual outreach staff was able to communicate with Hispanic-Latino residents, understand their unique needs and challenges, and provide recycling information in a more culturally relevant way.
- **Knowledge is not the answer – or at least not sufficient in and of itself to change recycling behavior.** However, knowledge coupled with helping participants overcome key barriers can lead to behavior change.
- **Involvement of Waste Management Operations staff is needed to ensure recommended infrastructure and service changes are feasible.** Each test property had unique container, service frequency, and container location needs, and developing and implementing recommendations effectively relied on close coordination with Waste Management Operations and property managers.
- **Establishing trust and maintaining communication with property managers requires ongoing investment, but is critical for success.** Maintaining ongoing communication with property managers ensures a smooth and successful implementation process.
- **Ensure adequate timeframes for measurement of infrastructure and engagement strategies.** Changing habitual behavior and evaluating the longevity of behavior change impacts takes time.
- **Increase the number of evaluation sampling events** to gain representative data on behavior change and waste disposal patterns. For example, a single dumpster can be significantly impacted by one or two residents or a recent move-in/move-out.



# 1. INTRODUCTION

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## 1.1. Pilot Background

### PROJECT PARTNERS, FUNDING, AND TARGETED COMMUNITY

The King County UTC Multifamily Recycling Pilot was designed to increase recycling and decrease recycling contamination through resident-focused strategies targeting the Hispanic-Latino community at eight multifamily properties in White Center, a diverse neighborhood located in a Waste Management (WM) service area in unincorporated King County regulated by the Washington Utilities and Transportation Commission (described in this report as a “UTC area”). The project targets the Hispanic-Latino audience, in particular, as a part of implementation of the Equity and Social Justice Ordinance by King County government. This project tests tactics which are intended to resonate with this large and diverse population, thought to be primarily of Mexican origin.

This pilot included several unique elements that have shaped the planning and implementation process:

- A commitment to adhere to cultural competency principles. Culturally competent principles reach members of the community using spokespersons who speak their language while connecting with the community in places they frequent.
- A desire for the project, its deliverables, and process to serve as a regional model and provide an easy to use toolkit for multifamily recycling outreach and education in King County and other jurisdictions.
- A community-based social marketing (CBSM) approach and research methodology, which requires more time and careful planning.
- Balancing goals and desires of WM, King County, and each of the participating properties.
- A desire to leverage and adapt best practices drawn from global research.

The pilot plan was developed through a highly collaborative process using a community-based social marketing framework and striving to adhere to cultural competency principles. In addition to the project managers from King County and Waste Management, the project team includes the following expertise:

- Cascadia Consulting Group – behavior change pilot design, implementation, evaluation, and overall project management
- Eco-Lógica – bilingual environmental education and news
- Environmental Coalition of South Seattle – community-based outreach and education
- TD Wang – culturally competent design and messaging

This pilot program was funded through Waste Management’s Revenue Sharing Agreement with King County, for the purpose of increasing the amount of recyclable material collected by Waste Management from customers in King County. Funding used by Waste Management to implement the pilot project was derived from revenue from the sale of recyclable commodities retained by Waste Management in accordance with the revenue sharing provision in RCW 81.77.185.

King County is dedicated to providing all of its residents fair and equal access to services, opportunities, and protection; inviting and encouraging public engagement; and reflecting consideration for cultural differences.<sup>6</sup> King County designated the Hispanic-Latino community as a priority community for receiving culturally competent outreach, and Spanish is the county's only Tier 1 Language, the most prevalent of the non-English languages spoken. In King County, the Hispanic-Latino population accounts for 8.3 percent of the total population, and 58 percent of Hispanic housing units are multifamily.<sup>7</sup> As a result, this pilot's culturally competent strategies focused on increasing multifamily recycling within the Hispanic-Latino community.

## PRIOR RSA-FUNDED ACTIVITIES ON MULTIFAMILY RECYCLING

This pilot is based in part on findings from research conducted for Waste Management in 2012 in partnership with King and Snohomish Counties. The 2012 research produced case studies of innovative strategies for improving multifamily recycling from around the world. Information gathered through field research at candidate multifamily properties in March 2013 also informed this pilot.

The report, entitled *"Multifamily Recycling: Case Studies on Innovative Practices from Around the World"*, documented examples of innovative strategies for increasing multifamily recycling being implemented in specific communities around the world (See **Attachment 1**).

The project team was also informed by research for the Washington Multifamily Recycling Study on the current status of multifamily recycling and best practices in Washington, conducted by the Washington State Recycling Association (WSRA) in 2012 and 2013.

The combined research efforts identified a number of strategies that could have a positive effect on multifamily recycling, including:

- Door-to-door outreach to multifamily residents paired with distribution of reusable tote bags.
- Programs that recruit and train resident recycling "ambassadors" who in turn train fellow residents and lead efforts to organize and provide education in their own buildings.
- Communications and promotion campaigns that use emotional messages and social norms, or that connect recycling to social issues of concern to the target audience.
- Culturally competent outreach campaigns that teach recycling through community member-designed and delivered projects or initiatives that address the needs of the community.
- Targeted communications and educational materials designed specifically for multifamily residents.
- Marketing efforts targeted directly at residents to encourage them to get their property managers to sign up for recycling service.
- Reward programs that provide incentives of some kind for participation in recycling.
- Pay as you throw (PAYT) bins with key cards or some other way of instituting PAYT directly for multifamily residents.

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<sup>6</sup> <http://www.kingcounty.gov/operations/policies/executive/itaeo/inf142aeo.aspx>

<sup>7</sup> "Hispanic Resident Data for King and Snohomish City", T.D. Wang presentation

Many of these innovative strategies were found to be adaptable, individually or in combination, into pilot projects to test and better understand their potential effect on multifamily recycling.

## 1.2. Pilot Description

The following section provides an overview of the strategies tested, evaluation design, and cultural competency principles applied in the development and implementation of the pilot project.

### PILOT STRATEGIES

Based on prior research on multifamily recycling barriers and practices, the project team selected a set of best practice strategies identified as having the greatest potential to increase recycling at multifamily properties. These strategies, known as the bundle of “best practice basics,” were piloted at all eight test properties:

- Use of large, easy-to-read container multilingual decals, signage, and informational posters
- Color coding and co-location of recycling and garbage containers
- “Right sizing” of collection service to ensure sufficient recycling capacity and reduce disposal costs
- Installation of large bilingual “No Dumping” signs near outdoor containers to deter unauthorized use
- Encouragement to tenants to report illegal dumping at the garbage and recycling containers and efforts to help tenants feel ownership over their garbage and recycling collection areas
- Bilingual door-to-door outreach to residents and distribution of reusable tote bags and educational materials

Two additional resident engagement strategies were selectively implemented to assess if there is benefit to adding them to the “best practices basics” suite of services;

- Cultural community recycling event
- Recycling Reminder cards

This pilot represents the first time a bundle of identified best practices for infrastructure and resident engagement were tested and measured together in the region. **Section 2.2** describes each of the strategies tested as part of the pilot project.

### EVALUATION DESIGN

The pilot was designed using a community-based social marketing framework and pilot implementation included a strong emphasis on the evaluation of pilot strategies’ effects on tonnage and contamination. Pilot strategies were implemented sequentially to enable evaluation of each block of implementation activities, and some pilot strategies were implemented at only a subset of pilot properties to enable comparison of outcomes across properties receiving different strategies. The project team also included control properties in the evaluation to help account for variations in outcomes independent of pilot activities.

In addition to selective strategy implementation, the pilot includes an evaluation component, conducted at multiple points before, during, and after implementation of the pilot. Pilot evaluation involves field-

based data collection, including quantitative and qualitative data from waste audits, resident surveys conducted before and after implementation, as well as interviews with property managers and project team members, and a cost analysis of various pilot elements. Ongoing pilot evaluation played an important role in allowing the project team to assess the success and cost-effectiveness of the pilot strategies tested. The evaluation findings, along with conclusions and recommendations, were analyzed and completed in early 2014 and are described in **Section 4** and **Section 5**.

**Section 2.3** describes how the project team shaped the pilot plan using a community-based social marketing approach and **Section 2.5** describes the evaluation methodology.

## CULTURAL COMPETENCY PRINCIPLES

The project team sought to adhere to cultural competency principles in the design, planning, and implementation of the pilot project. King County's defined cultural competency principles include:

- Building positive, trusting, personal relationships with project consultant firms who brought knowledge of the Hispanic-Latino community and participation by community members
- Door-to-door outreach planned, implemented, and evaluated by community members in the team
- Creating warm and welcoming environment for interaction with team members and property residents
- Developing alternative avenues for engagement, some which have never been tried and were tested in isolation from other tactics
- Increasing accessibility and accommodation to Hispanic-Latino residents
- Supporting diverse organizations by building partnerships with Community Based Organizations (CBO) such as ECOSS
- Maintaining a presence in the community by reaching residents one-on-one and providing many opportunities for interaction and dialogue

**Section 2.4** provides detail on how these principles were applied throughout the pilot project.

### 1.3. Project Team Roles

The project team included the following staff and local organizations:

#### Candy Castellanos, Project Manager, Waste Management

- Provided access to Waste Management project direction and priorities, education materials, resources, and support
- Coordinated investigation of existing service levels and supervised service changes and infrastructure improvements
- Provided leading program oversight, pilot planning, and implementation direction

### **Gerty Coville, Project Manager, King County**

- Provided access to King County project direction and priorities, education materials, resources, and support
- Offered leading guidance on culturally competent framework
- Provided program oversight, pilot planning, and implementation direction

### **Cascadia Consulting Group**

*Cascadia Consulting Group is an environmental management consulting firm that works with public and private sector clients to reduce waste, conserve resources, and pioneer a sustainable future.*

- Staff included Amity Lumper, Principal-in-Charge; McKenna Morrigan, Project Manager; Katie Salinas, Community Event Manager and Waste Management service liaison; Olga Kachook, Project Assistant; and Stefan Moedritzer, Waste Audit Coordinator
- Overall coordination of the project
- Facilitated team planning meetings and development of pilot plan
- Monitored and evaluated progress, recommended strategy adjustments
- Conducted in-field waste audits and data analysis
- Provided overall implementation management, oversight, and quality control

### **T.D. Wang (Culturally Competent Design and Messaging)**

*T.D. Wang is a full-service ad agency that specializes in multicultural campaigns with multilingual capabilities. T.D. Wang executes marketing campaigns for multicultural demographics by connecting with community-based organizations across the country.*

- Staff included Ha Na Park, Hispanic Agency Lead and Alejandro Paredes, Account Executive
- Attended team planning meetings and developed culturally competent strategies and materials
- Developed and trans-created resident survey
- Provided community event planning and logistics support, including facilitating the participation of King County's team of Hispanic-Latino community ambassadors, known as Facilitadoras

### **ECOSS (Community-Based Outreach and Education)**

*ECOSS is a CBO located in South Seattle that utilizes grassroots methods of outreach and engagement informed by their staff, who are representative of the cultural communities they serve, and by their 20-year history of working in historically underserved communities of King County.*

- Staff included Socorro Medina, Multi-Cultural Business Outreach Coordinator, and John Loyd, Sustainable Business Coordinator
- Contributed from a CBO perspective at team planning meetings and helped develop culturally competent strategies and materials
- Recruited property managers to participate in pilots
- Provided critical course correction consultation as tactics were being implemented
- Delivered door-to-door-outreach and recycling reminder cards in Spanish

- Provided material translation services
- Provided community event planning and logistics support
- Administered resident pre- and post- outreach surveys

### **Stuart Vazquez, Eco-Lógica (Bilingual Environmental Outreach and Education)**

*Eco-Lógica, specializes in culturally competent, bilingual environmental education and outreach to the Latino community.*

- Staff included Stuart Vazquez, Bilingual Environmental Educator.
- Contributed from a CBO perspective at team planning meetings and helped develop culturally competent strategies and materials
- Recruited property managers to participate in pilots
- Provided critical course correction consultation as tactics were being implemented
- Delivered door-to-door-outreach and recycling reminder cards, in Spanish
- Provided community event planning and logistics support
- Administered resident pre- and post-outreach surveys

## **1.4. Structure of This Report**

This report outlines the approach and methodology of the pilot property and strategy selection process and criteria, as well as the cultural competency framework and evaluation methods used. It will report on all pilot implementation activities, including the implementation of selected strategies and development of pilot materials. Finally, it provides lessons learned from pilot implementation activities completed to date and describes next steps for completion of evaluation activities and development of the final report. Pilot material samples, photos, and property assessment forms are also attached.

# **2. APPROACH/METHODOLOGY**

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## **2.1. Selected Pilot Properties**

### **SELECTION CRITERIA**

Test and control properties were identified through a series of data collection site visits and property manager interviews conducted in February and March 2013 at multifamily properties located in UTC areas of King County serviced by Waste Management and within Census blocks that contain a majority of Hispanic-Latino residents. **Section 3.1** provides additional detail on the data collection site visits conducted.

The project team selected eight test properties and three control properties based on the following criteria:

- Waste Management provided waste and recycling collection services to the property, which was verified as located in a UTC-regulated service area.
- The property manager reported a high percentage of residents as Hispanic-Latino, confirming King County's Geographic Information Services (GIS) identification of ethnicities in these areas of the County.
- Field staff identified potential, based on the property's current recycling capacity and infrastructure, to increase the capture of recyclables and reduce contamination at the property during data collection site visits.
- Property managers were responsive and willing to participate in the pilot.

**Table 4** lists the properties selected and grouped into three pilot groups by property size, location, and demographics:

**Table 4. List of Pilot Properties**

Pilot Group	Property Name	Total Units	Neighborhood	% Hispanic-Latino*
1	Chao Apartments	6	Boulevard Park	100%
1	Vinh Apartments	7	Boulevard Park	>50%
1 (control)	Rustic Chalet	8	Boulevard Park	30%
2	Centerwood	36	White Center	50%
2	Shorewood	36	White Center	>50%
2	The Avenues	100	White Center	>50%
2 (control)	Strength of Place Village	30	White Center	Unknown
3	Glen Crest	18	Boulevard Park	60%
3	Beverly Park	18	White Center	>50%
3	Coronado Springs	332	White Center	Unknown, likely high
3 (control)	Park Terrace	52	White Center	Unknown

\*The percent Hispanic-Latino was reported by property managers during initial data collection site visits.

## 2.2. Selected Pilot Strategies

### SELECTION CRITERIA

Selection of pilot strategies drew on research conducted in 2012 and 2013 as well as feedback and ranking provided by the project team during initial planning efforts. For the purposes of this project, the strategies were categorized into two primary groups: infrastructure and engagement. (See **Table 5** and **Table 6** for details and definitions of these strategies.)

In March and June 2013 the project team created project goals, pilot ideas, and finalized the plan for pilot strategies and culturally competent methods for engaging residents and property managers. All strategies were selected based on proven success from other programs identified through prior research in achieving the pilot's goal of increasing capture of single-stream recyclables while minimizing contamination.



The project team used a community-based social marketing approach (see **Section 2.3**) to select strategies with demonstrated success which address specific barriers to recycling identified at pilot properties during the initial site visits and property manager interviews. Each strategy was customized to align with King County's focus on culturally competent engagement with the Hispanic-Latino community.

**Table 5**, below, provides an overview of how the bundled best practices and additional pilot strategies were applied to the three pilot groups.

**Table 5. Infrastructure and Engagement Strategies Selected for Each Test Property**

Pilot Properties (# of total units)		Infrastructure Strategies				Engagement Strategies		
Group	Property	"Best Practice Basics"				D2D outreach w/ tote bags + flyers	Additional Strategies	
		Container decals, signage, posters	Color-coding/ co-locating	Right-sizing collection service	"No dumping" signs*		Community Recycling Event	Recycling Reminder Cards
1.	Chao Apartments (6)	✓	✓	✓	✓	✓		
1.	Vinh Apartments (7)	✓	✓	✓	✓	✓		
2.	Centerwood (36)	✓	✓	✓	✓	✓	✓	
2.	Shorewood Apartments (36)	✓	✓	✓	✓	✓	✓	
2.	The Avenues (100)	✓	✓	✓	✓	✓	✓	
3.	Glen Crest Apartments (18)	✓	✓	✓	✓	✓		✓
3.	Beverly Park (18)	✓	✓	✓	✓	✓		✓
3.	Coronado Springs Apartments (332)	✓	✓	✓	✓	✓		✓

\*Although all properties were intended to receive the "No Dumping" signs, not all pilot properties did not install them.

- **Pilot Group 1:** Received the bundled best practice basics, including container decals and signage, color-coding and right sizing of waste and recycling containers, "No Dumping" signs, and resident door-to-door outreach with tote bags and educational materials.
- **Pilot Group 2:** Received the bundled best practice basics mentioned above, as well as a community recycling event. This additional resident engagement strategy was designed to create a positive association with recycling, build social norms around recycling, and provide an opportunity for residents to responsibly discard bulk items and items requiring special collection.

- **Pilot Group 3:** Received the bundled best practice basics mentioned above, as well as delivery of a “Recycling Reminder” card focusing on contaminants found in the recycling at the test property. This reminder card served as a way to establish a feedback loop and create a sense of accountability for behavior among residents, and was delivered to residents at the test properties in this group.
- **Control Properties:** No tactics were employed at control properties, which were selected to match the size and location of properties within each of the pilot groups.

Each of the nine specific infrastructure and engagement strategies is described in **Table 6** below.

**Table 6. Infrastructure and Engagement Strategy Descriptions**

Strategy		Description of Strategy
<b>Infrastructure</b>		
Container decals and signage, and posters	Applied to all test properties, part of “Best Practice Basics” bundle	<ul style="list-style-type: none"> <li>■ Added large multilingual identifying decals to recycling and garbage containers, in addition to current WM container decals. Only applied to rear and front-load containers, not to carts.</li> <li>■ Distributed indoor common area recycling posters.</li> </ul>
Color-code and co-locate containers in locations	Applied to all test properties, part of “Best Practice Basics” bundle	<ul style="list-style-type: none"> <li>■ To the greatest extent possible, located a recycling container next to each garbage container on site.</li> <li>■ Painted recycling containers blue (or added/replaced with blue containers).</li> </ul>
Right-size collection services	Applied to all test properties, part of “Best Practice Basics” bundle	<ul style="list-style-type: none"> <li>■ Drew on data obtained during site assessments as well as waste and UTC rate data.</li> <li>■ Developed right-sizing protocol and developed recommendations for adjusting collection service levels given material volumes, property layout, and space constraints; worked with property managers to finalize change requests based on property-specific needs.</li> <li>■ Coordinated collection service changes with other related updates, such as co-location, color coding, and applying decals/signage.</li> </ul>
“No Dumping” signs	Applied to all test properties, part of “Best Practice Basics” bundle	<ul style="list-style-type: none"> <li>■ Placed highly visible “No Dumping” signs near collection areas to deter illegal dumping.</li> <li>■ Sign reads: “Containers for Resident Use Only. This Area Under Surveillance. Violators will be Prosecuted. To Report Illegal Dumping, Call 1-866-431-7483.”</li> <li>■ Sign language in English and Spanish.</li> </ul>

Strategy		Description of Strategy
<b>Engagement</b>		
Deliver door-to-door outreach and supply residents with recycling tote bags, recycling guidelines, magnet, and move-in/out information	Applied to all test properties, part of “Best Practice Basics” bundle	<ul style="list-style-type: none"> <li>■ Bilingual outreach staff followed outreach script to distribute recycling tote bag and provide recycling information, answer questions, and inform residents of infrastructure changes.</li> <li>■ Attempted outreach up to three times at each unit to increase face-to-face interaction rate.</li> <li>■ Outreach staff asked residents to take the “Recycling Quiz” to test pre-pilot recycling knowledge.</li> <li>■ Also used to invite residents in Pilot Group 2 to the community event.</li> </ul>
Community Recycling Event	Applied to Pilot Group 2	<ul style="list-style-type: none"> <li>■ Hosted a community recycling event onsite at one of the pilot group properties, provided free food and educational games.</li> <li>■ Collected bulky items and items that require special collection from residents.</li> </ul>
Recycling Reminder Card	Applied to Pilot Group 3	<ul style="list-style-type: none"> <li>■ Distributed door hangers providing feedback to residents about contaminants found in recycling.</li> </ul>

## 2.3. Community-Based Social Marketing

Community-based social marketing (CBSM) is a form of social marketing that strives to change the behavior of communities, using social psychology strategies to discover the barriers to behavior change and ways of overcoming these barriers.<sup>8</sup>

CBSM tools and techniques include research tools such as focus groups and surveys to discover barriers, and marketing tools such as commitments, prompts, social norms and influence, feedback, and incentives to change behavior. The CBSM process involves selecting desired behaviors to be promoted, strategies that utilizes CBSM tools to address barriers and benefits, pilot designs with strategies targeting segments of the population, and evaluation tactics which assess the impacts of the program design. **Figure 1** illustrates the six steps of the community-based social marketing framework used by the project team.

<sup>8</sup> Doug McKenzie-Mohr, *Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing*, 3<sup>rd</sup> Edition, New Society Publishers, 2011.

Figure 1. Six Steps for Community Based Social Marketing



The pilot aimed to establish recycling as a social norm within the Hispanic-Latino and multifamily communities at pilot properties using specific and targeted messaging developed by the project team.

Pilot strategies were designed to make recycling more convenient and prompt recycling behavior. There was particular emphasis on making direct personal contact with property residents, which has been shown to increase the likelihood of behavior change.<sup>9</sup> Pilot evaluation activities, which are still underway, will help the project team assess which pilot strategies effectively address barriers and are more likely to lead to behavior change in the target communities.

## 2.4. Cultural Competency

The project team designed the pilot to incorporate cultural competency principles in the following ways:

- **Building positive, trusting, personal relationships.** The door-to-door outreach component of the pilot, which was included in the bundle of best practice basics, was critical for establishing personal relationships with the residents of the multifamily test properties. Outreach staff visited each unit up to three times to increase the likelihood that they would be able to meet and interact with residents in person. The project team also forged new relationships with CBO

<sup>9</sup> <http://www.cbsm.com/pages/guide/fostering-sustainable-behavior/>

partners including ECOSS and TD Wang, to build familiarity with the Hispanic-Latino community for the long term.

- **Creating warm and welcoming environment for interaction.** Because outreach staff members were bilingual and bicultural Hispanic-Latino community members, they were well positioned to engage residents in a culturally resonant way. Residents were notified about outreach in advance, to minimize concern or surprise related to outreach staff visits. Finally, outreach was also conducted at different times of the day and week in an attempt to have interactions at times that were convenient for residents.
- **Developing alternative avenues for engagement.** The community recycling event was recommended by the project team as a way to create a culturally comfortable place for residents to ask questions and learn about recycling with project team education staff. The event featured family-friendly music, games, and activities, food, and Spanish-speaking staff and volunteers. Event invitations in English and Spanish were distributed during outreach visits to residents from properties in Pilot Group 2.
- **Increasing accessibility and accommodation.** All pilot materials were trans-created to adapt key messages and information to be recognizable to the Hispanic-Latino community with familiar images and terminology.
- **Supporting diverse organizations.** The pilot planning process included local CBOs and representatives, including TD Wang, Eco-Lógica, and ECOSS. They were involved in planning, implementing, and evaluating the project design.
- **Maintaining a presence in community.** Outreach staff visited each of the test properties between six and ten times during the implementation process to assess and monitor service levels, conduct resident education, and collect pilot assessment data. During each visit, staff wore visible identification associating them with Waste Management and establishing themselves as recognizable ambassadors for recycling with the tenants.

## 2.5. Evaluation Methods

Because the pilot project design is complex and includes numerous strategies and a relatively small number of properties (sample size), the project team recognized the need to utilize a combination of quantitative and qualitative evaluation methods to evaluate project outcomes and the effects of strategies tested. **Table 7**, below, describes the evaluation methods used in the pilot project and their applications.

Table 7. Evaluation Methods and Applications

Method	Description	Application
<b>Waste audits and monitoring of service level changes</b>	<ul style="list-style-type: none"> <li>■ Measure waste and recycling quantities and composition before, during, and after implementing strategies through onsite visual waste audits.</li> <li>■ Collect data by visiting each property, assessing the dumpster or cart size and volume, and measuring the percent fullness of the dumpster or cart. Based on the dimensions of bin/dumpster sizes and in-field measurements of fullness, calculate the total volumes of waste and recyclables.</li> </ul>	Compare waste audit data from various intervals in the pilot to assess changes at each test property and differences across properties based on strategies received.
<b>Pre/Post-Outreach Resident Surveys</b>	<ul style="list-style-type: none"> <li>■ <b>Pre-Outreach:</b> At the beginning of door-to-door outreach interactions, ask residents a series of questions about recycling and garbage containers at their property, whether they recycle, and who in their family is in charge of recycling.</li> <li>■ <b>Post-Outreach:</b> Conduct one round of final door-to-door visits at the conclusion of the pilot program to gain qualitative feedback from residents about the program. Ask residents for feedback on various components of pilot program, including whether they used the tote bag and other outreach materials.</li> </ul>	Assess changes in resident recycling behavior and attitudes; gather input from residents on effectiveness of pilot strategies.
<b>Pre/Post-Outreach Recycling Quiz</b>	<ul style="list-style-type: none"> <li>■ <b>Pre-Outreach:</b> At the beginning of door-to-door outreach interactions, invite residents to complete a short exercise indicating which container to place commonly discarded items in: a green garbage container or a blue recycling container.</li> <li>■ <b>Post-Outreach:</b> During post-outreach visits, invite residents to complete the same short recycling quiz. Pre-and post-outreach quiz results were compared to assess improvements in resident knowledge of recycling.</li> </ul>	Assess improvements in resident knowledge of recycling.
<b>Property Manager Interviews</b>	<ul style="list-style-type: none"> <li>■ As part of an extended evaluation, we plan to conduct post-pilot interviews with property managers in spring 2014 at test properties to gather information about changes to recycling and garbage service and usage observed, and general feedback about pilot participation experience.</li> </ul>	Assess property manager perceptions of recycling and garbage service; gather input on pilot strategies.
<b>Time and Cost Analysis</b>	<ul style="list-style-type: none"> <li>■ Track labor time, expenses, and other costs related to designing, implementing, and evaluating pilot, including the cost and time per property and per occupied unit, as well as the number of door-to-door contacts made and amount of materials distributed.</li> </ul>	Assess the costs and cost-effectiveness of pilot strategies tested.

## 3. PILOT IMPLEMENTATION

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### 3.1. Pre-Implementation Baseline Data Collection

Beginning in late 2012, the project team worked together to select properties for the pilot through baseline data collection site visits. The project team received a list of approximately 225 multifamily properties in the King County UTC area served by Waste Management.

These properties were overlaid onto maps by King County's geographic information system (GIS) staff. The maps showed the ethnographic composition of Census tracts in King County to help identify properties in Census tracts with high concentrations of Hispanic-Latino residents.

*(See **Attachment 2** for GIS maps created.)*

Based on the GIS analysis, the project team identified and chose a subset of 26 properties in Census tracts with at least 50 percent Hispanic-Latino residents for baseline waste audits and data collection to inform pilot design.

Once properties were selected for audits, field forms were designed to collect customer data and logistical details during the site audits. Between February and March of 2013, 26 site visits were completed. The findings were put in a spreadsheet and summary presentation was created. Staff assessed recycling and garbage service, container fullness levels, took site photos, and estimated the number of units at each property.

Fifteen property managers were interviewed about recycling at their property to establish the baseline data. Interview questions were asked about resident occupancy and turnover rates, the percentage of Hispanic-Latino residents, and perceived barriers to recycling the managers experienced. *(See **Attachment 3** for field forms and property manager interview questions.)*

All property managers received a thank you letter and \$10 gift card for participating. 8 of the twenty six properties were selected and invited to participate in the pilot. *(See **Attachment 3** for a sample property manager gift card letter.)* Properties were selected as test properties based confirmation from the property manager of a large number of Hispanic-Latino residents, low recycling rates, and/or high levels of contamination in the recycling.

### 3.2. Implementation of Pilots

#### PROPERTY MANAGER RECRUITMENT AND ENGAGEMENT

Once the pilot properties were selected, property managers were mailed letters that outlined the recycling pilot project design. The letters explained the services including: upgrades to their recycling and garbage service, door-to-door outreach to residents, and assistance with deterring illegal dumping at the property.

*(See **Attachment 3** for a sample property manager pilot participation letter.)*



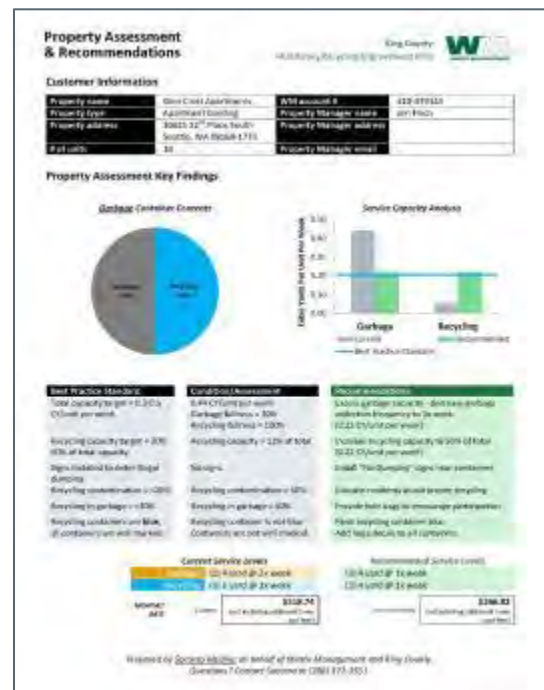
Outreach staff made follow-up calls to property managers of pilot properties reminding them of the project. Outreach staff discussed the benefits property managers would receive for participating in the project, such as improved resident recycling, lower garbage bills, and reduced problems with illegal dumping and contamination of recycling at their property.

## INFRASTRUCTURE IMPROVEMENTS AND SERVICE CHANGES

In preparation for the in-person meetings with property managers, the project team used a site assessment tool and rate calculator created for the project to develop property-specific site assessment reports and recommendations about infrastructure and service level changes.

Site assessment reports included pre pilot data such as total capacity, recycling capacity, recycling contamination levels, percentage of recyclables in garbage, and container color-coding and location. The report listed recommended changes, which were based on a set of best practices founded on prior research about multifamily infrastructure and outreach tactics and pre-pilot data collection visits. These best practices were compared against existing infrastructure and service levels at the property, and an initial recommendation was made to improve the property collection infrastructure. (See **Attachment 4** for examples of the site assessment tool and rate calculator used to develop the recommendations.)

During the on-site meeting, outreach staff discussed the site assessment and recommendations, reviewed customer garbage and recycling invoices to verify current services and charges, and made further recommendations. Based on what property managers had to say, outreach staff developed a final one-page overview of site assessment findings and gave the property managers recommendations for improved service. The one-page report outlined recommended service levels, infrastructure changes, and projected costs.



(See **Attachment 4** for an example of the final Site Assessment and Recommendation Report delivered to property managers and submitted to Waste Management for review.)

Once recommendations were finalized, property managers completed and signed a Waste Management collection service change form, and changes were made.

Once these changes were approved, outreach staff continued to check with property managers to confirm when service changes were completed.

Outreach staff updated decals to containers once container changes were made. Outreach staff worked with property managers to place “No Dumping” signs. Staff also delivered, and in some cases assisted with posting, laminated recycling posters for indoor common areas at all properties.

(See **Attachment 5** for images of decals, signs, and posters used.)



The pre and post- pilot infrastructure and service levels are shown in **Table 8**.

**Table 8. Pre- and Post-Pilot Service Levels and Infrastructure Changes**

Test Properties	Pre-Pilot Garbage Level	Post-Pilot Garbage Level	Changes to Garbage Container	Pre-Pilot Recycling Level	Post-Pilot Recycling Level	Changes to Recycling Container
<b>Vinh</b>	(1) 1yd, 1x per week	(1) 1yd, 1x per week	Garbage container cleaned; Decals added	(1) 1yd, 1x per week	(1) 1yd, 1x per week	RCY container painted blue, decals added
<b>Chao</b>	(1) 1.5yd, 1x per week	(1) 1.5yd, 1x per week	Decals added	(1) 96gal, 1x per week	(3) 96gal, 1x per week	None
<b>Centerwood</b>	(1) 4yd, 2x per week	(1) 4yd, 2x per week	Decals added	(1) 4yd, 1x per week	(1) 4yd, 2x per week	RCY container painted blue,

						decals added
<b>Shorewood</b>	(2) 4yd, 2x per week	(2) 3yd, 2x per week	Decals added	(3) 96gal, 1x per week	(1) 4yd, 2x per week	RCY container painted blue, decals added
<b>The Avenues</b>	(1) 8yd, 3x per week (1) 3yd, 3x per week	(3) 4yd, 3x per week	Decals added	(1) 4yd, 1x per week	(2) 4yd, 2x per week	RCY container painted blue, decals added
<b>Glen Crest</b>	(1) 4yd, 2x per week	(1) 4yd, 2x per week	Decals added	(1) 1yd, 1x per week	(1) 4yd, 1x per week	RCY container painted blue, decals added
<b>Beverly Park</b>	(1) 3yd, 1x per week	(1) 3yd, 1x per week	Decals added	(1) 3yd, 1x per week	(1) 3yd, 1x per week	RCY container painted blue, decals added
<b>Coronado Springs</b>	(1) 30yd compactor, 1x per week	(1) 30yd compactor, 1x per week	Decals added to small transport containers	(3) 8yd, 1x per week	(1) 8yd, 2x per week; (12) 96-gal carts, 2x per week	RCY container painted blue, decals added

## DOOR-TO-DOOR OUTREACH AND TOTE BAG DISTRIBUTION

In preparation for door-to-door (D2D) outreach, the project team developed a variety of materials to be used during door-to-door outreach, including a reusable tote bag, recycling quiz, outreach script, educational materials, and outreach tracking spreadsheet. (See **Attachment 6** for copies of outreach materials provided to residents.)

The project team also worked together to develop an outreach script and created an outreach schedule and tracking and reporting process. The team also discussed some troubleshooting scenarios to prepare outreach staff for how to handle challenging interactions.

Prior to the start of outreach, the project team provided property managers at test properties with a letter to residents explaining the recycling pilot they would take part in. The letter outlined the basic infrastructure changes and told residents about the door-to-door visits, noting that outreach staff would provide free tote bags and were authorized by the property manager to conduct outreach. (See **Attachment 6** for a sample resident notification letter.)

The outreach was conducted by outreach staff members Stuart Vazquez (Eco-Lógica) and Socorro Medina (ECOSS) on behalf of Waste Management. Outreach staff wore Waste Management polo shirts and identification badges, and carried two sets of tote bags and recycling quizzes, one in English and one in Spanish. Recycling quizzes and the resident questions that were part of the outreach script were also translated into Spanish for easier use by outreach staff. **Table 9**, below, lists the outreach schedule by property.

Table 9. Door-to-Door Outreach Schedule by Property

DATES	ACTIVITY	PROPERTIES
Aug 19-23	D2D outreach rounds 1/2	Chao, Vinh
Sep 3-6	D2D outreach round 3	Chao, Vinh
Sep 9-13	D2D outreach round 1	Centerwood, Shorewood, The Avenues
Sep 16-20	D2D outreach round 2	Centerwood, Shorewood, The Avenues
Sept 23-27	D2D outreach round 3	Centerwood, Shorewood, The Avenues
Sept 30- Oct 4	D2D outreach round 1	Coronado Springs
Oct 7-11	D2D outreach round 1, continued	Coronado Springs
Oct 14-18	D2D outreach round 1/2	Coronado Springs, Glen Crest, Beverly Park
Oct 21-25	D2D outreach round 3	Coronado Springs, Glen Crest, Beverly Park

Outreach staff conducted three rounds of outreach at each property.

The first round consisted of door-to-door visits where staff:

- Explained the pilot program
- Asked residents to take the recycling quiz
- Gave them a free tote bag and educational resources
- Asked them additional questions about their recycling habits and the ease of recycling at their property

During the second round of door-to-door outreach, staff returned to the units where they were not able to have a resident interaction the previous visit. This time, outreach staff were able to interact with residents who had been away from home or were unavailable during the first round of outreach. During the third round of outreach, staff returned to remaining units not yet reached. If residents were not home or unavailable during this third round, outreach staff left the recycling tote bag, with included



educational materials, on the front door handle of each unit.

Staff visited the test properties on a variety of days and times during the week and over the weekend. They found that, for some properties, visiting during the evening helped them find a greater number of residents at home, although residents tended to be busier and have less time for interaction. Visiting during the morning was successful at some smaller test properties, while visiting during the weekend was usually more effective

for larger properties. Using a web-based spreadsheet, staff recorded the outreach status of all units visited, including whether residents of that unit received a bag and took the recycling quiz, and the languages and ethnicities they encountered, with a special focus on Spanish speakers. Staff also recorded the results of the recycling quiz and answers to the resident questions, and noted any feedback from residents about recycling or the infrastructure at their property.

**Table 10** presents a summary of door-to-door outreach activities and resident interactions achieved at each property.

Table 10. Summary of Outreach Activities by Property

Properties	Occupied Units	Total Door Knocks	Resident Interactions (RIs)	RIs at 1st visit	RIs at 2nd visit	RIs at 3rd visit	Tote Bag Given (% of units)	Completed Quizzes (% of RIs)	Spanish Speakers (% of RIs)
Vinh	5	11	5 (71%)	3	2	0	5 (100%)	5 (100%)	4 (80%)
Chao	6	11	6 (100%)	2	1	3	6 (100%)	5 (83%)	6 (100%)
Centerwood	34	77	23 (68%)	7	12	4	34 (100%)	15 (65%)	5 (23%)
Shorewood	34	78	25 (73%)	8	11	6	34 (94%)	15 (58%)	7 (29%)
Avenues	97	199	74 (76%)	34	25	15	97 (100%)	43 (58%)	15 (20%)
Coronado Springs (Tower/Cottages)	181	357	129 (71%)	79	31	19	178 (98%)	65 (50%)	35 (27%)
	145	269	120 (83%)	65	36	19	144 (99%)	62 (52%)	37 (23%)
Glen Crest	17	30	14 (82%)	9	3	2	16 (94%)	10 (71%)	8 (57%)
Beverly Park	16	32	10 (63%)	6	4	0	16 (100%)	6 (60%)	1 (6%)
<b>Total</b>	<b>535</b>	<b>1,064</b>	<b>406 (75%)</b>	<b>213 (52%)</b>	<b>125 (31%)</b>	<b>68 (17%)</b>	<b>530 (99%)</b>	<b>226 (56%)</b>	<b>118 (29%)</b>

## COMMUNITY EVENT

### Purpose/Goals

The objective of the community event, described to residents as a "Community BBQ and Recycling Fair" was to host an inviting, fun, culturally comfortable event for residents (focusing on Hispanic-Latino residents but open to all residents) that promoted a sense of community and goodwill while providing a convenient way for residents to get recycling information. There were three goals for the event:

- Utilize the cultural knowledge of our Spanish-speaking outreach team members to engage with Spanish-speaking residents.
- Address the challenges of bulky item and special item disposal for residents at multifamily properties by providing an opportunity for donating or recycling items not accepted in the regular garbage and recycling program (e.g. bulky items, clothing, household goods, and electronic wastes).
- Create an environment where recycling is perceived by residents as a community/social norm, showing residents that their neighbors are recycling and raising awareness about recycling at the participating complexes.

### Design

The project team worked together to design and implement the community event. Major components of the planning process included:

- Identifying appropriate multifamily pilot property event location and participants
- Securing property manager permission and support
- Planning for and providing food for the event
- Arranging for electronics recycling vendors
- Arranging for a donation truck from Northwest Center, a non-profit service organization that collects clothing, shoes, and household items for reuse
- Coordination of Facilitadoras from King County's Recicla Más program to support education needs
- Developing and distributing bilingual event invitations to targeted residents
- Coordination of event materials and supplies (e.g. signage, educational materials)

### Summary of Event Day

The event was held in the White Center neighborhood for residents of three adjacent properties in the pilot—The Avenues, Centerwood, and Shorewood Apartments—on Saturday, September 28 from 11am-3pm. The Avenues agreed to host this event, which was open to residents of all three participating properties. The event invitation, printed in both English and Spanish, was distributed to residents door-to-door by the project's bilingual outreach staff. The event invitation was distributed to all units in the three participating properties, totaling 165 units: 97 occupied units at The Avenues, 34 occupied units at Centerwood, and 34 occupied units at Shorewood.



Prepared food onsite during event hours and a DJ to play music were provided during the event. PC Recycle and Northwest Center brought their donation trucks and collected materials. Northwest Center accepted gently used clothing, shoes, books, toys, small (working) appliances such as blenders, toasters, dishes, glassware, utensils, and furniture. PC Recycle accepted televisions, laptop computers, desktop computers, servers, cell phones, routers, keyboards/mice, monitors, stereo equipment, speakers, printers, microwaves, batteries, and fluorescent/CFL bulbs/lamps.

PC Recycle and Northwest Center provided these services:

- Northwest Center collected 96 pounds of clothing and 207 pounds of household goods and PC Recycler received 6 TVs averaging 50 pounds each, a total of 300 pounds.
- Northwest Center and PC Recycle staff helped residents bring their materials to the recycling trucks and searched the complex at the end of the event for additional bulky items left in common areas throughout the complex.
- Waste Management provided a recycling truck for the event that was parked near the event tent and was open to visitors. A Waste Management representative was on-site to answer questions about the recycling truck. Waste Management also provided interactive recycling games for kids, including a spinning wheel called the “wheel of waste,” recycling guidelines, hazardous waste information, and move-in/move-out flyers.
- Four Facilitadoras from King County’s Recicla Más Spanish language recycling education program came to interact with attendees throughout the day and answer recycling questions.
- Eighty seven residents attended the event, and most residents came from The Avenues complex. Staff helped attendees to bring their donations to the recycling trucks, and discussed recycling topics. Property management staff from The Avenues was also on-site, and provided support gathering bulky items and helping project staff with event set-up.

(See **Attachment 11** for photos of the event.)

## RESIDENT RECYCLING REMINDER CARDS

Each group of complexes in the pilot received door-to-door outreach. One group of pilot properties also received customized Recycling Reminder cards, distributed by outreach staff to each unit. The Glen Crest (17 occupied units), Beverly Park (16 occupied units), and Coronado Springs (326 occupied units) properties received the reminder card, which was intended to provide feedback and further educate residents about common contaminants found in the recycling.

The Recycling Reminder card was developed based on observations made during the waste audits at these three test properties. Audit staff took note of common sources of contamination and problem materials in the recycling, such as food, foam packaging, clothing, textiles, and improperly disposed bulky items, such as furniture and electronics.

Based on these observations, the project team developed a door-hanger style reminder card with photos of the most common contaminants. Residents were told what the correct options were for these items instead of putting them in the recycling container. The card was double-sided with English on one side and Spanish on the other.

The first round of the Recycling Reminder card was distributed during the week of November 4. Outreach staff went onsite to hang the reminder cards on the doors of all units at these properties. In some cases, residents came out of their units when they heard outreach staff outside their door, and talked to the staff.

Following the distribution of the first round of reminder cards, waste audits were performed at each property. This gave residents time to learn from the reminder cards and incorporate the feedback into their recycling practices. The waste audits closely measured recycling contamination levels and noted problem materials pictured on the card.



Outreach staff distributed a second round of “Recycling Reminder” cards during the week of November 18. The second round of cards reinforced the message in the first card.

Onsite waste audits were conducted again the week following the distribution of the second round of reminder cards. (See **Section 4.1** for an assessment of the effects of the cards on contamination and **Section 4.2** for results from both rounds of audits.)

### 3.3. Pilot Material Development

A variety of materials were produced for the resident education, infrastructure changes, and evaluation components of this pilot project. The project team identified the need for pilot materials such as tote bags, magnets, move in in/move out resources, “No Dumping” signs, and Resident Reminder cards. The team discussed language for these materials, and decided on messages and images that would resonate with Hispanic-Latino residents in the White Center area.

Materials created by other Waste Management outreach activities often informed the design of this pilot’s materials, including the tote bag and move in/ move out resources flyer, but all materials were customized to address the specific barriers and cultural context identified for the target audience of this pilot project.

**Table 11** outlines the full list of pilot materials, their description and purpose, and distribution method.

**Table 11. Materials Summary Table**

	DESIGNED	DESCRIPTION/PURPOSE	QUANTITY	DISTRIBUTION METHOD
<b>Resident Engagement Materials</b>				
<b>Recycling Guidelines (English/ Spanish)</b>	Externally, WM	Waste Management’s Residential Recycling Guidelines sheet, with photos of recyclable materials separated into categories. Spanish trans-created version included in Spanish tote bags. Used to educate residents during outreach.	300 Spanish, 300 English	Included in recycling tote bag as part of door-to-door outreach.
<b>Magnet</b>	Internally, TD Wang	Refrigerator magnet with the slogan “By recycling, I’m protecting the environment” in both English and Spanish, icons of recyclables, and WM contact information.	1,000 magnets purchased	2 magnets included in recycling tote given to all units as part of door-to-door outreach
<b>Tote bag</b>	Internally, TD Wang	Dark blue plastic reusable tote bag for collecting recyclables indoors and taking them to outdoor recycling containers. English and Spanish text featured slogan, icons and categories of recyclables, and an explanation of how to use the bag.	1,000 purchased (530 used)	Given to all units as part of door-to-door outreach
<b>Moving resources handout</b>	Internally, Cascadia	A handout on move-in/out information and bulky/special item disposal.	300 Spanish, 300 English	Included in recycling tote bag as part of door-to-door outreach
<b>HHW handout</b>	Externally, King County	A handout on special disposal of household hazardous waste.	100 Spanish, 100 English	Handed out by resident request/ outreach staff discretion
<b>Letter to residents</b>	Internally, Cascadia	A letter to residents outlining the pilot program and informing them of the estimated date of the door-to-door outreach visits.	535	Distributed to property managers and residents
<b>Outreach script</b>	Internally, Cascadia	A script to guide door-to-door outreach with residents.	N/A	Verbally given as part of outreach

<b>Outreach tracking form</b>	Internally, Cascadia	A tracking form recording information about units visited and notes on resident interactions and languages spoken.	~100	Used by outreach staff during door-to-door outreach
<b>WM badges</b>	Internally, Cascadia	Waste Management identification badges with WM logo and outreach staff person photo.	2	Worn by outreach staff whenever on-site at properties
<b>WM shirts</b>	Externally, WM	Green Waste Management polo shirts for the purpose of identification with pilot program, especially during door-to-door outreach.	2	Worn by outreach staff whenever on-site at properties
<b>Community event flyer invitation</b>	Internally, Cascadia	A flyer inviting residents to attend the event and outlining details such as accepted donations, family activities, and location.	180	Distributed to property managers and residents
<b>Infrastructure Materials</b>				
<b>Container decals</b>	Internally, Cascadia	Multi-lingual recycling and garbage container decals, with color-coded text and garbage and recycling icons. Vinyl material, 10"x20" in size.	5 sets of reflective decals, 10 sets non-reflective	Applied to recycling and garbage containers at properties
<b>"No Dumping" signs</b>	Internally, Cascadia	Sign reads "Containers for Resident Use Only. This Area Under Surveillance. Violators will be Prosecuted. To Report Illegal Dumping, Call 1-866-431-7483", with Spanish translation below English text. Aluminum reflective material, 18"x24" in size.	16 signs	Up to 2 per property available, plus additional for project file
<b>Recycling Guidelines posters</b>	Externally, WM	Large laminated versions of the Residential Recycling Guidelines, for residential common areas at test properties. Laminated, 11x17" in size.	16 Spanish, 16 English	Up to 2 per property in each language
<b>Letter to property managers</b>	Internally, Cascadia	Letter explaining pilot program, confirming participating, and outlining the benefits to property managers.	8	Distributed to property managers

<b>Site assessment report and infrastructure service change recommendations</b>	Internally, Cascadia	One-page report of existing service levels, suggested garbage and recycling capacities, and infrastructure and service changes recommendations.	8	Distributed to property managers
<b>Service change order forms</b>	Externally, WM	A form sent to WM to request service changes, with property manager authorization and outreach staff person signature.	8	Distributed to property managers
<b>Evaluation/Resident Engagement Materials</b>				
<b>Recycling Quiz</b>	Internally, TD Wang	Developed to assess an increase in resident knowledge about proper recycling over the pilot period. Double-sided, trans-created Spanish content.	300 Spanish, 300 English	Conducted with residents during door-to-door outreach
<b>Resident evaluation questions</b>	Internally, Cascadia	A series of questions asking residents about their familiarity with recycling, as well as recall of pilot activities at their property, changes in recycling behavior during the pilot period.	n/a	Conducted with residents during door-to-door outreach
<b>Resident recycling reminder cards</b>	Internally, Cascadia	Door-hanger style reminder card with photos of common problem materials found in the recycling. Double-sided, trans-created Spanish content.	625	Distributed two per unit to residents of third pilot group

### 3.4. Project Evaluation Activities

The project team conducted a variety of evaluation activities in this pilot project and completed evaluation in the first quarter of 2014.

#### Onsite Waste Audits

Waste audits were conducted at test and control properties throughout the pilot program, starting with baseline data collection waste audits. Once pilot properties and strategies were established, a waste audit schedule was created after infrastructure changes were completed. Evaluation activities were timed to follow resident education. See **Table 12** for detail on the waste audit schedule.

Three rounds of audits to measure the waste and recycling quantities and composition were done before, during, and after implementing education and infrastructure changes. Based on the container dimensions and in-field measurements of fullness, field staff calculated the total volumes of garbage and recyclables. Field staff also conducted observations of illegal dumping and bulky item disposal in and around containers. (See **Attachment 11** for examples of the waste audit field forms used.) The project team used waste audit data to assess the effects of pilot strategies on recycling quantities and contamination levels at properties.

The project team also used data from the waste audits to develop estimates of average waste generation and waste composition for multifamily properties on a per-unit per-week basis. The study team assessed whether the best practices were effective in increasing recycling and decreasing contamination. Waste audit findings are presented in **Section Error! Reference source not found.**

#### Pre- and Post-Outreach Resident Surveys and Quizzes

Outreach staff collected evaluation data from residents before educating residents as part of door-to-door outreach. They collected evaluation data from residents again in a final round of door-to-door visits. (See **Attachment 10** for copies of the resident surveys and quizzes used.) Data obtained from these qualitative evaluation tools provided insight into the pilot's impact on resident recycling awareness and habits.

### 3.5. Project Management

The project team established regularly scheduled weekly check-in calls between Cascadia, outreach staff, WM, and King County project team members during the project implementation period, and circulated notes from these meetings to members of the project team.

Cascadia also produced monthly invoices, summary reports, and activity reports throughout the program. The project team communicated frequently through email, over the phone, and in person, especially to coordinate the development of materials.

**Table 12. Pilot Waste Audit Schedule**

DATES	ACTIVITY	PROPERTIES
<b>Feb 26</b>	Baseline audit	Vinh (Pilot Group 1)
<b>Mar 5</b>	Baseline audits	Chao, Rustic Chalet (Pilot Group 1) The Avenues, Strength of Place (Pilot Group 2) Park Terrace (Pilot Group 3)
<b>Mar 6</b>	Baseline audits	Centerwood, Shorewood (Pilot Group 2) Beverly Park, Glen Crest (Pilot Group 3)
<b>Aug 21</b>	Baseline audit	Coronado Springs (Pilot Group 3)
<i>Aug 19-Oct 25</i>	<i>Door-to-door outreach</i>	<i>See Table 8 for detailed outreach schedule</i>
<b>Sep 23-27</b>	Round 1 audits	Vinh, Chao, Rustic Chalet (Pilot Group 1) Centerwood, Shorewood, The Avenues, Strength of Place (Pilot Group 2)
<i>Sep 28</i>	<i>Community recycling event</i>	<i>Centerwood, Shorewood, The Avenues</i>
<b>Oct 7-11</b>	Round 2 audits	Vinh, Chao, Rustic Chalet (Pilot Group 1) Centerwood, Shorewood, The Avenues, Strength of Place (Pilot Group 2)
<b>Oct 21-25</b>	Round 3 audits	Vinh, Chao, Rustic Chalet (Pilot Group 1) Centerwood, Shorewood, The Avenues, Strength of Place (Pilot Group 2)
<b>Oct 28- Nov 1</b>	Round 1 audits	Glen Crest, Beverly Park, Coronado Springs, Park Terrace (Pilot Group 3)
<i>Nov 4-8</i>	<i>Reminder cards (round 1)</i>	<i>Glen Crest, Beverly Park, Coronado Springs</i>
<b>Nov 11-15</b>	Round 2 audits	Glen Crest, Beverly Park, Coronado Springs, Park Terrace (Pilot Group 3)
<i>Nov 18-22</i>	<i>Reminder cards (round 2)</i>	<i>Glen Crest, Beverly Park, Coronado Springs</i>
<b>Nov 25-27</b>	Round 3 audits	Glen Crest, Beverly Park, Coronado Springs, Park Terrace (Pilot Group 3)



## 4. EVALUATION

The project team conducted a variety of evaluation activities in this pilot project and completed evaluation in the first quarter of 2014. Additional evaluation efforts are planned for later in 2014, and may include additional waste audits and in-depth property manager interviews.

A variety of infrastructure and engagement strategies were implemented throughout the pilot, and have been evaluated using both qualitative methods, such as feedback from residents, and quantitative terms, such as a time and cost analysis.

*Additional feedback from the full team debrief meeting will be incorporated throughout this Evaluation section, as well as in Section 5.*

The volume of recycling produced increased in all three pilot groups, contamination of recycling decreased in two of the three pilot groups, and contamination of garbage decreased in all three pilot groups.

### 4.1. Pilot Group Evaluation

An evaluation of the three different pilot groups is presented separately below, and includes the test properties included in the group, a summary of the infrastructure and engagement strategies implemented, and a time and cost analysis of implementing the strategies.

#### PILOT GROUP 1: BEST PRACTICE BASICS

The first pilot group received the “best practice basics” bundle of infrastructure strategies, including right-sizing collection service and co-locating containers, as well as door-to-door outreach with distribution of recycling tote bags and educational materials. See the table below for a list of test properties included in Pilot Group 1 and the strategies implemented at each.

**Table 13. Pilot Group 1 Properties and Strategies Implemented**

Pilot Properties (# of total units)		Infrastructure Strategies				Engagement Strategies		
Group	Property	“Best Practice Basics”				D2D outreach w/ tote bags + flyers	Additional Strategies	
		Container decals, signage, posters	Color-coding/ co-locating	Right-sizing collection service	“No dumping” signs*		Community Recycling Event	Recycling Reminder Cards
Test	Chao Apartments (6)	✓	✓	✓	✓	✓		
Test	Vinh Apartments (7)	✓	✓	✓	✓	✓		
Control	Rustic Chalet (8)	Control property received no infrastructure or engagement strategies						

Infrastructure strategies implemented at Pilot Group 1 test properties were predominantly carried out through technical assistance provided to property managers, which is evaluated in detail below.

### Property Manager Technical Assistance

Technical assistance offered to property managers as part of the pilot program included assistance implementing property-specific recommendations regarding infrastructure and service changes, monitoring service level changes, and troubleshooting issues with recycling rates, contamination, and illegal dumping. Overall, the project team found that technical assistance, and close coordination with the Waste Management operations team, was integral to a successful pilot, and was well received by property managers.

Outreach staff built relationships with property managers that allowed them to effectively coordinate service level changes, plan and implement a community event and other pilot strategies, and receive ongoing feedback about the pilot. Outreach staff helped property managers understand waste volumes at their properties, and implement best practices for establishing an effective recycling program.

Property managers, in turn, used outreach staff as their program point-of-contact, especially when it came to service level changes. They felt comfortable contacting outreach staff about service level change delays, illegal dumping issues, and requests for additional materials and pilot documentation.

Effective property manager engagement made it easier for staff to gain access to the property and to complete outreach and waste audits, and having property manager support increased outreach staff confidence while interacting with residents and maintenance staff.

The following is an analysis of the time and cost involved in implementing property manager technical assistance as part of the pilot:

- The average **cost** of implementing property manager technical assistance to eight properties and 535 occupied units was \$2,182 per property, or \$33 per unit.
- The average **time** spent on technical assistance at the eight test properties was 13 hours per property.

### Door-to-Door Outreach

Door-to-door outreach was critical to educating residents at pilot properties about the pilot program and recycling practices in general. Outreach staff conducted up to three passes of door-to-door outreach to residents to deliver the recycling tote bag and educational materials and answer residents' questions.

Door-to-door outreach also created a valuable time for residents to share their recycling attitudes, habits, and barriers, as well as provide feedback on pilot strategies to outreach staff. *See Section 4.3 for feedback gathered from residents during initial door-to-door outreach visits, as well from one round of door-to-door outreach after the pilot was completed.*

Speaking to residents in person also allowed outreach staff to conduct a recycling quiz to gauge residents' knowledge of materials that are recyclable in their community. *See Section 4.3 for recycling quiz results from initial door-to-door outreach visits, as well from one round of door-to-door outreach after the pilot was completed.*

The following is an analysis of the time and cost involved in implementing door-to-door outreach as part of the pilot:

- The average **cost** of implementing door-to-door outreach to eight properties and 535 occupied units was \$3,592 per property, or \$54 per unit.
- The average **time** spent on three rounds<sup>10</sup> of door-to-door outreach at the eight test properties was 32 hours per property, or 29 minutes per unit.

The average volume of recycling per property increased by 29 percent, and the average volume of garbage per property decreased by 14 percent as a result of the pilot.<sup>1112</sup> Prior to the implementation of any pilot strategies, recyclable and organic materials made up an average of 68 percent of disposed garbage at Pilot Group 1 properties. After outreach was completed, the average percent of recyclables in the garbage (garbage contamination) dropped by 10 percent to 58 percent. The average percent of garbage in the recycling (recycling contamination) increased from 14 percent before outreach to 27 percent after outreach.

By comparison, the control property for Pilot Group 1 had much higher recycling contamination throughout the pilot—an average 45 percent recycling contamination rate. The control property also produced 47 percent fewer cubic yards of recycling in the post-outreach timeframe. Similarly, the control property also produced more garbage- 2.7 cubic yards of garbage compared to the average 1.3 cubic yards produced by Pilot Group 1 during the post-outreach timeframe.

### PILOT GROUP 2: BEST PRACTICE BASICS + COMMUNITY EVENT

As in Pilot Group 1, the second pilot group received the “best practice basics” strategies. In addition, these properties were provided with a community event. See the table below for a list of properties included in Pilot Group 2 and the strategies implemented.

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<sup>10</sup> All units received up to three rounds of door-to-door outreach. Units that were reached on the first round were not visited again; however, outreach staff came back a second or third time to attempt to reach units that were unavailable during previous visits.

<sup>11</sup> For the purposes of this report, recycling and garbage volumes are presented on a per property basis, and are not normalized per occupied unit. An additional evaluation process will normalize the results on a per occupied unit basis.

<sup>12</sup> Container volume or fullness estimates include overflow material placed outside dumpsters, but exclude bulky items such as furniture, mattresses, etc.

## King County UTC Multifamily Recycling Pilots

**Table 14. Pilot Group 2 Properties and Strategies Implemented**

Pilot Properties (# of total units)		Infrastructure Strategies				Engagement Strategies		
		"Best Practice Basics"					Additional Strategies	
Group	Property	Container decals, signage, posters	Color-coding/ co-locating	Right-sizing collection service	"No dumping" signs*	D2D outreach w/ tote bags + flyers	Community Recycling Event	Recycling Reminder Cards
Test	Centerwood (36)	✓	✓	✓	✓	✓	✓	
Test	Shorewood Apartments (36)	✓	✓	✓	✓	✓	✓	
Test	The Avenues (100)	✓	✓	✓	✓	✓	✓	
Control	Strength of Place (30)	Control property received no infrastructure or engagement strategies						

The community event, held on September 28, 2013 for three of the eight pilot test properties, attracted 87 total attendees, excluding project team members and property management staff. Most event attendees were residents of The Avenues where the event was held. *See **Attachment 10** for a full summary of the community event.*

Residents participated in collection services offered by both PC Recycle and Northwest Center, and appreciated the e-waste collection opportunity and had materials to recycle, especially TVs. In total:

- Northwest Center collected 96 pounds of clothing and 207 pounds of household goods.
- PC Recycler received 6 TVs averaging 50 pounds each for a total of 300 pounds.

The weather on the day of the event was an important factor in the attendance and amount of materials collected at the event. The day of the event was the rainiest September day on record, and this contributed significantly to the lower attendance numbers.

The following is an analysis of the time and cost involved in implementing a community event as part of the pilot:

- The average **cost** of implementing the community event was \$3,929 per property, or \$71 per unit.
- The total **time** spent designing and implementing the community event was 86 hours.
- According to post-pilot survey results, 80 percent of applicable respondents received the community event invitation, and 53 percent of survey respondents reported attending the event. However, 71 percent of respondents did not bring any materials to discard at the event.
- There were 87 total attendees at the event, or 51 percent of all units from Pilot Group 2 test properties.

## King County UTC Multifamily Recycling Pilots

The volume of recycling produced increased by 342 percent from the start of the pilot, although the volume of garbage produced also increased by 29 percent. Prior to the implementation of any pilot strategies, recyclable and organic materials made up an average of 74 percent of disposed garbage at Pilot Group 2. After outreach was completed, the average contamination of garbage dropped by 24 percent to 50 percent. Recycling contamination of Pilot Group 2 decreased from 29 percent before outreach to 19 percent after outreach.

By comparison, the control property for Pilot Group 2 had much higher recycling contamination throughout the pilot- an average 50 percent recycling contamination rate. However, the control property had lower garbage contamination rates: 42 percent contamination of garbage pre-pilot, compared to the 50 percent garbage contamination produced by Pilot Group 2 during the post-outreach timeframe.

### PILOT GROUP 3: BEST PRACTICE BASICS + RECYCLING REMINDER CARD

The third pilot group received the best practice basics bundle offered to Pilot Groups 1 and 2. In addition, this group received a recycling reminder card, hung by outreach staff on the outside doorknob of each unit of the test pilot properties. See **Table 15** below for a list of properties included in Pilot Group 3 and the strategies implemented.

**Table 15. Pilot Group 3 Properties and Strategies Implemented**

Pilot Properties (# of total units)		Infrastructure Strategies				Engagement Strategies		
Group	Property	"Best Practice Basics"				D2D outreach w/ tote bags + flyers	Additional Strategies	
		Container decals, signage, posters	Color-coding/ co-locating	Right-sizing collection service	"No dumping" signs*		Community Recycling Event	Recycling Reminder Cards
Test	Glen Crest Apartments (18)	✓	✓	✓	✓	✓		✓
Test	Beverly Park (18)	✓	✓	✓	✓	✓		✓
Test	Coronado Springs Apartments (332)	✓	✓	✓	✓	✓		✓
Control	Park Terrace (52)	Control property received no infrastructure or engagement strategies						

At the pilot properties that received a recycling reminder card, 85 percent of respondents reported that they remembered receiving the card (see **Attachment 8**), with 75 percent reporting that they found the card's feedback helpful.

In post-pilot surveys, some residents expressed confusion regarding the reminder card, believing that the reminder card depicted items that should be placed in the recycling bin, rather than items that are not recyclable and should be donated or placed in the garbage. Future recycling reminder cards should

use clear language and messaging to help differentiate the reminder card from recycling guidelines, and make it apparent that the card depicts items that should not be placed in the recycling bin.

The following is an analysis of the time and cost involved in distributing recycling reminder cards as part of the pilot:

- The average **cost** of implementing a recycling reminder card at three properties and 359 occupied units was \$1,160 per property, or \$9.69 per unit.
- The total **time** spent implementing the recycling reminder card, including distribution, was 36 hours, or 12 hours per property and 5.9 minutes per unit.

The volume of recycling produced increased by 85 percent, and the volume of garbage produced increased by 21 percent. Prior to the implementation of any pilot strategies, recyclable and organic materials made up an average of 72 percent of disposed garbage at Pilot Group 3. After outreach was completed, the average contamination of garbage dropped by 23 percent to 49 percent. Recycling contamination decreased by 20 percent from 41 percent to 20 percent.

By comparison, the control property for Pilot Group 3 had much higher recycling contamination throughout the pilot- an average 47 percent recycling contamination rate compared to the 20 percent recycling contamination rate of Pilot Group 3. Similarly, the control property had higher garbage contamination rates: 55 percent contamination of garbage, compared to the 49 percent garbage contamination produced by Pilot Group 3 during the post-outreach timeframe.

### 4.2. Comparison of Pilot Strategies

In order to measure and evaluate the outcomes of the strategies implemented, it is necessary to compare the waste audit results of each pilot group's test properties to other pilot groups, and to the results of the corresponding control properties.

The main objective of this pilot program was to increase recycling volumes and decrease contamination in the recycling stream. **Table 16** below shows that the volume of recycling generated increased in all three pilot groups, contamination of recycling decreased in two of the three pilot groups, and contamination of garbage decreased in all three pilot groups.

## King County UTC Multifamily Recycling Pilots

Table 16. Contamination and Volume Before and After Pilot Implementation

Pilot Group	Volume of Recycling		% Change in Volume of Recycling	% Contamination of Recycling		% Change in Recycling Contamination	% Contamination of Garbage		% Change in Garbage Contamination	Volume of Garbage		% Change in Volume of Garbage
	Pre	Post		Pre	Post		Pre	Post		Pre	Post	
Pilot Group 1	0.6	0.8	<b>13%</b>	14%	27%	<b>13%</b>	68%	58%	<b>-10%</b>	1.5	1.3	-14%
Control 1	0.7	0.4	-47%	10%	45%	35%	60%	55%	-5%	3.5	2.7	-22%
Pilot Group 2	2.6	11.6	<b>342%</b>	50%	19%	<b>-31%</b>	74%	50%	<b>-24%</b>	10.0	12.9	29%
Control 2	0.2	2.4	929%	0%	50%	50%	65%	42%	-23%	5.6	7.3	31%
Pilot Group 3	9.4	17.3	<b>85%</b>	41%	20%	<b>-19%</b>	72%	49%	<b>-23%</b>	31.6	38.4	21%
Control 3	4.2	3.6	-15%	20%	47%	27%	75%	55%	-20%	24.0	20.1	-16%



The waste audits showed that all pilot strategies had an effect on reducing contamination rates, and were better than no infrastructure or engagement strategies at all. Compared to control properties, which had an average recycling contamination of 48 percent, test pilot groups had a 20 percent lower recycling contamination rate post-pilot. Furthermore, the test pilot groups had an average 23 percent decrease in garbage contamination as a result of the pilots.

As previously mentioned, implementing the best practice basics alone, versus implementing no infrastructure or engagement strategies, was found to decrease recycling contamination rates. The control property, receiving no technical assistance or resident outreach, had an average 45 percent recycling contamination rate compared to the 27 percent recycling contamination for Pilot Group 1.

Waste audit data showed that including the community event as an additional engagement strategy further increased the amount of recyclables collected from properties and reduced recycling and garbage contamination, compared to a pilot that included only the best practice basics. Compared to Pilot Group 1, which received only the best practice basics, Pilot Group 2 had a lower recycling contamination rate (19 percent for Pilot Group 2 compared to 27 percent for Pilot Group 1). Pilot Group 2 also had a lower garbage contamination rate (50 percent) than the garbage contamination rate for Pilot Group 1 (58 percent).

Additional resident education around recycling contamination included as part of Pilot Group 3 helped decrease recycling and garbage contamination rates. Compared to Pilot Group 1, which received only the best practice basics, Pilot Group 3, which received the distribution of a recycling reminder card, had lower recycling contamination rates (20 percent for Pilot Group 3 compared to 27 percent for Pilot Group 1). Pilot Group 3 also had lower garbage contamination rates (49 percent for Pilot Group 3 compared to 58 percent for Pilot Group 1).

### 4.3. Resident Recycling Knowledge and Feedback

Residents' knowledge of recycling practices and infrastructure was assessed during pre- and post-pilot door-to-door outreach. Outreach staff conducted resident surveys and administered recycling quizzes to residents, gathering anecdotal feedback as well as quiz results, during pre- and post-pilot door-to-door outreach.

#### RESIDENT SURVEY RESULTS

Residents' answers to the pre- and post-pilot survey, administered during door-to-door outreach, were compared for trends and further information about attitudes towards recycling.

Nearly one-half (45 percent) of all pilot property occupied units responded to some or all of the resident survey questions asked during pre-pilot outreach. *See Attachment 11 for copies of the pre-pilot and post-pilot resident surveys.* In the **pre-pilot resident survey**:

- Three-quarters of all respondents indicated that their household uses the recycling available at the property.

In the post-pilot survey of residents, nearly all respondents (99%) indicated that their household participates in recycling at their property.

- Nearly half (44 percent) of all respondents noticed the changes to their property's outside recycling containers.
- Almost all (90 percent) respondents indicated that adults do the majority of recycling, and a comparable number (93 percent) indicated that adults take the recycling and garbage from inside of the home to the outdoor centralized containers.<sup>13</sup>
- Residents were asked about any community-based organizations that they are active participants in. The most common responses were church, especially Holy Family Church (5 respondents) and Freedom Church (1 respondent), the library, food banks, and Molina Health Care.
- Over half of all respondents (55 percent) mentioned that they have noticed illegal dumping at their property, and almost all (90 percent) said they would be willing to report it.

A majority of respondents (81%) **noticed changes to their outside recycling containers**, and 90% of respondents said it was now **easier to recycle** as a result of these changes.

Almost three-quarters of respondents said they are **now recycling more** as a result of the pilot.

A total of 27 percent of occupied units responded to some or all of the survey questions asked during post-pilot outreach. *See Attachment 11 for copies of the pre-pilot and post-pilot resident surveys.* In the **post-pilot survey** of residents:

- Nearly all respondents (99 percent) indicated that their household uses the recycling at their property.
- A total of 70 percent of respondents noticed the illegal dumping signs when asked post-pilot, and respondents were almost evenly split between being willing to report dumping (49 percent) and not being willing (51 percent).
- Almost all respondents (91 percent) said that they received a recycling tote bag, with over three quarters (79 percent) of all respondents indicating that they use the bag and 88 percent of all respondents saying that the bag makes it easier for them to recycle.
- A total of 86 percent of respondents looked at the materials contained inside of the tote bag. Of the materials in the bag, the recycling guidelines were useful to 93 percent of respondents. The magnet and move-in/out flyer were also useful to 88 percent and 71 percent of respondents, respectively.
- Changes to recycling containers (37 percent of respondents) were said to be the most useful pilot strategy, followed by the distribution of tote bags (30 percent of respondents).

<sup>13</sup> Over half (53 percent) of all respondents indicated that they did not have any kids, and 83 percent of respondents indicated that they didn't think kids had problems taking down recycling or garbage.

### PRE-/POST-PILOT RESIDENT QUIZ RESULTS

A recycling quiz was administered to residents during the initial pilot door-to-door outreach, as well as during one round of outreach visits after the pilot was completed. The objective of this recycling quiz was to test residents' recycling knowledge before and after the pilot. The quiz featured photos of commonly found household items, and asked residents whether these items belonged in the garbage or in the recycling. See **Attachment 11** for copies of the pre and post-pilot resident quizzes.

During the pre-pilot door-to-door outreach, outreach staff interacted with 406 residents, which was about 76 percent of all occupied units. During this outreach, 55 percent of residents completed the recycling quiz. In contrast, 100 respondents, or 19 percent of occupied units, participated in the post-pilot resident quiz.

Resident recycling knowledge demonstrated through the recycling quiz did not change significantly pre- and post-pilot. Selected results are summarized below.

- The average pre-outreach recycling quiz score across all eight properties was 73 percent correct on the quiz, which had 12 questions.
- After the pilot, residents had a 74 percent average score on the recycling quiz, a small increase from the pre-pilot average quiz score.
- Shorewood Apartments had the highest average score on both the pre-pilot quizzes (80 percent correct) and post-pilot quizzes (83 percent correct).
- A total of 80 units were noted to have taken both the pre-pilot and post-pilot quizzes, and among these residents, quiz scores decreased by an average of 0.1 points, out of 12 possible points.













The items most frequently correctly identified as recyclable were **cardboard** (95%), **aluminum cans** (91%), and **envelopes and newspapers** (90%).

**Bottle and container caps** were found to be the most confusing item, and were correctly identified as belonging in the garbage only 25% of the time.

Other confusing items included **light bulbs**, **takeout containers**, and **Styrofoam**.

WM  
waste management

Indicate where each product goes in your home:  
Garbage ☐ Recycling ☐

 Incandescent light bulb <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	 Aluminum food and soda cans <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	 Plastic containers <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
 Diapers <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	 Caps <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	 Take-out containers <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
 Envelopes and newspapers <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	 Yogurt or butter containers <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	 Styrofoam <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
 Milk or juice carton <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	 Cardboard <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	 Glass bottles and jars <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Post-pilot, the most clear and most confusing items remained the same, although these items were more frequently correctly identified as either garbage or recycling. Please see the text box above for details on these items.

## 4.4. Consulting Team Feedback

This section will be updated after the full team debrief meeting has been conducted.

## 5. LESSONS LEARNED AND RECOMMENDATIONS

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The project team has a number of lessons learned and recommendations related to project design and implementation.

### 5.1. General Lessons Learned from the Pilot

- **Additional time is needed for project design, and more specifically the development of materials adhering to cultural competency principles.** Materials developed based on cultural competency principles, reviewed by a full project team, or trans-created required more time for material development and review. In order to prepare materials in time for door-to-door outreach and other implementation and evaluation activities, sufficient time must be allowed for material development, review, printing, and shipping.
- **Bilingual outreach staff enhanced resident interactions and pilot design.** The project's bilingual outreach staff was able to communicate with the Hispanic-Latino residents, understand their needs and unique challenges, and explain recycling information in a more culturally relevant way. Based on feedback from outreach staff, the project team was able to make small adjustments to the pilot approach to better serve the needs of residents.
- **Informal recycling and disposal arrangements may affect the flow of materials at multifamily properties in this area.** Over the course of the pilot, the project team learned that there is a fair amount of informal recycling and bulky item collection at some of the pilot properties. For example, a number of residents reported observing private (non-WM) trucks picking up furniture and other bulky items left next to outdoor containers, as well as going through recycling containers and removing items that may be valuable, such as cardboard and aluminum. It is unclear how much this activity affects the material flow measured as part of this project, but it is a factor that will be considered in the evaluation of pilot effects.
- **Start with the “best practice basics.”** Working with property managers to ensure that the “best practice basics” are in place is crucial to increasing recycling and reducing contamination at multifamily properties. Properties need to be equipped with the infrastructure basics in order to be able establish an effective recycling system that residents can easily participate in. These basics include container decals, signage, and posters, color-coded and co-located dumpsters or carts, no-dumping signs, and collection service with sufficient recycling capacity. It is necessary to have these infrastructure components in place before resident education takes place, so that properties have sufficient capacity to handle increased recycling from residents. Resident education and engagement, in the form of educational flyers and materials, as well as a recycling tote bag to help store recyclables and take them to outdoor containers, further increases the chance of successful recycling at multifamily properties.
- **Knowledge is not the answer – or at least not sufficient enough to change recycling behavior.** The large majority of residents appeared to have adequate recycling knowledge before the pilot. They scored an average of 73 percent correct on the recycling quiz, based on the pre-pilot recycling quiz data. The average recycling quiz score post-pilot was 74 percent. CBSM experts cite that knowledge is not enough in and of itself to change behavior. But coupled with

strategies that help participants overcome key barriers to adopting the desired behavior, in this case recycling more of the correct materials.

### 5.2. Recommendations for Future Technical Assistance

#### LESSONS LEARNED

- **Establishing trust and maintaining communication with property managers requires ongoing investment, but is critical for success.** Sending an official letter from Waste Management to the property managers (PMs) about the project helped to gain their trust and engagement at the start of the project. It was also important to maintain ongoing communication to ensure property managers were clear about what infrastructure changes were recommended and what the impacts would be on the property's service levels and costs. Even after service and infrastructure changes were made, it was necessary to continue to check on properties' capacity and property managers' needs over time. Determining the best ways to communicate with each individual property manager helped to ensure efficient communication throughout the project. Staff invested a lot of time making contact with property managers through phone calls and in-person visits. Good property manager engagement made it easier for staff to gain access and to complete outreach and waste audits.
- **Involvement of Waste Management Operations staff is needed to ensure recommended infrastructure and service changes are feasible.** The project team quickly learned the importance of determining the feasibility of proposed infrastructure and service changes with Waste Management Operations staff when finalizing service level recommendations for pilot properties. Although recommended changes were submitted to WM to review as part of this pilot, the project team found that more direct and onsite involvement by WM route managers ensured that recommendations were appropriate and feasible. Each test property had unique container, service frequency, and container location needs, and development of recommendations depended on involvement from Waste Management Operations and property managers. Successful infrastructure and service changes required close coordination between project staff and the Waste Management Operations team.

#### RECOMMENDATIONS FOR FUTURE TECHNICAL ASSISTANCE

- **Include WM operations staff representative in the initial planning of technical assistance efforts.** WM operations participation in the early part of pilot planning will help to ensure feasibility of technical assistance approach, and allow for a protocol for reviewing recommended changes prior to implementation.

### 5.3. Recommendations for Effective Door-to-Door Resident Outreach

#### LESSONS LEARNED

- **Printing and shipping of tote bags required substantial lead time.** The project team was unprepared for the time required for printing and shipping of tote bags, which led to a delay in the start of the door-to-door outreach pilot. Future multifamily recycling promotion activities that involve the distribution of tote bags should be prepared to build in 12 weeks between when the tote bag order is placed and when bags are available for use.
- **Time of outreach had lower than expected effects on resident interaction rates, but did affect length of interactions.** The outreach staff attempted outreach at a variety of times, including evenings, mornings, and weekends, and discovered that ideal times for finding people at home varied significantly across properties, with some properties having many residents at home in the mornings, while others had more residents at home in the late afternoon. Overall, the time of outreach did not change resident interaction rates. Outreach staff found that when visits happened between 4-6 pm, residents who were home had less time for interactions than residents reached at other times of day, as most were busy with dinner or children. It is important to consider that the amount of time interacting with residents is influenced by the time of the day the visit happened.

#### RECOMMENDATIONS FOR FUTURE DOOR-TO-DOOR OUTREACH:

- **Open with a question.** Outreach staff found that opening each resident interaction with a question allowed them to gauge the level of knowledge of their audience and tailor their approach.
- **Approach with confidence.** While it is necessary for outreach staff to read the audience and determine how much time the resident has to talk, it is also important to feel confident that outreach is an important service for the residents. Door-to-door outreach is a substantial investment, and once the staff are there, they should make every effort possible to talk to the residents.
- **Utilize two or more translators in the development of bilingual material.** When dealing with trans-created materials, have at least two translators review the material. This is helpful not only for catching errors but also to figure out subtle cultural and language nuances.
- **Incorporate clearly identifiable visible markers for similar materials in different languages.** When delivering two different versions of the same material, have a quick and easy visual way to recognize each set.

## 5.4. Pilot Strategy Recommendations

### PILOT GROUP 2: BEST PRACTICE BASICS + COMMUNITY EVENT

- **Property manager engagement** – Stuart established a close, trusting relationship with The Avenues’ property manager and maintenance staff. This was key to their willingness to coordinate with us on all aspects of the event and provide day-of assistance.
- **Facilitadoras** – All of the Facilitadoras mentioned that it would have been helpful if the event was later in the day. The residents expressed that many in the apartment complex work Saturday until later in the day so they couldn't attend. One Facilitadora noted that the residents that attended the event seemed to be knowledgeable and prepared about recycling compared to other communities and people she has encountered. All of them mentioned that it is important to provide activities that are fun and culturally relevant.
- **Kid-friendly** – The more kid-friendly these events are, the more people they will attract. Many of the attendees brought their kids with them and appreciated the fact that it was a family-friendly event. Continuing to host these events in buildings with a high percentage of families is a good idea.
- **Pre-existing recycling awareness** – Most of the event-goers had received their recycling tote bag and were aware that the building was focusing on increasing recycling.
- **Food** – Food was likely the main attracter to the event and encouraged attendees to linger and interact with our staff rather than just drop off their materials and leave.

### PILOT GROUP 3: BESTPRACTICE BASICS + RECYCLING REMINDER CARD

As previously mentioned, a recycling reminder card should clearly indicate that materials on the card are not recyclable.

- **Future recycling reminder cards should use clear language** and messaging to help differentiate the reminder card from recycling guidelines, and make it apparent that the card depicts items that should not be placed in the recycling.

## 5.5. Recommendations for Evaluation

- **Ensure adequate timeframe for measurement of infrastructure and engagement strategies.** Changing habitual behavior and evaluating the longevity of behavior change impacts takes time. Conducting regular evaluation for at least one-year post pilot may allow for a more accurate depiction of long-term strategy impacts.
- **Increase the number of evaluation sampling events** to gain representative data on behavior change and waste disposal patterns. A single dumpster can be significantly impacted by one or two residents or a recent move-in/move-out. Allowing for increased samplings would create more data points, increasing the overall accuracy of estimated strategy impacts.



- **Ensure consistency in data collection.** Cascadia has developed standardized protocols regarding visual characterization techniques, fullness estimates, and sample measurements. Adherence to these techniques ensures the highest level of accuracy between different sampling events and allows for flexibility in terms of personnel.
- **Communicate with property managers and residents.** Many residents were initially uncomfortable with the waste audits, but became interested once the project had been explained to them. Establishing a dialogue with property managers can help with the logistics of the audits as well.
- **Minimize variability.** Weekly and daily disposal patterns of residents can impact the fullness and waste composition of containers. In order to minimize the effect of these patterns and maximize consistency in sample results, it is important to perform audits on the same day of the week and same time of day. For example, if the first audit took place on a Wednesday at 9:00AM, each subsequent audit at that property should occur on a Wednesday at 9:00AM.
- **Acknowledge seasonality and holidays.** Holiday-specific materials (e.g., pumpkins and wrapping paper) can impact composition results. During the summer, yard waste and other organics are typically more prevalent than in other seasons. These phenomena are all part of the natural disposal cycle, but it is important to acknowledge their impact. When possible, waste audit schedules should avoid overlapping with known seasons or holidays that affect disposal.
- **Explore opportunities for more cost effective data collection.** On-site waste audits are critical for the collection of waste composition data. However, useful data such as container weight can also be attained more cost-effectively through the use of truck scales.

## ATTACHMENTS

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1. *Multifamily Recycling: Case Studies on Innovative Practices from Around the World*
2. GIS Maps of Multifamily Properties in King County UTC Areas
3. Property Manager Recruitment and Engagement Materials
4. Site Assessment Tools and Materials
5. Container Decals and “No Dumping” Sign
6. Door-to-Door Outreach Materials Given to Residents
7. Door-to-Door Outreach Data Collection Tools Used by Outreach Staff
8. Community Event Invitation
9. Resident “Recycling Reminder” Card
10. Recycling Quiz and Resident Surveys
11. Waste Audit Field Forms
12. Pilot Activity Photos
13. Average Waste Generation at Pilot Properties
14. Waste Audit Results

**1. MULTIFAMILY RECYCLING: CASE STUDIES ON INNOVATIVE PRACTICES  
FROM AROUND THE WORLD**

## A. Recycling in Flats Everyday: Connecting Directly with Residents through Door-to-Door Outreach

*In an effort to increase resident use of centralized recycling collection systems, called mini recycling centers (MRCs), were installed at 115 multifamily complexes in the City of Bristol. Resource Futures conducted a door-to-door outreach campaign to approximately 6,000 residents between 2005 and 2007. Outreach staff distributed a reusable tote bag to each household and talked directly with residents, providing specific information about each complex's MRC and answering questions.*

### PROGRAM BACKGROUND

Bristol, the 8th most populous city in the UK, is a college town in South West England with a large student population. Approximately 17 percent of households residing in multi-unit buildings (known as “flats” in the UK). Bristol flat are frequently grouped together into blocks of flats, ranging from 12 to 150 units per block.

Waste and recycling collection for all households—including flats—is a municipal service of the Bristol City Council (BCC). The BCC contracts collection service to a private hauler. Since the late 1990s, recycling collection for flats has been provided on a by-request basis in the form of “mini recycling centers” (MRCs)—a cluster of separate, lockable wheeled bins of various sizes for paper, cans, and glass, and (since 2009) food and cardboard—designed to serve a specific block of flats.

By 2003, the BCC had installed 115 MRCs serving approximately 6,000 of the city's 32,000 flats. Little effort, however, had been made to promote the MRCs

to residents or to provide education about proper recycling. As a result, recycling participation and diversion was very poor, with some MRCs going totally unused.

The BCC set a goal of increasing recycling at MRCs to an equivalent of 75 kg (165 lbs) per household per year, and hired a consulting firm, Resource Futures, to develop and implement “Recycling in Flats Everyday (RIFE),” a program to achieve that goal.

Between 2004 and 2007, RIFE primarily focused on increasing participation and raising recycling tonnage outputs at 42 MRCs of the lowest performing blocks, with a secondary focus on the 73 MRCs of higher performing blocks. During this time, Resource Futures staff conducted door-to-door canvassing of thousands of residents, distributing reusable tote bags, informing residents about the MRCs, and providing education about proper recycling.

### PROGRAM RESULTS—AT A GLANCE

- ✓ Door-to-door canvassing succeeded in reaching 66 percent of residents.
- ✓ Overall recycling tonnage collected from MRCs increased by 77 percent between 2004 and 2007.
- ✓ The average weight of recyclables collected rose from 44 kg (97 lbs) in 2005 to 75 kg (165 lbs) per household in 2007.



### Program Type:

- ✓ Outreach and education
- ✓ Collection and processing
- ✓ Community engagement
- ✓ Incentives and pricing
- ✓ Communications and promotion

### Case Study Sources:

Interview with Peter Hall  
Program Manager  
Resource Futures  
[Peter.Hall@resourcefutures.co.uk](mailto:Peter.Hall@resourcefutures.co.uk)

*Recycling in Flats Everyday 2007  
and 2011 program reports*



### BRISTOL, UK

#### A DEMOGRAPHIC SNAPSHOT

##### Multifamily population:

32,000 households (17% of the city's population) reside in multi-unit buildings (called “flats”).

##### Population density:

9,420/mi<sup>2</sup> (3,639/km<sup>2</sup>)

##### Ethnic demographics:

82% white; large number of college students (7% of population).

## Program Details

### UNDERSTANDING HOW TO ENCOURAGE RECYCLING

Initially, RIFE was designed as a conventional communications and awareness campaign focused on clarifying which materials could be recycled and encouraging residents to use the MRCs. This included hanging posters and signs throughout the block buildings and distributing block-specific leaflets. At blocks with resident associations or tenant groups, Resource Futures staff also attended association meetings and social events to promote MRCs and raise awareness about recycling among residents. Resource Futures also staffed tables and information displays in building lobbies with the intent of engaging residents as they entered.

However, observations and feedback from residents during the early stages of the program suggested that this approach was not an effective way to reach residents. Many residents were reluctant to approach Resource Futures staff at tables and information displays, and posters and leaflets often went unread. And residents of flats were also often isolated from their immediate neighbors and from wider community activities in their immediate neighborhoods, making recycling a relatively anonymous and invisible activity. Blocks without on-site property managers or residents' associations were the most difficult to engage, as they lacked the community networks that could promote a culture of recycling. Communications and awareness also did not address the barriers to recycling. Key barriers to recycling were identified as:

1. Lack of awareness of the MRCs, and confusion over which materials could be recycled.
2. Limited space to sort and store recyclables inside the flat.
3. The distance to MRCs compared to the distance to residual waste bins.
4. Little motivation or incentive to recycle.



### REACHING RESIDENTS DOOR-TO-DOOR



Resource Futures decided to reach out to residents directly with information and education through door-to-door canvassing, including the distribution of reusable polypropylene tote bags. They also hoped that, by using the tote bags to bring recyclables to the MRCs, residents would make recycling a more visible and normative community behavior.

Prior to the canvassing launch, Resource Futures staff held information sessions for property managers on the bag's use, the canvassing plan, and the MRCs. All property managers of target blocks were invited to the sessions.

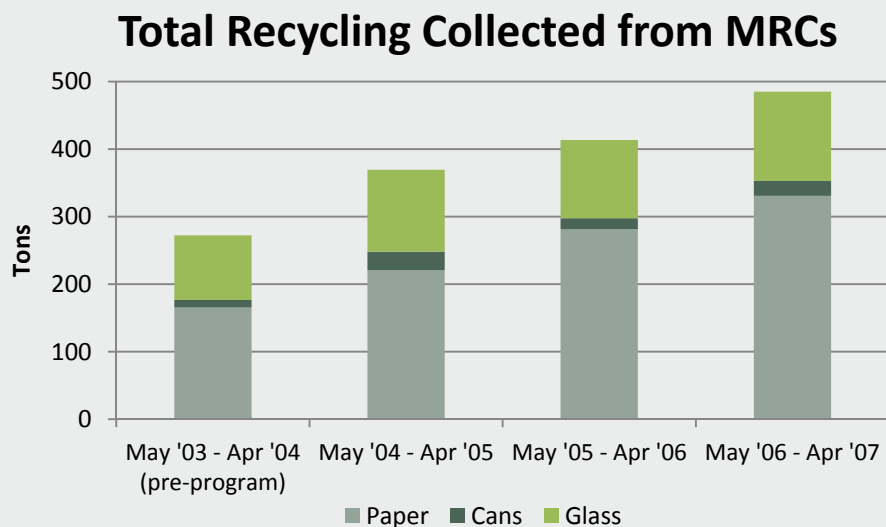
Before canvassing a given block of flats, Resource Futures staff contacted each property manager again to obtain permission to conduct canvassing at their property and to arrange an initial site assessment. The assessment visit provided information about optimum times to find residents at home, site hazards, and other issues that would impact outreach or recycling activities. Resource Futures staff also took photos of the site's MRC and used them to produce a site-specific leaflet to distribute to residents as part of canvassing. Staff then worked with property managers to schedule the canvassing period and to hang posters announcing the arrival of canvassing to the residents in advance.

Resource Futures staff made two separate visits—at different times, on different days—to reach the maximum number of flats residents at home. When speaking to residents, staff first asked residents if they knew about the block's MRC and acceptable materials; staff then presented residents with their reusable tote bag and site-specific leaflet, and answered questions residents. The process was repeated on the second visit to any households not at home on the first call. If both calls failed to find anyone at home, staff left the bag and leaflets through their mail slot.

## Outcomes

### PROGRAM RESULTS

Through the door-to-door canvassing process, Resource Futures delivered 7,000 totes directly to residents. Staff succeeded in reaching at least one resident in 66 percent of all flats canvassed, and over 75 percent in some blocks. Average time spent with residents at each flat ranged from three minutes for high-rise blocks to four and a half minutes for townhomes and low-rise buildings .



Overall the project succeeded in increasing the amount of materials collected from its sites. As the graph shows, output from the MRCs increased from a baseline of 272 tons to 485 tons, a **77 percent increase** on the baseline year. The average weight of materials collected from flats rose 70 percent, from 44 kg (97 lbs) per household per year in the baseline year to 75 kg (165 lbs) in year 3 of the program. And, among the 42 lowest performing blocks identified at the start of the program, average output rose 78 percent, from a baseline of 32 kg (70 lbs) to 57 kg (125 lbs) per household by year 3, although a significant number of sites achieved over 150 kg (330 lbs) per household in recycling.

### COSTS AND FUNDING

The RIFE program was funded for three years by the Bristol City Council through landfill tax funds and a matching grant from the National Lottery's Community Recycling & Economic Development (CRED) Program, which funds waste-related work of community organizations around the UK.

The program budget was largely used for outreach staff, with some funds used to purchase promotional materials, including the reusable tote bags, which cost approximately £1.00 (\$1.61) each.



Expenditure Type	Cost*
<b>Labor</b>	<b>£150,000</b>
RIFE Outreach Staff (1.8 FTE – for three years)	(\$242,100)
Overhead and indirect labor-related costs	
Outreach related transportation costs	
<b>Promotional Materials</b>	<b>£16,635</b>
Reusable tote bags (£1 each)	(\$26,849)
Leaflets, posters, information displays, etc.	
<b>TOTAL PROGRAM COSTS (for three years)</b>	<b>£166,635</b>
	(\$268,949)

\*£1 = \$1.614, as of October 1, 2012



## Lessons Learned

The RIFE program demonstrated the value of talking directly to residents about recycling. Through door-to-door canvassing, Resource Futures staff spoke with numerous residents who were totally unaware of the MRCs at their blocks. External signage, directional arrows, and posters on internal notice boards also appeared to increase residents' awareness and use of the MRC, but outputs increased significantly more as a result of canvassing. Distribution of the bags facilitated outreach and education, as Resource Futures staff found it extremely beneficial to be able to 'give something' to residents as a tool for engagement.

**Some property managers took creative approaches to inspire continued participation among residents – reporting recycling tonnage data in their quarterly resident newsletters to keep residents in the loop about the block's recycling performance.**

Making contact with property managers was a critical first step, and identifying and reaching the landlords of the privately-owned blocks was a challenging and time consuming aspect of the project.

Maintaining the involvement and support of property managers was also important for ensuring ongoing program success, and they could provide ongoing communication to residents about the program.

Some property managers took creative approaches to inspire continued participation among residents – reporting recycling tonnage data in their quarterly resident newsletters to keep residents in the loop about the block's recycling performance.

Because Resource Futures did not have a capital budget, one of the key challenges it faced over the course of the program was ensuring that the MRCs were kept in good condition and were serviced regularly (which was the responsibility of the BCC, through its contracted hauler). In some cases, damaged bins, missed collections, and other aesthetic and hygiene issues dampened the enthusiasm of the property managers and residents and led to problems with contamination..

## Next Steps

Following the success of the initial phase of the RIFE program, the BCC decided to focus the second phase of the program on expanding the number of MRCs. By November 2009, there were 425 residential MRCs serving more than 25,000 households, or nearly 80 percent of all flats. Beginning in 2010, the third phase of the program introduced cardboard and food scraps collection—along with collection of dry recyclables—at suitable existing and new MRC sites. Resource Futures staff canvassed and distributed free “kitchen caddies” (for collecting food scraps) and a roll of compostable liners to more than 12,000 flats at all 429 blocks that started organics collection. The program is experimenting with offering free compostable liners at the City's public libraries. Collection of plastics and cartons is also being added. The BCC hopes to continue expanding the program until all flats have access to a full-service MRC.





## B. 3Rs Ambassadors:

### Training Residents to Engage Their Neighbors Around Recycling

*In an ethnically diverse city where nearly half of all residents live in apartments and condos, Toronto's Solid Waste Management Services is engaging residents to be champions of recycling and waste reduction. Through the program, trained "3Rs Ambassadors" design and implement custom-tailored initiatives, helping their buildings recycle more and reduce waste. Toronto is also employing creative communications and promotion techniques such as social marketing campaigns, and distribution of customized annual calendars to promote recycling and waste reduction among multifamily building residents.*

#### PROGRAM BACKGROUND

Toronto has long been recognized as a leader in residential recycling. Toronto's "Blue Box" curbside recycling program is one of the oldest and most successful in North America, and the City, along with the rest of the Canadian province of Ontario, benefits from that nation's first extended producer responsibility (EPR) program for packaging, such as glass, plastic and metal containers, drink cartons, and product boxes. Under the EPR program, which has been in place since 2004, producers share the financial responsibility for recycling, covering 50 percent of the costs of collecting and managing packaging through the Blue Box program.

Still, multifamily recycling in Toronto has been a challenge for many years. With a population of 2.6 million, Toronto is Canada's largest city and nearly half of all residents live in apartments or condos. The city's diversity makes communicating to residents a challenge: more than 1 million people in Toronto are immigrants and 20 percent of the population does not speak English.

In 2007, Toronto adopted a goal of 70 percent waste diversion by 2010. At the time, the single-family diversion rate had reached 59 percent and was increasing every year, but multifamily diversion had stagnated at 13 percent, bringing overall diversion down to 42 percent.

So in 2008, the City, which provides waste and recycling services to the majority of residential buildings, implemented volume-based pricing for waste collection while keeping recycling free and mandatory. It also began offering multifamily property managers free reusable tote bags and mini bins to distribute to residents along with updated educational materials in 23 languages.

By 2009 multifamily diversion had increased to 16 percent. But the City wanted to do more to directly engage apartment and condo residents. So it launched the 3Rs Ambassadors program to deploy apartment and condo residents as "champions" of recycling and waste reduction in their own buildings.

#### PROGRAM RESULTS—AT A GLANCE

- ✓ 180 trained 3R Ambassadors are actively promoting recycling and waste reduction in 5 percent of all apartment and condo buildings in Toronto.
- ✓ Buildings with 3R Ambassadors have saved 15 percent, on average, on their garbage bills.
- ✓ Multi-family diversion increased from 16 percent in 2009 to 20 percent in 2011.



#### Program Type:

- ✓ Outreach and education
- ✓ Collection and processing
- ✓ Community engagement
- ✓ Incentives and pricing
- ✓ Communications and promotion

#### Case Study Sources:

Interview with Charlotte Ueta  
3Rs Ambassadors Program Manager  
Toronto Solid Waste Management Services  
[cueta@toronto.ca](mailto:cueta@toronto.ca)

[www.toronto.ca/garbage/multi/index.htm](http://www.toronto.ca/garbage/multi/index.htm)



#### TORONTO, CANADA

##### A DEMOGRAPHIC SNAPSHOT

##### Multifamily population:

Approximately 487,000 households (50% of the city's population) reside in apartments and condos.

##### Population density:

10,750/mi<sup>2</sup> (4,149/km<sup>2</sup>)

##### Ethnic demographics:

53% white, 27% Asian, 8% black, 12% other. 20% of the population does not speak English.

## Program Details

### RECRUITING VOLUNTEERS FROM ACROSS THE CITY

The City recognized that apartment and condo residents themselves could be among the most effective champions of recycling, because they can connect directly with their neighbors and potentially address the unique physical, cultural, and communications characteristics of each building.

So the City created the 3Rs Ambassadors program, which would recruit volunteers from apartment and condo buildings across the city and train them to educate and engage other residents in their own building on the 3Rs (**Reduce, Reuse, Recycle**). Each Ambassador would be encouraged to use creative approaches tailored to their specific building and its residents.

The City launched its 3Rs Ambassadors recruitment efforts along with another promotional tool: a 12-month calendar full of tips and messages about recycling and waste prevention sent directly to every apartment and condo resident in Toronto. The first month included a full-page spread promoting the Ambassadors program and inviting residents to volunteer.

The City also sent a letter to 3,000 property owners, along with recruitment cards to hand out to residents encouraging them to participate.

In addition to promoting the program on its website and through other regular communications with residents, the City's 3Rs Ambassadors program coordinator held two information sessions for people interested in learning more about the program. She also targeted recruitment efforts at high schools, promoting the program to career counselors and administrators as a way for students to meet community service requirements.



The City received hundreds of responses to all forms of recruitment, but the letter to property owners proved to be most effective at generating sign-ups.

To participate in the program, interested residents were asked to:

- Apply online or using a paper form.
- Receive approval from their property manager or superintendent.
- Complete a 15-minute phone interview with the program coordinator.
- Attend 2 mandatory training sessions (6 hours, over two days).
- Commit to volunteer approximately 10 hours per month for at least 1 year.

Since the start of the program, 180 volunteers have completed the training (described on the following page) and are considered 3Rs Ambassadors. Most Ambassadors are from apartment and condo buildings with 100-plus units and more than 20 floors. Geographically, Ambassadors come from all parts of Toronto, although one of the city's four main districts—which has fewer large residential buildings—has relatively lower representation.

Despite the program manager's efforts to recruit students, fewer than twenty signed up. Most of the Ambassadors are older (50+ years of age), often retired. The majority are women.

Many volunteers were already involved in the civic life of their building prior to becoming 3Rs Ambassadors, often as members of the tenant associations or condo boards of their buildings.



## TRAINING AMBASSADORS TO BRING RECYCLING HOME

A 2-day, 6-hour training is a mandatory component of the 3Rs Ambassadors program. The session educates Ambassadors on all aspects of Toronto's multifamily recycling, waste, and materials management system, so that they are prepared to answer questions from their neighbors and troubleshoot any potential problems in their buildings. The session also provides training on communications strategies and best practices for delivering an effective education and outreach campaign.

As part of the training, Ambassadors are instructed on how to conduct a pre-program assessment of the current infrastructure, maintenance, and education levels in their buildings, which they carry out following the training, with on-site assistance from the program coordinator if needed. (Approximately one-third of Ambassadors request assessment assistance.)

The assessment allows Ambassadors to score their building's performance prior to their intervention, helping them to identify potential areas for action and providing a tool for measuring improvements achieved through their efforts.



## SUPPORTING CREATIVE IDEAS AND ONGOING LEARNING

Once they have completed their building assessment, 3Rs Ambassadors develop a waste reduction work plan, in which they chart out actions they will take to improve recycling and reduce waste disposal in their building.

Each Ambassador receives a toolkit with action ideas and information about the resources available to support their activities. Ambassadors can request any of the printed materials, such as posters, signs, and bin stickers, developed by the City's Solid Waste Management Services department, as well as a limited number of City-branded reusable items including bags, lunchboxes, water bottles, and coffee mugs that can be used as prizes at interactive events.

Ambassadors can also suggest their own ideas for new printed materials or other resources, which the communications staff will often use to create a piece that can be used throughout the city.

Since the start of the program, 3Rs Ambassadors have designed and carried out a range of creative actions customized to their own unique settings. Examples of 3Rs Ambassadors activities include:

- Putting up and maintaining clear signage and educational posters,
- Designing creative and interactive lobby displays,
- Organizing a small goods exchange or clothing drive for charity,
- Hosting a "waste free" potluck picnic,
- Writing a regular column for the building newsletter,
- Presenting at a tenant meeting or hosting an information night,
- Developing a "3Rs Welcome Kit" for new residents,
- Establishing a Green Team to work on overall building sustainability.

The program manager provides guidance and technical assistance to Ambassadors as needed including occasionally assisting with events and presentations when asked.

The program manager also holds quarterly refresher trainings on special topics, such as how to engage children. These trainings are not mandatory but they help to retain volunteers by keeping them engaged and connected to the community of 3Rs Ambassadors. The program manager also solicits Ambassadors' success stories to use in trainings with new recruits.



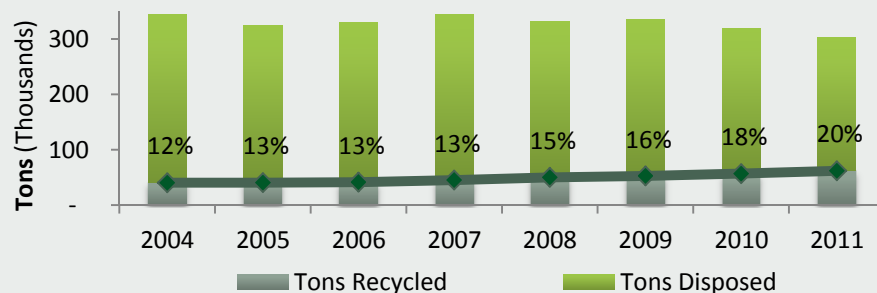
## Outcomes

### PROGRAM RESULTS

3Rs Ambassadors are often successful at reducing waste and increasing recycling at their buildings, and the program manager works closely with the Ambassador and operations staff to ensure that those changes translate into cost savings for the buildings through waste service level reductions. Since the start of the program, Ambassador buildings have saved an average of 15 percent on waste disposal charges due to service level changes.

While the City has not tracked recycling volumes or conducted recycling audits, the City's waste collection staff has anecdotally reported lower levels of contamination of recycling and overall increases in recycling tonnages collected from Ambassador buildings.

Although 3Rs Ambassadors are currently present in only 5 percent of the city's apartment and condo buildings, they are helping, along with volume-based pricing, organics collection, reusable tote distribution, multimedia communications, and other efforts the City has undertaken, to increase diversion and reduce total waste generation. Since 2008, the multifamily diversion rate citywide has increased from 16 to 20 percent, while total waste generated has decreased.



### COSTS AND FUNDING

The 3Rs Ambassadors program is financed through the Solid Waste Management Services department's communications and education operating budget, which is supported exclusively by waste fees and funding from the EPR program. The program's primary cost is labor for the program coordinator (0.9 FTE). The program spent \$13,000 on incentive prizes and presentation materials in the first years, and has spent \$5,000 annually on printed materials such as recruitment cards and posters, and on mailings.\*

*\*This does not include the cost of design, printing, or mailing of the Recycling Calendars. No cost information was available for these.*

## Lessons Learned and Next Steps

### LESSONS LEARNED

**Mandatory training ensures 3Rs Ambassadors are well prepared.** Requiring volunteers to attend two 3-hourlong training sessions is a substantial demand, and it sets Toronto's program apart from other similar programs. But in program evaluation surveys, Ambassadors routinely report that the training helped them feel prepared to answer questions from fellow residents and troubleshoot issues to achieve real results in their buildings.

**Property managers are a critical partner for success.** At first the program did not require Ambassadors to get approval from their property managers, but found that those who joined without engaging their property managers up front had much more difficulty implementing their work plans. Now Ambassadors are encouraged to connect with their property managers from the start to let them know about their participation and to explain the program's benefits for the building.

**Ambassadors that volunteer the most time generate the largest results.** Buildings with the most active and committed Ambassadors, such as those who host monthly events, have achieved the strongest results. The program manager strongly encourages Ambassadors to spend at least 10 hours per month on outreach and education activities.

**Ongoing training and communication helps keep Ambassadors engaged.** Keeping Ambassadors engaged has been critical for sustaining the program's impact. The program manager has found that maintaining regular communication and providing periodic opportunities for Ambassadors to reconnect with each other and participate in additional trainings helps Ambassadors stay engaged and active in the program.

### NEXT STEPS

The City continues to expand the pool of resident 3Rs Ambassadors and is also providing similar training to property managers who have expressed interest in the program. The program manager is also planning to provide more opportunities for Ambassadors to share and learn from one another.

Going forward, the program will have additional tools at its disposal, as the City recently developed a major multi-media communications campaign about proper recycling specifically targeted at multifamily residents.

## C. Our Common Place:

### Increasing Recycling in Public Housing By Building Community

*Our Common Place is a long-term, values-based community engagement program that aims to change behavior by addressing issues and actions that are important to the community, rather than directly focusing on recycling. Outreach staff work in collaboration with residents to design and deliver initiatives of interest to the community, such as homework clubs, sewing groups, art projects, and swap events. Although initiatives do not focus directly on recycling, recycling-related messages and education are incorporated into the initiatives.*

#### PROGRAM BACKGROUND

Our Common Place is a program developed by Waste Watch, a project of the non-profit organization Keep Britain Tidy that has provided recycling outreach and education services on behalf of waste authorities in London for many years. The program is designed to change behavior by engaging with communities around initiatives that align with community values and improve community well-being, rather than directly focusing on recycling.

While recycling rates for single-family homes across the UK have been climbing over the past decade, recycling in multi-unit buildings has remained consistently low. Poor recycling is particularly acute in public housing complexes. In the four boroughs that make up the Western Riverside Waste Authority (WRWA), where Our Common Place was first piloted, the recycling rate in public housing complexes in 2009 was as much as 70 percent lower than single-family homes in the area, and contamination levels were extremely high.

Waste Watch's research suggested that many public housing residents in the WRWA area engaged in little, if any, recycling and were much more concerned with issues like graffiti, litter, and illegal dumping than with recycling. Through focus groups and interviews, Waste Watch found that many residents did not trust external agencies delivering short-term initiatives in their communities that focused on individual issues such as recycling with no consideration of residents' other concerns.

Responding to these findings, Waste Watch designed Our Common Place as a long-term community engagement program, in which program staff works in collaboration with public housing residents to design and deliver initiatives that address issues important to the community, with an overall goal of inspiring communities to collectively improve their overall well-being while increasing their recycling. Although initiatives did not focus directly on recycling, recycling-related messages and education were incorporated into the initiatives.

#### PROGRAM RESULTS—AT A GLANCE

- ✓ 51 initiatives, reaching 3,200 residents in 13 public housing complexes, were designed and delivered by 67 resident volunteers in collaboration with program staff.
- ✓ Total volume of recycling collected increased by an average of 21 percent in pilot complexes, and observable contamination decreased by an average of 14 percent.
- ✓ Litter observed at pilot complexes declined slightly over the engagement period.

#### Program Type:

- ✓ Outreach and education
- ✓ Collection and processing
- ✓ **Community engagement**
- ✓ Incentives and pricing
- ✓ Communications and promotion

#### Case Study Sources:

Interview with Dr. Morgan Phillips  
Our Common Place Project Leader  
WasteWatch  
[morgan.phillips@wastewatch.org.uk](mailto:morgan.phillips@wastewatch.org.uk)

*Our Common Place 2011-2012  
Program Report to WRWA*



#### WESTERN RIVERSIDE WASTE AUTHORITY AREA

##### A DEMOGRAPHIC SNAPSHOT

##### Public housing population:

62,272 households (15% of WRWA population) reside in multi-unit public housing complexes.

##### Population density:

13,466/mi<sup>2</sup> (5,206/km<sup>2</sup>)

##### Ethnic demographics:

(for London overall)  
70% white, 13% Asian, 10% black,  
7% Other.

# Program Details

## BEGINNING BY LISTENING

WRWA contracted with Waste Watch to pilot Our Common Place in 13 public housing estates distributed across WRWA's 4-borough area between August 2011 and March 2012. A total of 51 initiatives were conducted across the 13 estates. A total of 67 resident volunteers were directly involved in the design and delivery process, and together with program staff, spoke in-person to approximately 3,200 residents about waste reduction, including 930 people who attended events and activities run as part of the initiatives. Program impacts were measured through visual audits of recycling bins, as well as through resident surveys on well-being and local environmental quality. The surveys were carried out before and after the pilot.

Waste Watch selected the 13 estates for the pilot that met the following three criteria:

- **Low to medium performers on recycling rates and contamination.**
- **Established community group(s) of some kind already set up.**
- **Accessible meeting or events space.**

Each selected estate housed between 100 and 1,000 residential units (approximately 600 units on average), spread across numerous high-rise or low-rise buildings.

Waste Watch staff then embarked on a process of 'listening and learning' through attendance at community meetings, browsing locally focused social media sites, and door-to-door visits—in part to collect baseline data for the program evaluation, and to gain a deeper understanding of the concerns, hopes, fears and lives of community members. The listening and learning phase culminated in launch events at each estate to officially begin Waste Watch's engagement with the community, either as standalone events or as part of a Tenants and Residents Association (TRA) meeting.

At each launch event, Waste Watch staff facilitated group discussions during which residents created a long list of potential initiatives that would improve sustainability, recycling and/or community well-being. Attendees were encouraged to be imaginative and to not be afraid of making 'wild' suggestions.

Following this brainstorm, attendees narrowed the initial list to a short list by voting for their favorite initiatives, with at least one that had an explicitly waste-related theme. The remaining two initiatives could be 'fun, exciting and/or useful' and, in their design and delivery, mindful of resulting environmental and social impacts.

This selection process helped to ensure that selected initiatives served the dual objectives of improving recycling performance while also reinforcing the values of community, kindness, care for others and the environment, trust, respect and empathy.

The initiatives that received the most votes were identified as the community's top priorities. In the following six months, four Waste Watch "Flats Engagement Officers" would support and partner with community groups, partner organizations and individuals to design and deliver these initiatives.

## SUPPORTING COMMUNITY-LED INITIATIVES

Through the community-driven selection process, a diverse set of initiatives emerged – ranging from a homework club and a sewing group, to the 'greening' of a Christmas party and a series of "Give and Take" days (free material exchange events). Some initiatives were ongoing throughout the course of the pilot, others ran on a weekly or monthly basis, and some were one-time events preceded by a series of planning meetings and promotion.

Most initiatives were co-designed and delivered by community members and facilitated by Waste Watch. However, where engagement of the community in the project proved more difficult, Waste Watch designed and delivered initiatives directly.\*

Messages about the importance and value of recycling, and education about proper recycling behaviors, were integrated into all of these initiatives in some way.

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*\*For a full list of initiatives undertaken, see the Our Common Place Case Notes, in the Appendix.*

## HOMework CLUB

In one example initiative, volunteer community leaders from the Eritrean Society at the White City estate worked with Waste Watch to establish a weekly two-hour Homework Club for school children aged 8 to 16. Waste Watch staff took on the role of tutors and supported the volunteers and parents to administer and promote the homework club to local children. Through the lens of sustainability, Waste Watch staff assisted with core subjects such as Math and English, and also explored topics in the humanities and sciences.

Homework activities were mixed in with recycling games, and a session at the end of the Autumn term was focused on a 'waste less, live more'-themed winter party. The party was an opportunity for parents to get involved: they brought food to share and enjoyed participating in the workshop activities of making paper bags and decorations out of waste paper. In this environment, parents and children were able to learn about recycling together in an in-depth way and participatory way.

As one parent stated, "[Waste Watch] helped the children so much during the project and gave us all more ideas about the world around us, such as recycling, communication and other [issues]."

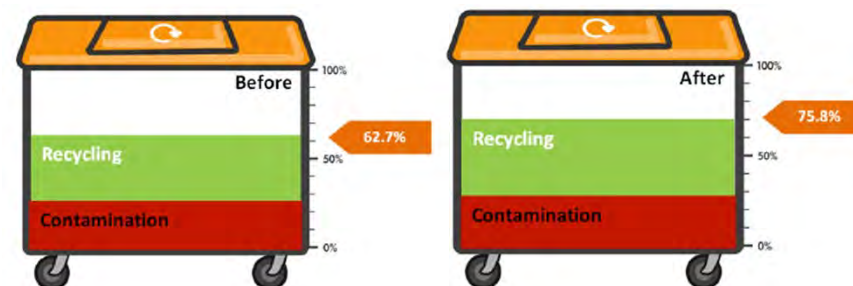


## Outcomes

### PROGRAM RESULTS

Waste Watch tracked the impacts of the Our Common Place program in three ways:

- To **evaluate changes** in recycling performance, Waste Watch staff conducted visual audits of the recycling bins at pilot estates before and after the engagement period, assessing the relative fullness of each recycling bin and estimating contaminant levels.
- To **monitor impacts** on social and environmental well-being, Waste Watch staff conducted surveys with community members based on the "five ways to well-being" framework developed by the New Economic Foundation.
- To **assess impacts** on Local Environmental Quality (an index developed by the 'Keep Britain Tidy' campaign that measures issues such as graffiti, litter, illegal dumping, and collection infrastructure) surveys of the physical locations of each estate were carried out before and after initiative implementation.



Based on the visual audit results, recycle bins, on average, went from being 62.7 percent full pre-engagement to 75.8 percent post-engagement, while contamination decreased from 41.8 percent to 35.9 percent of all material collected in recycling bins. Unfortunately, Waste Watch was not able to obtain tonnage data from the contracted WRWA hauler, so the effects on recycling tonnage are unknown.





**Litter** observed on the grounds of pilot estates, assessed through the Local Environmental Quality surveys, also **declined slightly** over the engagement period.

In addition, 82 percent of the residents involved in the design and delivery of the initiatives reported an increase in their knowledge of recycling. All participants reported significant gains in their sense of connection, learning, taking notice and giving. In response to a question about the impacts the program had, one resident responded:

*“I am now a lot more hopeful about the direction of the estate and about the direction of the area as a whole. The ways things are going now has picked up the general morale of the area.”*

## PROGRAM COSTS AND FUNDING

The pilot of Our Common Place was paid for by the WRWA, through its annual outreach and education budget. The primary expenses were for the program staff. The program leader estimated that each Flats Engagement Officer spent approximately 60 percent of their time at their assigned estates and 40 percent of their time doing office-based work.

Expenditure Type	Cost*
<b>Labor</b>	<b>£50,960</b>
1 full-time Program Leader (1 FTE)	(\$82,249)
4 part-time Flats Engagement Officers (1.6 FTE)	
Additional overhead and indirect labor costs	
<b>Program Expenses</b>	<b>£320</b>
Transportation, refreshments, printing, etc.	(\$517)
<b>Community Resources</b>	<b>£1,300</b>
Each estate was given a budget of £100 to cover initiative expenses	(\$2,098)
<b>TOTAL PROGRAM COSTS</b>	<b>£52,580</b>
	(\$84,864)

\*£1 = \$1.614, as of October 1, 2012

## Lessons Learned and Next Steps

Waste Watch and the WRWA deemed the initial pilot of Our Common Place to be successful. The program, which was also piloted at 9 estates in three East London boroughs, was extended for another year, although the total number of participating estates has been scaled back at Waste Watch’s recommendation – 16 estates, including sites that were included in the pilot and new sites, are currently involved for the 2012/2013 period.

Dr. Morgan Phillips, the Our Common Place program leader, says that Waste Watch is excited about refining and expanding the program model, and believes that the program will work best if it can be implemented over a longer time period—ideally two years.

He is also testing new ways of engaging more residents in the early stages of initiative design and selection, such as by conducting door-to-door surveys of residents to gather input about community values and ideas for community initiatives. Values and ideas gathered through these initial resident surveys are shared through a community exhibition, and form the basis for the initiative selection process. So far, this approach has garnered broader participation among residents, especially in buildings where there is little pre-existing community organizational involvement.

## D. Emotional Advertising:

### Establishing a Recycling Culture through Television Ad Campaigns

*Portugal's recycling infrastructure is based entirely on shared public collection containers and the system shares many of the same challenges faced by multifamily recycling systems in the U.S. Under these circumstances, Sociedade Ponto Verde, Portugal's producer responsibility organization for packaging waste, has succeeded in increasing recycling participation and diversion among Portuguese households by using television advertising focused on emotional and social issues important to women, especially those in low-income households.*

#### PROGRAM BACKGROUND

As a member of the European Union, Portugal's approach to recycling is governed by the EU Directive on Packaging and Packaging Waste, which establishes a 55 percent (by weight) recycling rate goal for all consumer packaging. The Packaging Directive establishes specific timelines for achieving the target but gives each country flexibility to implement the directive in ways that fit its unique social, economic, and geographic context.

For Portugal, the Packaging Directive targets were set for 2011. Like most of the European countries covered by the Directive, Portugal chose to implement it through an extended producer responsibility (EPR) system that requires product manufacturers to finance and manage the packaging recycling system to achieve the targets.

And, like many EU countries, Portugal employs a "shared model" of EPR. Producers oversee and finance the system through a non-profit association called Sociedade Ponto Verde (SPV), which in turn pays local governments to operate the recycling collection system.

Unlike most other European countries, however, Portugal's recycling collection system relies on public recycling containers rather than curbside or in-building collection. This means that while residential garbage is usually collected directly (at curbside, or via garbage chutes or on-site dumpsters), residents must bring recyclable consumer packaging to recycling collection containers, called "Eco-Pontos," located on streets and in other public areas.

Although Portugal's "Eco-Ponto" recycling system is not exclusively for multifamily buildings, it shares many of the challenges of multifamily recycling in the US. Recycling is less convenient than disposal, it is voluntary, and residents have no direct incentive to participate.

To overcome these barriers and achieve the 55 percent recycling rate target, SPV has undertaken a bold television advertising campaign that uses emotional messages and social cause-related marketing to increase recycling participation among Portuguese households.



#### Program Type:

- ✓ Outreach and education
- ✓ Collection and processing
- ✓ Community engagement
- ✓ Incentives and pricing
- ✓ Communications and promotion

#### Case Study Sources:

Interviews with Mario Raposo  
and Joao Letras  
Sociedade Ponto Verde  
Cruz Quebrada, Portugal  
[mario.raposo@pontoverde.pt](mailto:mario.raposo@pontoverde.pt)  
[www.pontoverde.pt](http://www.pontoverde.pt)



#### PROGRAM RESULTS AT A GLANCE

- ✓ Between 2004 and 2011, the SPV more than doubled the recycling rate for packaging waste, from 31 percent in 2004 to 64 percent in 2011.
- ✓ The percent of households that recycle increased from 41 percent to 69 percent over the same period.



## Program Details

### MAKING RECYCLING EMOTIONAL

Since its formation in 1998, SPV has used television advertising as one of its primary methods for encouraging households to recycle. With messages that addressed the basic “how-tos” as well as the environmental benefits of recycling, SPV had succeeded in increasing the recovery rate from near zero to 31 percent by 2004.

However, a majority of Portuguese households still did not participate. SPV recognized that reaching its 55 percent recycling target by 2011 would be impossible without higher levels of participation from residents.

So the organization hired a marketing executive with experience working for consumer products companies to develop a strategic communications campaign that could inspire more people to recycle, and those who already participate to increase their recycling using a consumer marketing approach.

The advertising campaign focused on making emotional appeals to their target audience: Women with families. Women were identified as the most likely to adopt recycling practices and influence the behavior of others.

The ads featured cute young children imploring the viewer to recycle, and talking about how “grown up” it is to separate packaging waste and deposit it into the public recycling containers.

SPV increased their advertising budget by 60 percent to purchase enough ad time so that Portuguese women would see the ads an average of 130 times per year.

Recycling participation increased over the next three years, and by the end of 2007, nearly 50 percent of all packaging was recycled and 63 percent of Portuguese households were participating.

Market research revealed that most participating households only participated some of the time. According to self-reporting participation surveys, lower-income households had lower participation rates than higher-income households, and 47 percent of lower-income households did not recycle at all.





## CONNECTING RECYCLING TO SOCIAL ISSUES

SPV conducted market research to develop a marketing approach to target lower-income women with families. Through their research, SPV learned:

- 1) Earlier efforts to educate the public about how and where to recycle had been effective, and most women in low-income households knew the basic tenants of proper recycling.
- 2) Recycling was not a high priority for the target audience, compared to other social and personal issues.
- 3) The target audience was heavily influenced by female television celebrities.

So, in 2008, SPV incorporated cause-related social marketing tactics, which link recycling with other causes of greater concern for the target audience, into its television advertising strategy. Market research had identified women's health as a high priority issue, so the first campaign focused on breast cancer prevention. SPV made a commitment to donate funds to purchase mobile breast cancer screening vans based on the amount of materials recycled over the course of the campaign. Municipalities also participated by agreeing to donate a certain amount per ton collected, and by negotiating low- or no-cost advertising with local television stations.

Campaign ads used popular female TV celebrities as spokespersons and messages about the importance of breast cancer screening and SPV's commitment to donating to this cause to encourage recycling.

SPV ran the breast cancer related campaign for one year (2008). During the course of the campaign recycling increased by 7 percentage points, more than SPV was expecting, and SPV and the municipalities were able to donate enough money to cover the cost of two vans and to pay for breast cancer screenings of 20,000 women.

In 2011, SPV developed a new cause-related social marketing campaign, this time focusing on improving educational opportunities for low-income children, another issue that had been highlighted as a key concern of low-income women. The ads delivered messages linked to the cause, described what SPV was doing to help, and explained how the viewer could make a difference by recycling. The ads ended with the tagline, "Don't let a good idea go to waste." SPV provided the sole financing for this campaign.

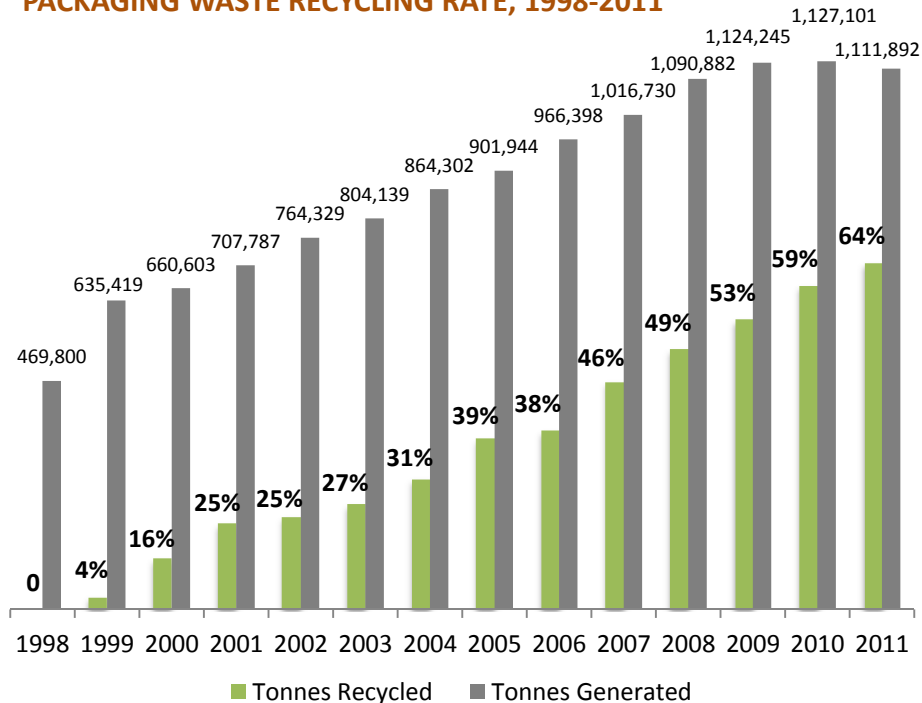


# Outcomes

## PROGRAM RESULTS

The outcomes of marketing campaigns, in terms of behavior change, are difficult to measure. Under Portugal's recycling system, it is especially difficult to track increases in household recycling because the public recycling containers are used by a combination of small commercial waste generators and residents. SPV is confident that its advertising campaigns have increased residential recycling, and recycling rates for packaging have risen dramatically since 2004 when the new approach to advertising began. SPV succeeded in reaching its 55 percent packaging recycling rate target more than two years ahead of schedule, and achieved a 64 percent packaging recycling rate by 2011.

### PACKAGING WASTE RECYCLING RATE, 1998-2011\*



Annual observation studies conducted with 600-800 households across the country have tracked recycling participation, and show that SPV has succeeded in increasing the residential recycling rate. Based on these observation studies, SPV estimates that 69 percent of all Portuguese households now recycle regularly. This is a nearly 70 percent increase compared to 2004, when only 41 percent of households recycled regularly.

\*Packaging from SPV members only. Packaging that is generated by non-participating producers is not included.

## COSTS AND FUNDING

Since 2004, SPV has spent between 4 and 6 million Euros annually on its television advertising campaigns, equal to approximately 6 to 8 percent of the total costs of the national recycling system for packaging waste. The funding for the campaigns, like all funding for packaging waste recycling, comes from producers. The majority of SPV's membership is made up of product manufacturers, with some retail and material manufacturing members as well.

## NEXT STEPS

As the European Parliament debates new recycling targets for EU Member States under the Packaging Directive, SPV continues its efforts to increase recycling packaging. SPV has set a target of 70 percent recycling of packaging waste covered under its program by 2020, and is planning to continue using cause-related social marketing tactics to help achieve that goal.



## E. Preparing for Mandatory Recycling:

### Increasing Recycling with Communications and Collections Innovations

*In advance of the the start of mandatory multifamily recycling, which went into effect in California in July 2012, Culver City Public Works launched a program to increase the number of properties signed up for recycling service. Rather than targeting property managers, the City launched a communications campaign to promote the program directly to residents, encouraging them to urge their property managers to sign up. Culver City Public Works also addressed a logistical problem facing its collection drivers by using “scout” trucks to move recycling containers from garages to the curb for easy pick-up.*

#### PROGRAM BACKGROUND

Culver City is a small, densely populated city in the heart of Los Angeles County, CA. Approximately 60 percent of all housing units are in multi-unit buildings. At the time of the program, recycling was not mandatory for multifamily properties. Although a number of properties did have some kind of recycling service in place, they were generally performing poorly, often due to low participation from building residents, high contamination, or inadequate service.

In 2010, the Culver City Public Works Environmental Programs and Operations division received a \$692,162 grant from CalRecycle, the state waste and recycling agency, to implement a comprehensive multifamily recycling program. The program included all facets of program implementation, including recruiting properties to participate, assessing site needs and providing properties with needed collection infrastructure,

conducting outreach and education to residents, launching a communications and promotion campaign to increase visibility and awareness about recycling, and fostering community engagement to embed recycling in the culture and norms of residents. The ultimate goal of the program was to increase the number of properties with recycling service and to increase the amount of recyclables collected from each property.

As the service provider of waste and recycling collection to City residents, Culver City Public Works was also motivated to establish the program in part because of the state’s impending mandatory commercial recycling regulation (which went into effect July 1, 2012), which also covers multifamily buildings. The City worked with two consulting firms—S. Groner Associates and KJServices Environmental Consulting—to design and implement the program, which ran from January to October 2011.

#### PROGRAM RESULTS—AT A GLANCE

- ✓ Recycling services were established or improved at 28 multifamily buildings, covering 3,420 units, approximately 30 percent of units citywide.
- ✓ Overall recycling tonnage collected from multifamily buildings increased by 7.25 percent over the six months of program performance monitoring.
- ✓ Contamination dropped to 8.9 percent of collected materials, compared to 19.6 percent prior to program launch.

#### Program Type:

- ✓ Outreach and education
- ✓ Collection and processing
- ✓ Community engagement
- ✓ Incentives and pricing
- ✓ Communications and promotion

#### Case Study Source:

Interview with Catherine Vargas,  
Environmental Coordinator,  
Culver City Public Works  
[catherine.vargas@culvercity.org](mailto:catherine.vargas@culvercity.org)



#### CULVER CITY, CA

#### A DEMOGRAPHIC SNAPSHOT

##### Multifamily population:

Approximately 10,000 households (50% of the city’s population) reside in multi-unit buildings.

##### Population density:

7,600/mi<sup>2</sup> (2,900/km<sup>2</sup>)

##### Ethnic demographics:

48% white (non-Latino), 23% Latino, 15% Asian, 9% black, 5% Other.



# Program Details

## AN UNCONVENTIONAL APPROACH TO PROPERTY RECRUITMENT

Culver City Public Works began by following a well-established model of multifamily recycling program development. It identified eligible multifamily properties to receive free recycling service through the program, and then attempted to recruit properties by giving in-person presentations to property managers and Home Owner Associations (HOAs), or by reaching out by phone to promote the program and solicit participation. The City promoted the program by highlighting the key service features and benefits the participating properties would receive, including:



*"In most cases [residents] were more interested in participating and even persuaded their property managers to sign up...When we worked directly with a tenant or homeowner to reach a property manager or HMA, we found them to be more responsive to the needs of their constituencies."*

However, program staff soon found that many property managers and HOAs were reluctant to sign up for the program, despite the free services and potential for cost savings they would gain through participation. So the program staff shifted its approach to recruitment, focusing instead on marketing directly to residents. According to program staff, this strategy made property recruitment much easier because property managers and HOAs were much more willing to sign up if approached or prodded by a building resident.

- **Free centralized recycling bins and free recycling collection** service for the duration of the program (April – December 2011).\*
- **Free tote bags and/or plastic mini-bins** available for all residential units.
- **Technical assistance** from City staff to determine the proper number and placement of bins at the start of service, as well as signage and educational materials for residents.
- **Cost savings**, achieved through reduced waste service level needs. City staff would help property managers or designated resident "champions" determine the appropriate waste service level following recycling service implementation.

## REACHING RESIDENTS THROUGH MASS MARKETING AND TARGETED OUTREACH

Culver City Public Works used a range of communication channels to promote the program directly to residents, including press coverage, social media, email communication, and public service announcements. Examples of program communication include:

- **Announcements and PSAs** about the program posted on the Culver City Facebook page (reaching 653 fans and additional visitors) and on the City website.
- **Articles** about the program posted on the Green LA Girl blog (24,000 impressions) and the LA Times blog (1.9 million viewers).
- **Email communication** sent directly to residents on the Culver City Public Works e-Blasts environmental news list (sent to 1,017 residents, led to 4,068 impressions and resulted in multiple program inquiries).
- **30-second PSA segment** aired at the Culver City Pacific Theater Stadium 12 for a month (reached 50,000 viewers, many of which included Culver City residents).

In addition to mass marketing and communication, program staff also connected directly with residents at numerous community events. These outreach events resulted in 26 program inquiries and produced 4 property sign-ups.

Culver City Public Works followed up on resident inquiries and then worked with them to engage their property manager or HOA to enroll in the program. In some cases, property managers also came directly to program staff after learning about the program through one of the communications channels. Over the course of the program, the City successfully recruited and enrolled 28 complexes around the city, reaching 3,420 units (approximately one-third of all units in the city). About half of complexes served through the program were owner-occupied buildings (condos) and half were rental properties.

*"Our strategy of reaching tenants and homeowners directly paid off. Through e-blasts, online media, offline media, the Culver City website page for multifamily recycling, and events, Culver City residents began reaching out to us to learn more about and participate in the program."*

\*Free service was financed through the CalRecycle grant. In January 2012 Culver City would begin charging for recycling, but charges would be lower than for waste.



## CREATING A BUZZ AND BUILDING A CULTURE OF RECYCLING

The City's resident engagement strategy didn't stop there. The Public Works Department also applied its resident-targeted approach to outreach and education. With assistance from its marketing consultant, the City developed a uniform program brand and message, focused on communicating that recycling is easy, a social norm, and something that helps the community. The program also applied community-based social marketing (CBSM) strategies to educate and engage residents, such as:



*"We succeeded in making recycling a visible social norm in the City of Culver City, creating a buzz in the community about the bins and various materials that eventually became coveted and sought out among residents in participating complexes."*

**Prompts.** Program staff worked with property managers to place consistent signage throughout buildings and at recycling collection points reminding people of the core message ("Recycling is as easy as...1,2,3")

**Social norms.** The program brochure distributed to residents in participating buildings used language such as "Did you know that most of your neighbors already recycle?" to convey that recycling is an expected behavior in the community.

**Social diffusion.** The program employed a "champion" model, enlisting enthusiastic building residents to take a leadership role in modeling and promoting proper recycling to their neighbors. Brochures and outreach materials also prominently featured testimonials from property managers who were saving money and experiencing benefits of recycling.

The City also provided residents with mini-bins and totes to make collecting and carrying recyclables to the central bin more convenient.\* According to program staff, the marketing approach was successful in raising awareness, participation, and enthusiasm around recycling.

## "SCOUTING" FOR SOLUTIONS TO COLLECTION CHALLENGES

Through its program, Culver City Public Works also addressed a logistical challenge common to multifamily recycling programs: many properties have limited space for collection bins, and the space they do have is often inaccessible to the large collection vehicles typically used for recycling collection.

For many of the participating properties, the most appropriate bin locations were in underground parking areas or in narrow spaces behind the buildings that the City's front loaders could not easily access. So, to service these properties, the City purchased a "scout" truck equipped with a bin lift, which brings bins out to the street where the front loader is, and then returns the bins to their original location once emptied.



\*831 mini-bins and 925 totes were distributed, via property managers, to residents over the course of the program.

# Outcomes

## PROGRAM RESULTS

In addition to increasing the number of multifamily properties in Culver City with recycling service, the program succeeded in diverting more material and reducing contamination of recycling loads collected.

Public Works tracked the effects of the program on recycling in two ways:

- Recycling tonnage collected from multifamily properties in Culver City, aggregated into monthly totals from April to October 2011.
- Change in contamination rate and recycling composition, measured via three recycling audits – one baseline audit conducted in February 2011, prior to program implementation (at buildings where recycling was already in place), one in August 2011, and one in October 2011.

Based on the tonnage collection records, monthly recycling tonnage increased by 7.25 percent from the baseline.

## COSTS AND FUNDING

Culver City's multifamily recycling program was funded by a grant from CalRecycle. Total program cost was \$696,162, and included several capital equipment purchases that will continue to be used to provide multifamily recycling service in Culver City. Since the grant funding for the program ended, Public Works has absorbed the program into the core staff levels of the Environmental Programs and Operations division. Other ongoing program costs are expected to be minimal.

Expenditure Type	Cost
<b>Labor</b>	<b>\$199,414</b>
Outreach Coordinator (1 FTE)	\$26,286
Consultants	\$173,128
<b>Capital Equipment</b>	<b>\$467,924</b>
Front loader	\$260,361
"Scout" vehicle	\$33,731
Outreach vehicle with wraps	\$31,338
Recycling bins (primarily 3 cu yd bins)	\$142,494
<b>Promotional materials</b>	<b>\$24,824</b>
<b>TOTAL PROGRAM COSTS</b>	<b>\$692,162</b>



## Lessons Learned and Next Steps

According to the program manager, the program has been so successful, the only regret is not aiming higher:

*"In the beginning, the staff wanted to be conservative on the numbers we could actually achieve. If I had to do it over, I would not be so conservative and worried that it was an insurmountable task to reach everyone, but rather have higher expected outcomes. Midway the first year we realized how easy it was with community support ...to provide this much needed service for our residents."*

The Culver City Public Works Environmental Programs and Operations division plans to continue providing all aspects of the program, with the exception of free collection service, for the foreseeable future. The division has enrolled several additional buildings in the program since service fees began in January 2012.

## F. Post-Collection Waste Sorting: Using Technology to Increase Diversion of Recyclable Materials

*In the face of ambitious near-term waste diversion goals and shrinking landfill space, the City of San Jose worked with its hauler and local processors to develop a post-collection processing system for garbage collected from multifamily buildings, including a “dirty MRF” to capture additional recyclable materials. The post-collection sorting system is utilized in addition to source-separated recycling collection.*

### PROGRAM BACKGROUND

With nearly 1 million residents, the City of San Jose is the tenth largest in the U.S. and the third largest in California. San Jose also has an impressive track record of waste diversion. Yet, as in many other cities, the diversion rate from multifamily households has long lagged behind that of single-family households. In 2003, despite substantial investment in recycling service expansion, outreach, and education, only 18 percent of municipal solid waste (MSW) from multifamily buildings was being recycled.

In its contract with GreenTeam of San Jose, the City’s contracted multifamily garbage and recycling hauler, the City had established a target multifamily diversion rate of 35 percent. GreenTeam, faced with the threat of not meeting this target, proposed a novel solution: post-collection sorting and processing of garbage from multifamily buildings to divert organics and additional recyclables from waste.

Working together, the City, [GreenTeam](#), [Zanker](#) (the City’s organics processor), and sister company [GreenWaste Recovery](#) developed a post-collection sorting and processing system that succeeded in reaching the contract requirement for diversion. Under the pilot phase, which ran from 2003 to 2007, 25 percent of all multifamily garbage was sorted post-collection to capture recyclables and then composted.

Then, in October 2007, the San Jose City Council adopted a “Green Vision” with ten goals, including one to achieve a citywide diversion rate of 75 percent by 2013 and Zero Waste by 2022. Motivated by the Green Vision goal, the City expanded the use of post-collection processing to all garbage collected from multifamily buildings. Today, recycling diversion from multifamily MSW has climbed from 18 percent in 2002 to 40 percent in 2012, and overall multifamily diversion (including organics) is at 77 percent.

### PROGRAM RESULTS—AT A GLANCE

- ✓ With the use of post-collection sorting and processing, multifamily diversion for recycling increased from 18 to 40 percent. Including organics, the overall multifamily diversion rate rose to 77 percent.
- ✓ The switch from landfilling to post-collection processing of garbage has created 65 new green jobs at the MRF and organics processing facility.
- ✓ Multifamily residents in San Jose continue to receive outreach and education about the importance of separating recyclables.



### Program Type:

- ✓ Outreach and education
- ✓ **Collection and processing**
- ✓ Community engagement
- ✓ Incentives and pricing
- ✓ Communications and promotion

### Case Study Sources:

Interview with Walter Lin,  
Residential Services Specialist,  
San Jose Environmental Services  
[walter.lin@sanjoseca.gov](mailto:walter.lin@sanjoseca.gov)



### A DEMOGRAPHIC SNAPSHOT

#### Multifamily population:

96,000 households (30% of the city’s population) reside in 3,300 multi-unit complexes.

#### Population density:

5,400/mi<sup>2</sup> (2,100/km<sup>2</sup>)

#### Ethnic demographics:

32% Asian, 29% white-Hispanic, 14% white-non-Hispanic, 3% black, 12% other.



## Program Details

### SEARCHING FOR A SOLUTION TO LOW DIVERSION

When San Jose included a 35 percent diversion requirement in its multifamily contract with GreenTeam, it didn't envision a post-collection sorting and processing system. The City's goal was simply to motivate the hauler to improve recycling from multifamily buildings. At the time, multifamily recycling used three separate collection bins (for newspaper, paper, and mixed containers). This infrastructure type had resulted in 12 percent diversion. So, in 2002, the City switched to a commingled system, assuming that the single-stream recycling collection would be more convenient for multifamily residents. For more than a year, the City and GreenTeam aggressively invested in outreach and education to multifamily property managers to increase recycling.

The effort succeeded in raising diversion rates to 18 percent (a 50 percent increase over the 12 percent diversion rates prior to the campaign), but rates remained far lower than the contract between the City and GreenTeam required. Waste composition data revealed that the primary component (44%) of garbage was organics, so organics were identified as the primary target for additional diversion. But a significant amount was also recyclable, suggesting ample room for additional recycling diversion if that material was captured.

### TAKING ADVANTAGE OF LOCAL INFRASTRUCTURE

To meet the diversion target, GreenTeam proposed continuing the new single-stream recycling collection system, but adding post-collection processing of garbage from multifamily buildings to divert organics and additional recyclables from waste. San Jose was fortunate to be able to take advantage of local processing infrastructure already in place: the Z-Best composting facility (owned by Zanker) in nearby Gilroy, CA, already the City's contracted green waste processor, was capable of processing mixed MSW loads to separate recyclables and compost organics.

During the pilot phase from 2003-2007, GreenTeam delivered one-quarter of all garbage collected from multifamily buildings to the Z-Best facility. At Z-Best, mixed MSW loads were sent through a small material recovery facility (MRF), which used a combination of mechanical and hand sorting techniques to separate recyclable materials and compostable organics from residual waste.

### BUILDING ON A "GREEN VISION" OF ZERO WASTE

Then, in October 2007, the San Jose City Council adopted a "Green Vision" with ten goals, including one to achieve a citywide diversion rate of 75 percent by 2013 and Zero Waste by 2022.



#### *San Jose Green Vision Goal #5:*

*Divert 100 percent of the waste from our landfill and convert waste to energy by 2022.*

The City decided to expand the use of post-collection sorting and processing as one way to help achieve this goal. They were able to expand because GreenWaste Recovery, another local hauler/processor and sister company of Zanker, was building a large MRF specifically designed to process mixed MSW loads (called a "dirty MRF") within the city limits, bringing additional capacity to the area.

When the facility was completed in July 2008, the City began requiring 100 percent of all garbage from multifamily buildings be sent there for post-collection sorting, where recyclables such as cardboard, metal, and plastic are separated for recycling. Compostables are sent to Z-Best for the second stage of post-collection processing.



## How Post-Collection Sorting Work?

GreenTeam collects garbage from multifamily buildings in San Jose and delivers it to the GreenWaste MRF. At the GreenWaste MRF incoming loads are sorted into three categories:

- 1) **Recoverable recyclables:** Workers pre-sort loads for cardboard, then materials are run through the sorting line, which separates out recyclables such as cans, bottles, and clean paper. Recovered materials are combined with like materials captured by the MRF's source-separated recyclables sorting line, and bales of plastic, paper, metal, and cardboard are sold to material recyclers.
- 2) **Residuals:** Workers on the sorting line pull out large, easy-to-capture items that are not readily recyclable or compostable, such as garden hoses, shoes, and shower curtains. Residuals captured here and at other stages of the process are sent to the landfill.
- 3) **Compostables:** The remaining material not pulled out through the sorting process is largely composed of organics and compostable paper, with some residuals not captured on the sorting line.

Compostables are transferred to the Z-Best composting facility, where they are sorted again with a line specialized to pull out problematic residuals, such as large pieces of glass. Remaining materials are then shredded and ejected into 350-foot long aerated composting bags. After four months, the resulting compost is removed from the bags and screened to extract remaining residuals. The compost is cured for an additional four weeks and then screened again. Over the course of the composting process, approximately 35 percent of incoming material is removed as residual and sent to the landfill, with the rest made into a final compost product.



## Outcomes

### PROGRAM RESULTS

As a result of post-collection sorting and processing, recycling diversion from the multifamily sector has climbed from 18 percent in 2002 to 40 percent in 2012, and overall multifamily diversion (including organics) is at 77 percent, the highest diversion rate reported for the multifamily sector in the U.S.

Although the types of recyclables captured through post-collection sorting are similar to that of the separated recycling system, the City reports that GreenWaste Recovery's "dirty MRF" achieves somewhat lower levels of fiber recovery compared to a standard dry recyclables MRF because more paper is soiled and is better suited for composting than for recycling.

### COSTS AND FUNDING

On a per-ton basis, the costs of the post-collection processing systems used in San Jose are higher than landfilling, the disposal alternative for garbage collected from multifamily buildings.\*

Although the system is more expensive in the short term, the City expects the system to pay off over the long term by extending the life of local landfills and therefore relieving the City from needing to secure other options for disposal of residuals.

The costs of post-collection processing, as with all solid waste costs in San Jose, are covered through customer rates, which are set each year based on the costs incurred in the previous year. There are many factors that affect customer rates, and no direct correlation could be made between post-collection processing and rate increases for multifamily buildings since the beginning of the pilot phase in 2003 or the program expansion in 2008.

\*Specific processing costs are proprietary and could not be obtained for this case study.

## Lessons Learned

In 2008, when the City of San Jose expanded post-collection sorting and processing for multifamily garbage citywide, it was propelled by two forces:

- The City Council had adopted an ambitious “Green Vision” with ten goals, including aggressive near-term targets for waste diversion that far exceeded what the City had been able to achieve from multifamily residents, who make up nearly a third of the total population.
- At the same time, recent trends and demographic projections forecast significant growth in the city’s population over the next several decades, suggesting that, without dramatic reductions in waste disposal, landfill capacity in the region would become increasingly scarce and disposal costs could rise sharply.\*

San Jose was able to turn to post-collection sorting and processing of garbage from multifamily buildings as a solution to both of these challenges because the infrastructure required was locally available. City staff acknowledges that their success story is largely the result of circumstance – having access to appropriate facilities and willing private sector partners has been crucial to increasing multifamily diversion rates.

Although post-collection sorting and processing has succeeded in increasing the recovery of recyclable materials from the multifamily waste stream, the City notes that the primary value of this system is in organics diversion. Organics, which make up the largest portion of garbage, are not easily diverted in multifamily settings and pose many problems when landfilled.

And while recovery of recyclables through post-collection sorting is better than no recovery, the City would prefer to divert recyclable materials through source-separated collection, which—if successful—can result in higher quality and higher value materials for recycling.

## Next Steps

This year, the San Jose Environmental Services Department is revitalizing its multifamily outreach efforts, including distributing new recycling enclosure signage and recycling bin stickers to all multifamily buildings. The department is also preparing to conduct several pilot projects, including door-to-door canvassing and distribution of 14,000 reusable tote bags to multifamily residents. The City hopes to expand projects in the future that show a positive impact on resident behavior related to separating recyclables for highest and best use.



\*City of San Jose Integrated Waste Management Zero Waste Strategic Plan.



## G. London Green Points:

### Providing Incentives and Rewards for Recycling and Reducing Waste

*In partnership with Local Green Points LLP, the London borough of Bexley launched a program to encourage recycling and reward residents of multifamily properties for reducing waste. Rewards (and the cost of managing the program) are paid for by real cost savings resulting from reduced waste disposal. The incentive program was piloted with 2,000 flats in Oct 2011. It was successful enough that, as of June 2012, it has been expanded to all 17,000 flats in the borough.*

#### PROGRAM BACKGROUND

Multi-family buildings (called flats) account for half of all housing in London and generate 40 percent of all municipal solid waste (MSW). However, the multifamily recycling rate stands at around 10 percent, a rate that is significantly lower than single-family homes.

In 2010, the London Waste and Recycling Board (LWARB), a locally and nationally funded board supporting waste reduction and recycling efforts in Greater London, announced a £5 million (\$8 million) grant fund to help local governments within Greater London (known as Borough Councils) improve the recycling performance of flats.

The grant program prioritized funding for innovative programs that tested new strategies for boosting recycling. One of the selected programs was an incentive and reward program piloted in Bexley, a highly residential borough in Outer London.

When the Borough of Bexley decided that it wanted to develop a pilot program to increase recycling in flats, it held focus groups with local residents to identify strategies that might be effective. One popular idea that surfaced from the focus groups was financially rewarding residents for recycling.

So the Council teamed up with Local Green Points LLP to develop the London Green Points-Bexley program. The program was piloted with residents of 2,000 flats in affordable housing managed by program partner Gallions Housing Association in October 2011. In June 2012 the program was expanded to all 17,000 flats in the borough.

Rewards, in the form of “Green Points,” are distributed to residents based on actual financial savings from route-level waste reduction. Residents can redeem points for eco-products on the program website, or they can donate them to community charity projects.

#### PROGRAM RESULTS—AT A GLANCE

- ✓ More than 30 percent of residents in the pilot area have signed up to participate and are now eligible for local retail discounts and quarterly rewards.
- ✓ There are early data suggesting that garbage tonnage has gone down, with no visible increase in illegal dumping or contamination of recycling.
- ✓ Participating households each received a portion of the cost savings achieved through waste reduction, equal to £2.50 (\$4) in Green Points, approximately half of which were donated to local charity projects.

#### Program Type:

- ✓ Outreach and education
- ✓ Collection and processing
- ✓ Community engagement
- ✓ Incentives and pricing
- ✓ Communications and promotion

#### Case Study Sources:

Interview with Rebecca Goodwin  
Waste Minimization and Recycling Officer  
Bexley Borough Council  
[rebecca.goodwin@bexley.gov.uk](mailto:rebecca.goodwin@bexley.gov.uk)



#### LONDON BOROUGH OF BEXLEY, UK

##### A DEMOGRAPHIC SNAPSHOT

##### Multifamily population:

Approximately 17,000 households (19% of the city's population) reside in multi-unit buildings with communal bin collection.

##### Population density:

9,900/mi<sup>2</sup> (3,800/km<sup>2</sup>)

##### Ethnic demographics:

85% white, 7% Asian, 6% black, 2% other.





## Program Details

### REWARDING INDIVIDUALS FOR COMMUNITY WASTE REDUCTION

Many of the multifamily flats buildings in the Phase 1 program area have chutes for waste disposal, while recycling collection containers are typically located outside of the buildings. So, waste disposal is often more convenient than recycling. Additionally, flats residents do not pay directly for waste services, so do not have a financial incentive to reduce waste.

Under these circumstances, financially rewarding individual residents for recycling and waste reduction can be one way to influence resident behavior. While rewards programs are a popular idea, they can be very challenging to implement in a multifamily context because tracking individual household behavior is often not possible.

As an alternative to rewarding individual behavior, the Borough of Bexley decided to provide individual rewards based on overall community performance. The Council also decided to calculate rewards based on waste reduction rather than increased recycling, so that the program could eventually be self-sustaining, financed with savings on waste disposal.

Under London Green Points-Bexley, rewards, in the form of “Green Points” (£1 translates into 400 Green Points) are distributed evenly among participating residents on a quarterly basis following a calculation of the waste reduction savings from flats in the program area. Residents can redeem Green Points by choosing from more than 1,000 eco-products included in the Green Rewards “[Green Shop](#).”

But the Council also wanted to encourage residents to see recycling and waste reduction as a way to support their community, so they decided to give residents the option of donating their Green Points to charitable projects that would benefit the local community. The Council asked a panel of Bexley community leaders to select three community charity projects, to which participating residents could choose to donate their Green Points. Selected projects included a borough tree-planting initiative, a program teaching financial management skills to young people, and a neighborhood organization working to keep at-risk youth safe and out of trouble.

**LONDONgreenpoints™**  
BEXLEY

Earn rewards by  
**Reducing, Reusing  
and Recycling**

 **recycle for London**

**FIND OUT MORE...**

**ACTIVATE  
MY ACCOUNT**   
Get rewarded for recycling!

## ACTIVATING PARTICIPATION WITH INCENTIVES AND OUTREACH

Even though London Green Points-Bexley was designed to reward residents for overall community performance, the Council wanted to engage flats residents individually to make sure that they heard about the program and were motivated to participate.

So the program began by sending all 2,000 households in the Phase 1 area a “welcome pack” introducing the program and instructing residents to activate their accounts, either online or over the phone, in order to receive rewards. Outreach staff then went door-to-door, speaking with residents directly about the program and activating accounts for residents in person.

To encourage residents to activate their accounts, London Green Points sent residents a participant “ID card” that gave them access to discounts at 60 neighborhood retailers that had volunteered to participate in supporting and promoting the program. Within three months, 600 households—more than 30 percent of the Phase 1 area—had activated their accounts.

The Council also worked with property management staff to ensure that signage was posted near waste and recycling bins and throughout participating properties reminding all residents of the London Green Points program, and encouraging them to reduce waste and increase recycling.



## MEASURING WASTE REDUCTION AND SHARING SAVINGS WITH RESIDENTS

In cooperation with the borough’s contracted waste hauler, the Council began tracking the amount of waste collected from the Phase 1 area flats three months prior to the program launch. Weekly waste tonnages were measured by the waste hauler, who collects garbage from the Phase 1 area once per week via four separate routes.

The Council used the average weekly disposal amount over the three months prior to program launch as the baseline, against which it could measure reductions in waste disposal. Since the Phase 1 program’s official launch, the program’s data analyst has evaluated aggregated weekly waste tonnages from all four collection routes every quarter to identify any net reductions in waste disposal and to determine the cost savings associated with those reductions.

Because the cost of waste disposal is based partly on the weight of waste collected, reducing waste results in real cost savings. Through London Green Points-Bexley, these savings are translated into Green Points (£1 translates into 400 Green Points) and are awarded to participating residents.



# Outcomes

## PROGRAM RESULTS

During the first three months of the program some positive trends in waste reduction were already occurring. Each participating household therefore received £2.50 (\$4) in points, approximately half of which were donated to local charity projects.

Recycling quantities were not tracked in Phase 1 of the program, but the contracted hauler did conduct periodic visual monitoring of recycling containers and reported no visible increase in contamination of recycling following the program launch suggested that recycling rates appeared to be increasing. Gallions Housing Association, the property manager for most of the Phase 1 area flats, also reported that illegal dumping and littering appear to be going down at Phase 1 buildings as well.

## COSTS AND FUNDING

London Green Points was designed to be self-sustaining, financed with savings from reduced waste disposal. The development and start-up of the program was paid for with a grant from the LWARB, but the rewards earned by residents were based on real disposal cost savings to the borough. The LWARB grant, which covers both Phase 1 and 2 of the pilot program, totaled £107,000 (\$173,000), equivalent to £6.29 (\$10.15) per household for the 17,000 flats served.

An additional £58,000 (\$93,600) for communications was also provided by the “Recycle for London” (also funded by the LWARB). The Gallions Housing Association provided in-kind staff support for the program as well.

Expenditure Type	Cost
<b>Program Design and Administration</b>	<b>£107,000</b>
Borough of Bexley staff (0.75 FTE)	(\$172,678)
Overhead and indirect labor-related expenses	
Annual service fee to Local Green Points LLP	
<b>Outreach and Communications</b>	<b>£58,000</b>
Initial material design	(\$93,600)
Printing and distribution for pilot and expansion	
Outreach staff door-knocking initiative	
<b>TOTAL PROGRAM COSTS (for pilot and expansion)</b>	<b>£165,000</b>
	(\$266,278)

# Lessons Learned and Next Steps

## LESSONS LEARNED

Although the program allowed residents to activate their account by phone, the Council expected that most people would choose the online option. They were surprised that 40 percent of Phase 1 participants activated their accounts by phone. This had implications for the program’s communication strategies, as information had to be delivered in both online and offline formats, resulting in higher communications costs than initially anticipated.

The Council also found that residents were more likely to activate their accounts if given a time-specific reason to, such as when the invitation letters read, “Activate within 30 days and be eligible to win a special prize.”

## NEXT STEPS

The London Borough of Bexley is still in the early stages of implementing Phase 2 of the pilot program, which began serving all 17,000 flats in the borough in June 2012. But the Council is so pleased with the results so far, they are already applying for additional grant funds to expand the program to single-family homes.

*“Although it’s still in its early days, the fact that we are already starting to see increases in recycling in Thamesmead shows that the London Green Points scheme is working – which is great news!”*

*Councillor Gareth Bacon, Bexley cabinet member for the environment*





## H. Sorting Street Stations:

### Building a Pay-As-You-Throw Infrastructure for Multifamily Residents

*In an effort to increase diversion of a growing range of materials from residents in a densely populated, historic city with limited space for collection containers, Antwerp has begun installing underground collection containers that can only be accessed by area residents using an access card linked to a unique pre-paid account. Each time residents access the containers, they are charged a volume-based fee for residual waste and (a lower fee) for plastic bottles, metal cans, and polycoated cartons. Paper, glass, and organics containers can be accessed for free.*

#### PROGRAM BACKGROUND

Belgium's recycling system is renowned as one of the most advanced in the world, with an overall waste diversion rate of 62 percent and the recycling rate for consumer packaging of 85 percent. A cornerstone of Belgium's recycling system is its extended producer responsibility (EPR) program, under which producers pay municipalities for the collection of consumer packaging. Municipalities, which are financially responsible for collecting and managing all other materials, have a strong incentive to achieve high diversion rates.

High landfill taxes and other national policies that make waste disposal costly also motivate municipalities to maximize recycling, composting, and waste prevention. In Belgium's Flanders region where the City of Antwerp is located, municipalities have succeeded in achieving high residential diversion rates by using a collection system that is largely curbside based.

But in Antwerp, which is Belgium's second largest and most densely populated city, curbside collection has not been as practical or as successful. As a major port city, Antwerp has a large immigrant and temporary resident population, with many people who are unfamiliar with recycling, so the city's diversion rate has lagged behind other parts of the region.

In an effort to achieve higher diversion rates from multifamily residents, as well as to improve the aesthetics and efficiency of its collection system, Antwerp has adopted a new collection infrastructure that uses "pay-as-you-throw" (PAYT) principles to charge residents directly for waste disposal based on the amount of waste they generate.

PAYT has been shown to motivate residents to increase recycling and composting and reduce waste, but few places have been successful at designing a PAYT system for multifamily residents. Antwerp's system, called "Sorting Streets," shows that it is possible.

*Antwerp's collection system involves 5 separate streams: glass containers, paper/cardboard, food scraps, plastic/metal/cartons (PMD), and residual waste.*



#### Program Type:

- ✓ Outreach and education
- ✓ Collection and processing
- ✓ Community engagement
- ✓ Incentives and pricing
- ✓ Communications and promotion

#### Case Study Sources:

Interviews with Luc De Rooms

Project Leader

City of Antwerp

[Luc.DeRooms@stad.Antwerpen.be](mailto:Luc.DeRooms@stad.Antwerpen.be)

(Note: English is not first language)



#### ANTWERP, BELGIUM

##### A DEMOGRAPHIC SNAPSHOT

##### Multifamily population :

Approximately 200,000 people (40% of the city's population) live in high-density multifamily areas.

##### Population density:

6,300/mi<sup>2</sup> (2,400/km<sup>2</sup>)

##### Ethnic demographics:

A total of 26 percent of the population is foreign born, including 18 percent from outside the EU. The largest immigrant groups are Moroccan and Turkish.

## Program Details

### RE-IMAGINING CURBSIDE COLLECTION

In most parts of Antwerp, residential waste from both single-family and multifamily households is collected at the curbside. Residents separate materials into five material streams, placing each material type in a special color-coded bag that they purchase (or, in the case of paper/cardboard, tied up together) directly on the street, on alternating days, for pick-up.\*

Curbside collection of bagged waste is used for multifamily residents because most of the buildings in the city do not have space for large collection bins—especially for multiple material streams—and the collection trucks often would not have any way to access them.

But while bagged curbside collection works well in less dense areas of the Flanders region, it poses numerous problems for high-density multifamily areas in Antwerp, because:

- Bag-based collection is time- and labor-intensive for collection workers.
- The large piles of bags put out on the street on collection days are unsightly, disruptive to pedestrians, and attract pests.
- The system relies heavily on residents understanding of how the system works and their active participation, even in the absence of direct incentives to do so.

Antwerp decided to experiment with a novel system being implemented in the Netherlands to improve the performance and aesthetics of its collection system for multifamily residents.

The new system, which Antwerp calls “Sorting Street” stations, involves five large (5m<sup>3</sup>) collection containers (one for each material stream) installed underground and attached to above-ground receptacles for collecting waste from residents. These receptacles are outfitted with electronic devices that limit access to designated users from the surrounding multifamily buildings: these residents are given special keycards linked to a pre-paid account.

Antwerp installed its first Sorting Street station to serve a single cluster of multifamily buildings in 2006, tested additional locations in 2007-2008 and, based on a positive public response, began widespread installation in 2009.

*\*Glass containers, which in Belgium, as in most European countries, are typically not included in curbside collection. Instead, residents take their glass to public collection stations—like the green and white dome pictured at right—which are located around the city. Antwerp has 450 such containers, or approximately one for every 1,000 residents.*



In most parts of Antwerp, plastic bottles, metal cans, and polycoated cartons are collected curbside weekly in blue plastic bags. 2) Paper and cardboard are typically collected together, without a bag. 3) Residents bring glass containers to these dome-shaped receptacles distributed across the city. Clear glass and green glass are placed in separate compartments. 4) The new receptacles at “Sorting Streets” are actually connected to large underground collection containers. The receptacles can only be opened by designated residents with special keycards linked to pre-paid accounts.



## TAKING “PAY-AS-YOU-THROW” TO THE STREETS

The Sorting Street stations (“stations”) help to address Antwerp’s challenge in motivating multifamily residents to properly sort their waste by creating a financial incentive to do so. In an area where a station has been installed, residents of nearby multifamily buildings who have been given a keycard may access receptacles for certain materials—paper/cardboard, glass, and food scraps—free of charge, but they must pay to open receptacles for residual waste as well as for plastic bottles, metal cans, and cartons (which are collected together and called “PMD”).

The fee-based receptacles each have two compartments that open depending on how much is paid. One compartment holds up to 30 liters and one holds up to 60 liters.

Material Type	30 liter	60 liter
Residual Waste	€0.30 (\$0.39)	€0.60 (\$0.78)
PMD	€0.10 (\$0.13)	€0.20 (\$0.26)
Paper, Glass, Organics	No charge	



Residents are able to pay the access charges from a pre-paid account that is linked to their keycard. Most households have only one access card and one pre-paid account, but each resident can have a card and an account, if they choose.

Residents can add funds to their account through an online system, or they can make a payment in person at any City office.

The receptacles are equipped with a wireless data transmission system that updates user balances every 30 minutes, based on usage records.

## INFORMING AND MOTIVATING RESIDENTS TO COOPERATE

Antwerp municipal staff knew that the success of Sorting Street stations would depend on residents’ acceptance and understanding of the new system. So in each area where a new Sorting Street station installation was planned, the City held a public meeting to inform residents of the plan and gather input on the appropriate location and other key issues.

Then, at the official Sorting Street opening, the City held another meeting to educate residents about how to use the new system. As an incentive for residents to attend the information sessions, the City used the meetings as an opportunity to distribute the pre-paid keycards and added €5 to the accounts of all residents that attended the sessions.

Residents who did not attend the sessions received information packets in the mail announcing the new system and describing how to use it. Residents were instructed on how to order their keycards and to set up their pre-paid accounts. Because the areas being served by Sorting Streets included many immigrant and non-Dutch households, the information packets were designed to visually demonstrate how to use the new system without much reliance on text. The text itself was presented in Belgium’s four most widely spoken languages—Dutch, French, German, and English.



Kom naar het openingsfeest en krijg alvast 5 euro cadeau!  
Venez à la réception et recevez d'ores et déjà 5 euros en cadeau!  
Kommen Sie zum Empfang und bekommen Sie 5 Euro geschenkt!  
Come to the reception and you will be presented 5 euro!

Praktische details vindt u op de bijgevoegde brief.  
Vous trouverez les détails pratiques dans la lettre ci-jointe.  
Weitere Auskunft finden Sie im beiliegenden Brief.  
You will find all practical information in the enclosed letter.

## Outcomes

### PROGRAM RESULTS

Antwerp has installed Sorting Street stations in 44 locations, with a total of 239 containers, serving approximately 15,000 multifamily building residents. 34 of these locations were installed to serve multifamily residents in existing buildings, and 10 locations were included in new residential developments. In new developments, the stations are the only collection system available to residents and are designed to serve around 350 people per location. Stations installed at existing buildings serve 800 or more residents each.

Although one of the City's main goals for installing the Sorting Street stations was to make diversion more convenient and appealing for multifamily residents, it has not specifically tracked diversion rates at Sorting Streets compared to other multifamily areas. However, anecdotally, municipal staff reports that Sorting Streets have generated numerous positive outcomes, including:

- Less litter in the neighborhoods surrounding the Sorting Street stations.
- Higher quantities of paper/cardboard and food scraps diverted.
- Resident satisfaction with the increased convenience of being able to access the receptacles anytime and not having to remember collection schedules.

### COSTS AND FUNDING

As with any infrastructure and capital project, installation of the Sorting Streets involves a high up-front investment. Antwerp municipal staff estimates that each Sorting Street station costs approximately €75,000 to install (including all construction and container costs). This translates into an upfront investment of €100-215 per resident, depending on the number of residents served by each station.

In addition, the City pays the system vendor a monthly service fee of €75 per container. In return, the vendor assumes responsibility for all cleaning, maintenance, and repair of the stations, and operation of the IT platform.

Despite the high up-front costs, Antwerp expects Sorting Street stations, which can be collected using a single driver using pneumatic lifts, will reduce collection costs in the long run because they dramatically reduce the labor required, compared to the bag-based collection system.

## Next Steps

Antwerp is pleased with the results the City has seen so far from the Sorting Street system and is working on dramatically expanding the system over the next several years: 280 locations are being investigated for development as potential Sorting Street stations in the next three to five years.

While this expansion would be an impressive accomplishment, it would still only serve a small portion of the city's population. Municipal staff estimates that approximately 600 stations would be needed to adequately serve all of Antwerp's multifamily residents, and 1,500 to serve residents citywide.

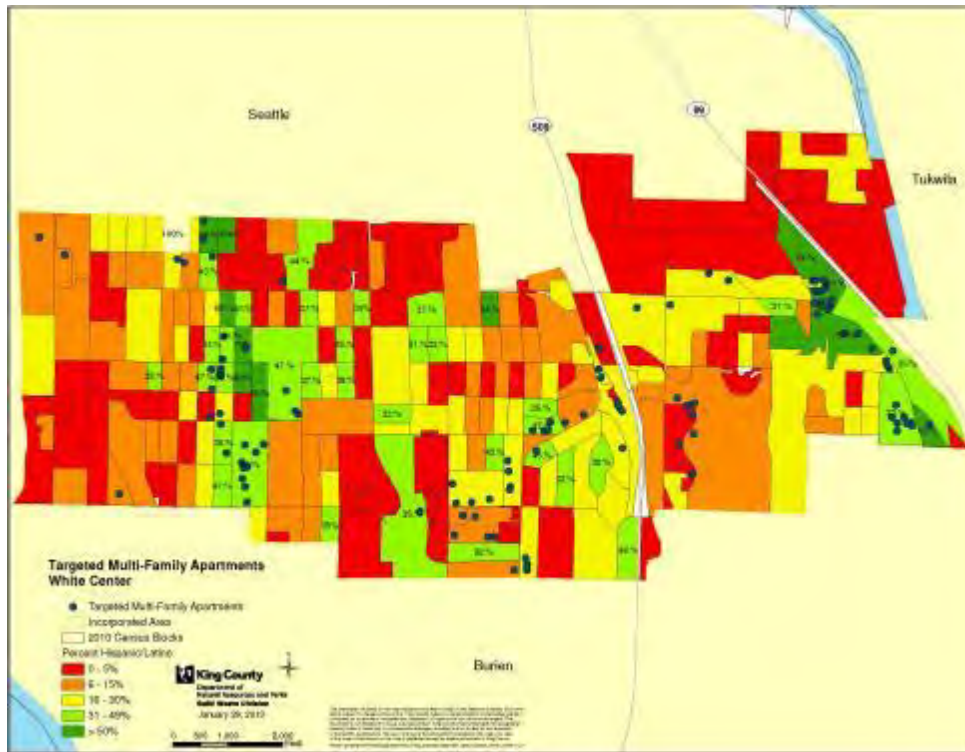
Nevertheless, Antwerp is confident that its Sorting Street stations can play an important role in its efforts to engage all of its residents in recycling, waste diversion, and waste prevention. And there are signs that other European cities may install Sorting Street stations of their own – Antwerp has hosted numerous visitors interested in learning more about the system.



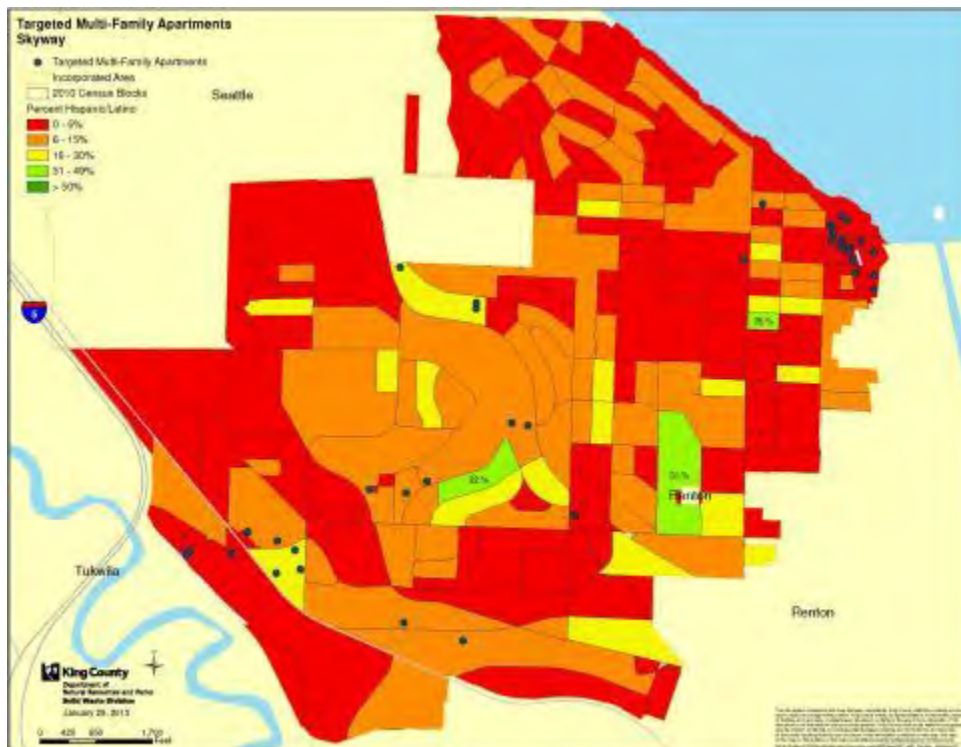


## 2. GIS MAPS OF MULTIFAMILY PROPERTIES IN KING COUNTY UTC AREAS

### White Center area



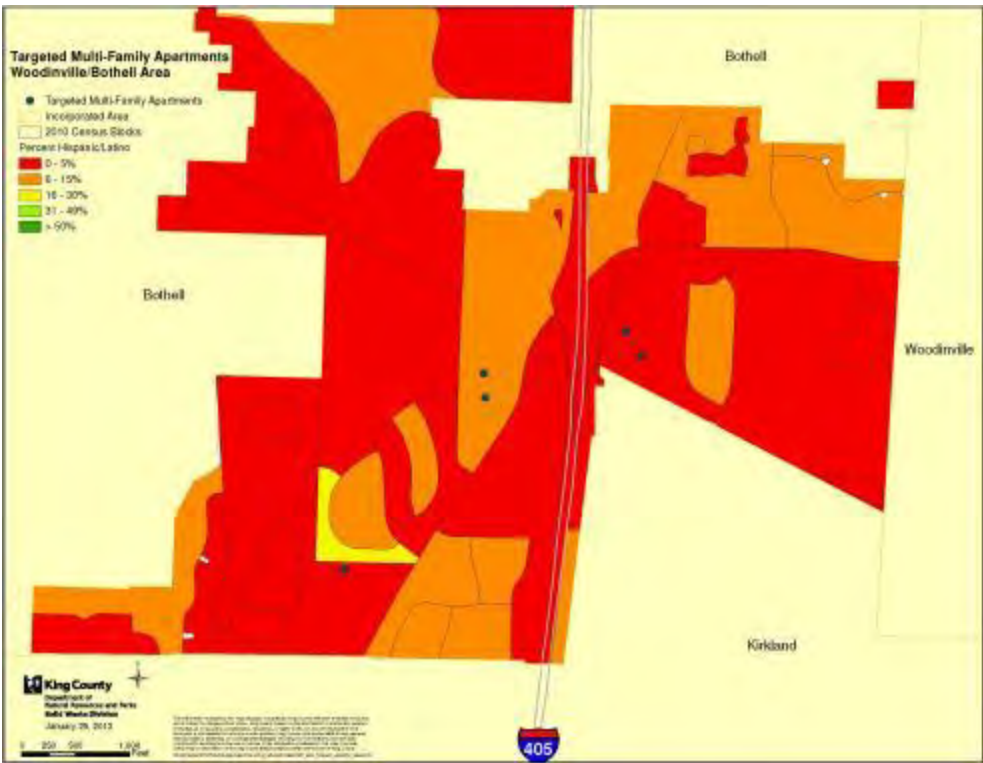
### Skyway area



Renton area



Woodinville area



### 3. PROPERTY MANAGER RECRUITMENT AND ENGAGEMENT MATERIALS



720 4<sup>th</sup> Ave, Suite 400  
Kirkland WA 98033

April 2013

Mae Seng  
Chao Apartments  
10025 DES MOINES MEMORIAL DR S  
Seattle, WA 98168-1677

RE: Participation in Recycling Pilot Project

Dear Mae Seng,

Thank you for recently completing an interview about recycling at Chao Apartments. Your responses will help us better understand how to improve recycling programs at apartments and condominiums. Waste Management and the King County Solid Waste Division are incorporating your feedback in a pilot project to improve recycling at properties like yours.

We have identified your site as a candidate site for the pilot project and we hope you will consider participating. The goal of this pilot project is to help increase recycling, reduce garbage collection costs, and discourage illegal dumping at your property.

Socorro Medina of the Environmental Coalition of South Seattle (ECOSS), a partner of Waste Management, will be in touch with you soon regarding your participation. If you have any questions, please contact her at (206) 767-0432 or socorros@ecoss.org.

Please find enclosed a \$10 gift card to Amazon.com as our way of saying thank you for taking the time to complete our interview.

Sincerely,

A handwritten signature in black ink that reads 'Candy Castellanos'.

Candy Castellanos  
Public Education Manager  
Waste Management

## King County UTC Multifamily Recycling Pilots



720 4<sup>th</sup> Ave, Suite 400  
Kirkland WA 98033



June 11, 2013

Mae Seng  
Chao Apartments  
10025 Des Moines Memorial Dr S  
Seattle, WA 98168-1677

RE: Participation in Recycling Pilot Project

Dear Mae Seng,

Waste Management and King County are conducting a pilot project to increase recycling, reduce recycling contamination and discourage illegal dumping at apartment buildings in South Seattle.

Earlier this year, we conducted a site assessment of recycling and garbage service at Chao Apartments and spoke with you about the recycling habits of residents there. Based on the information collected, we have selected your property as one of eight to participate in the pilot. Participating in this pilot should take less than 2 hours of your time. Participation does not cost anything, and may help you save money on your garbage bill.

By participating in the pilot, you will receive the following services:

- The garbage and recycling containers will be upgraded and improved as necessary, and they will be monitored regularly to evaluate the effectiveness of the pilot program.
- We will discuss with you different strategies to tackle illegal dumping, and will provide you with free "No Dumping" signs to post at the property.
- Our bilingual outreach staff will go door-to-door talking to residents, providing them with bilingual recycling guidelines and reusable tote bag for storing and transporting recyclables to the outdoor recycling container.
- We will provide the residents with information on what to do with bulky or hard-to-dispose items that may be inappropriately left next to the garbage containers, and on how to report illegal dumping when they witness it.
- You will receive recognition from King County for your participation, and results from this pilot will be presented to other property managers and recycling coordinators throughout the region.

To get started, please call Socorro Medina at (206) 372-3551, to schedule a time to meet. During this meeting, we will answer questions about the pilot program and evaluate the property's current garbage and recycling service level together to determine if there are opportunities for cost savings or service improvements. The initial meeting will only take 30 minutes and we can meet you at a time and a location that is convenient to you. Thank you for your time. We look forward to working with you to improve recycling at your property.

Sincerely,

A handwritten signature in black ink that reads 'Candy Castellanos'.

Candy Castellanos  
Public Education Manager  
Waste Management



#### 4. SITE ASSESSMENT TOOLS AND MATERIALS

##### Example Materials used for Assessment at Glen Crest Apartments

##### Glen Crest Apartments (18 Units)

Garbage: 1 @ 4 cy twice a week ; Recycling 1 @ 1 cy once a week

Property data	Adequate?	Recommendation
Total capacity (cy per unit per week) Goal: 0.3-0.5	0.5 Yes	
Recycling capacity (% of total) Goal: 30-50	11 No	Increase recycling capacity to 4 cy (After this change, the new total capacity will be too large, so we could potentially decrease garbage pick up frequency to once a week)
Stand alone garbage containers?	No Yes	
Stand alone recycling containers?	No Yes	
Recycling containers blue?	No No	Request new blue recycling container or paint it if it is green
Containers not well marked/difficult to distinguish?	Yes No	Add large decals to both garbage and recycling containers
Non-standard recycling containers?	No Yes	
Recycling containers overflowing?	Yes (100%) No	Increase recycling capacity
Low recycling fullness?	No (100%) Yes	
More than 50% in garbage is recycling?	No (30%) Yes	
More than 20% in recycling is contamination?	Yes (50%) No	Education/outreach to residents about what to recycle (focus on contamination)
Containers are inconvenient or difficult to access?	No Yes	
Containers are susceptible to illegal dumping/look unattractive?	Yes (clothes and household items in rec) No	Consider moving containers to a less vulnerable area or build an enclosure

	Pre- Pilot	Post-Pilot
Container count, sizing and frequency	<b>Observed:</b> Garbage: 1 @ 4 cy (2 x week) Recycling: 1 @ 1 cy (1 x week)  <b>Contracted:</b> Garbage: 1 @ 4 cy (2 x week) Recycling: Possibly not being charged for it but charge allows for additional collection frequency (4 cy instead of 1 cy)	Garbage: 1 @ 4 cy (2 x week, could go to 1 x week) Recycling: 1 @ 4 cy (1 x week)
Monthly rate	Contracted: \$518.74 (with recycling) \$462.62 (without recycling)	\$518.74 (if 2 x week) \$266.82 (if 1 x week)

Actions	
Service change request	Increase recycling capacity to 4 cy (After this change, they could potentially decrease garbage pick up frequency to once a week)
# Painted containers	One (either request that new recycling container is blue or paint it if otherwise)
# Decals added	Add 1 large decals for garbage and 1 large decal for recycling
Education/outreach	D2D and tote bag distribution. Focus on reducing contamination in recycling (having the same size of garbage and recycling containers should help with this issue)
Container relocations	Possible move containers to less vulnerable area



**MONTHLY GARBAGE & RECYCLING RATE CALCULATOR**  
**MULTIFAMILY WM CUSTOMERS IN KING COUNTY SOUTH SOUND - TARIFF 22 AREA (AS OF JANUARY 1, 2013)**

Garbage Container Size	Monthly Garbage Rate (for 1x week pick-up)	Monthly Garbage Container Rental	Monthly Recycling Rate (for 1x week garbage pick-up)	Recycling Rebate (\$0.38/yard of garbage service per pickup)	CURRENT SERVICE			RECOMMENDED SERVICE		
					# of containers (garbage only)	# of pick-ups per week (garbage only)	Total Monthly Rate (monthly garbage rate x # of p/us x # of containers) + (garbage container rental x # of containers) + (monthly recycling rate x # of p/us x # of containers) - (recycling rebate x # of p/us x # of containers)	# of containers (garbage only)	# of pick-ups per week (garbage only)	Total Monthly Rate (monthly garbage rate x # of p/us x # of containers) + (garbage container rental x # of containers) + (monthly recycling rate x # of p/us x # of containers) - (recycling rebate x # of p/us x # of containers)
64 gal cart	\$29.01	\$1.50	\$3.00	\$0.52			\$0.00			\$0.00
96 gal cart	\$37.24	\$3.00	\$4.33	\$0.77			\$0.00			\$0.00
1 yard	\$69.28	\$8.40	\$8.66	\$1.65			\$0.00			\$0.00
1.5 yard	\$96.99	\$9.00	\$12.99	\$2.47			\$0.00			\$0.00
2 yard	\$122.11	\$11.10	\$17.32	\$3.29			\$0.00			\$0.00
3 yard	\$182.73	\$12.80	\$25.98	\$4.94			\$0.00			\$0.00
4 yard	\$223.86	\$14.90	\$34.64	\$6.58	1	2	\$518.74	1	1	\$266.82
6 yard	\$312.63	\$17.10	\$51.96	\$9.87			\$0.00			\$0.00
8 yard	\$395.76	\$19.70	\$69.28	\$13.16			\$0.00			\$0.00
<b>Total</b>					1	2	\$518.74	1	1	\$266.82

## Property Assessment & Recommendations

King County  
Multifamily Recycling Improvement Pilot

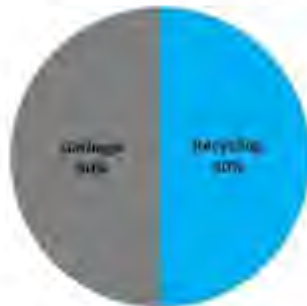


### Customer Information

Property name	Glen Crest Apartments	WM account #	410-379145
Property type	Apartment building	Property Manager name	Jeri Finch
Property address	10625 22 <sup>nd</sup> Place South Seattle, WA 98168-1773	Property Manager address	
# of units	18	Property Manager email	

### Property Assessment Key Findings

Garbage Container Contents



Service Capacity Analysis



#### Best Practice Standard

Total capacity target = 0.3-0.5 CY/unit per week

Recycling capacity target = 30%-50% of total capacity

Signs installed to deter illegal dumping

Recycling contamination = <20%

Recycling in garbage = <30%

Recycling containers are blue, all containers are well marked

#### Condition/Assessment

0.44 CY/unit per week

Garbage fullness = 30%

Recycling fullness = 100%

Recycling capacity = 11% of total

No signs

Recycling contamination = 50%

Recycling in garbage = 50%

Recycling container is not blue

Containers are not well marked

#### Recommendations

Excess garbage capacity - decrease garbage collection frequency to 1x week (0.22 CY/unit per week)

Increase recycling capacity to 50% of total (0.22 CY/unit per week)

Install "No Dumping" signs near containers

Educate residents about proper recycling

Provide tote bags to encourage participation

Paint recycling container blue

Add large decals to all containers

#### Current Service Levels

Garbage	(1) 4 yard @ 2x week
Recycling	(1) 1 yard @ 1x week

MONTHLY RATE

Current

**\$518.74**  
(not including additional taxes and fees)

#### Recommended Service Levels

(1) 4 yard @ 1x week
(1) 4 yard @ 1x week

Recommended

**\$266.82**  
(not including additional taxes and fees)

Prepared by Socorro Medina on behalf of Waste Management and King County.  
Questions? Contact Socorro at (206) 372-3551.

5. CONTAINER DECALS AND “NO DUMPING” SIGN





## 6. DOOR-TO-DOOR OUTREACH MATERIALS GIVEN TO RESIDENTS

# Residential Recycling Guidelines

### Clean Paper and Cardboard

Flattened cardboard (limit 2x3 ft), newspapers, inserts, magazines, catalogs, phonebooks, paperback books, mail (window envelopes ok), paper bags, food boxes

### Paper Food Containers

Clean paper cups, milk & juice cartons, juice boxes, frozen food boxes (rinse out, no caps).

### Plastic Containers

Plastic cups, bottles and jugs (no caps), plastic jars and tubs (clean and no lids). **Plastic bags are not accepted.**

**Ignore the numbers; recycle plastics by shape!**

### Glass Bottles and Jars

Bottles & jars (all colors and sizes) (No caps or lids, labels ok).

### Aluminum, Tin Cans, and Clean Scrap Metal

Aluminum & tin cans, empty aerosol cans, scrap metal & small metal appliances (limit 2x2 ft, 35 lbs). Please rinse and empty cans.

Please empty clean recyclables out of bags and boxes into your recycling container so they can be easily sorted.

### The Following Items Are Not Accepted:

**Non Accepted Paper**  
Food-soiled paper towels, napkins and non-coated paper plates (ok in food/yard cart)  
Shredded paper (ok layered in food/yard cart)

**Non Accepted Plastic**  
Plastic bags or film (reuse or recycle at grocery stores)  
Plastic plates, utensils  
Prescription vials  
Styrofoam containers, packaging

**Non Accepted Glass**  
Ceramics, dishes, drinking glasses

**Non Accepted Metal**  
Aluminum foil, foil trays  
Sharp metal or greasy items

**Other Non Accepted Items**  
Clothing, shoes (donate instead)  
Diapers  
Garbage  
Hoses  
Light bulbs, windows, mirrors  
Needles, syringes  
Toxic containers (paint, oil, antifreeze, pesticides, etc.)

### Beyond the Curb Electronic and Hazardous Waste

Fluorescent tubes and bulbs, electronics (computers, cell phones, TVs etc.), batteries, and hazardous products (cleaners, solvents, etc.) do not go in the recycling or garbage. Safe disposal information: [wmnorthwest.com](http://wmnorthwest.com) or [1800recycle.wa.gov](http://1800recycle.wa.gov) or call **1-800-Recycle**

**If in Doubt, Check It Out at [wmnorthwest.com](http://wmnorthwest.com)**

**THINK GREEN:**

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# RECICLAJE

Estos artículos van en tu bote de reciclaje residencial.



## Papeles y cartones limpios

Cartón aplanado (límite de 2x3 pies (60x90 cm)), periódicos, insertos de revistas, catálogos, guías telefónicas, libros de pasta blanda, sobres (se permite sobres con ventanilla), bolsas de papel, cajas de alimentos y papel de regalo



## Aluminio, latas de aluminio y chatarra de metal limpia

Latas de aluminio y estanho, latas vacías de aerosol, papel y bandejas de aluminio, chatarra y electrodomésticos pequeños de metal (límite de 2x2 pies (60x60x60 cm), 35 lbs. (15 kg))

Por favor, enjuaga y vacía las latas.



## Envases plásticos

Vasos, botellas y contenedores (sin la tapa), jarras y frascos (limpios y sin la tapa). **No se aceptan bolsas de plástico. ¡No te fíjes en los números; recicla los envases plásticos de acuerdo a su forma!**



## Botellas y frascos de vidrios

Botellas y frascos (todos los colores y tamaños). **No se aceptan tapas pero se aceptan etiquetas.**



## Recipientes de papel para comida

Vasos de papel limpio, cartones de leche, jugo y cajas de alimentos congelados (enjuagados, sin la tapa)



Por favor, vacía y limpia las bolsas y cajas reciclables antes de colocarlas en tu recipiente de reciclaje para que puedan ser clasificadas fácilmente.

## No se aceptan los siguientes artículos:



### Papeles no aceptados

Toallas y servilletas de papel sucio con comida, platos y vasos de papel sin revestimiento (se aceptan en el bote de desechos del jardín) y papel triturado (está bien reciclarlo en capas en el bote de desechos del jardín)



### Metales no aceptados

Metales puntiagudos o artículos grasosos



### Plásticos no aceptados

Bolsas o láminas de plástico (retirales o recíclalas en los supermercados), platos, vasos e utensilios de plástico, frascos de medicamentos recetados, contenedores y empaques de poliestireno



### Vidrios no aceptados

Cerámica, platos y vasos para beber



### Otros artículos no aceptados

Ropa y zapatos (es mejor donarlos), pahalos, basura, mangueras, bombillos/ focos, ventanas, espaldas, agujas, jeringas y contenedores tóxicos (pintura, aceite, antihielera, pastillas, etc.)

## Desperdicios electrónicos y desechos peligrosos:

No coloques en el bote de reciclaje ni en el de la basura los tubos y focos fluorescentes, artefactos electrónicos (computadoras, teléfonos móviles, televisores, etc.), baterías y productos peligrosos (productos de limpieza, solventes, etc.). Información para eliminación segura:

■ [wmnorthwest.com](http://wmnorthwest.com)

■ [ecyclewashington.org](http://ecyclewashington.org)

■ [takeitbacknetwork.org](http://takeitbacknetwork.org)

■ [lamptracker.com](http://lamptracker.com)

■ [thinkgreenfromhome.com](http://thinkgreenfromhome.com)

■ [medwaste.wm.com](http://medwaste.wm.com)

■ [1800recycle.wa.gov](http://1800recycle.wa.gov)

■ 1-800-Recycle



Para más información, visita [wmnorthwest.com/espanol](http://wmnorthwest.com/espanol)

Impreso en papel reciclado

**THINK GREEN:**  
C20111engspan





## MOVE IN / MOVE OUT RESOURCES

Whether you are moving in, or getting ready to move out, there are many reuse and recycling resources available for unwanted items. Use this guide to help find a new home for all the things you cannot keep.



### NEW IN TOWN?

Use these tools to learn more about what you can recycle as a resident of an apartment building or condominium in King County.

### FREE RECYCLING GUIDE

This easy-to-use booklet highlights all of the items that can be recycled in King County, as well as information on what to do with unwanted hazardous products. Ask your property manager for a copy of the WM King County Recycling Guide.



Waste Management  
Customer Service Center

1-800-592-9995  
wmnorthwest.com



### FREE RECYCLING FLYERS

These flyers are easy to hang next to your indoor recycling bin as a visual reminder of what goes in the bin.

### FREE RECYCLING POSTERS

These 11 x 17 laminated posters are easy to hang above or next to the outdoor recycling containers.

### Illegal Dumping costs you money!

Watch your apartment's  
dumpsters and report  
dumpers by calling the  
King County Illegal Dumping  
Hotline at

206-296-SITE

### Zero Waste Moving Tips

Moving Box Alternatives

- Rent reusable moving boxes from Frog Box  
[frogbox.com/seattle](http://frogbox.com/seattle) 206-588-5463
- Use luggage to move items instead of boxes

Use reusable packing materials like newspaper or old bubble wrap to secure fragile items.

Create a reusable box exchange at your complex to share boxes with neighbors who are moving in or out.



### What Do I Do With?

Not sure how to dispose of something?

Find local recycling information using  
King County's What Do I Do With  
Lookup Tool

[kingcounty.gov/whatdoidowith](http://kingcounty.gov/whatdoidowith) 206-296-4466



### Green Cleaning

Help protect your health and the environment by using non-toxic cleaners that are made without harsh chemicals. Learn more at [watoxics.org](http://watoxics.org).

Local green cleaning companies

- Green Steam Carpet Cleaners  
[greenteamkirkland.com/services](http://greenteamkirkland.com/services)
- Green Cleaning Seattle  
[greencleaningseattle.com](http://greencleaningseattle.com)

Safely dispose of unwanted cleaning products as hazardous waste.

206-296-4692 [lhwmp.org](http://lhwmp.org)



### Bulky Item Pickup


For items that are too large for your collection containers, contact Waste Management.

1-800-592-9995 [wmnorthwest.com](http://wmnorthwest.com)

[wmnorthwest.com](http://wmnorthwest.com)


1-800-592-9995

THINK GREEN.™



## ON THE MOVE

Use these resources to reduce waste when moving out.



## Donate Usable Unwanted Items

<p>1-877-GIVE4GOOD goodwill@seattlegoodwill.org www.seattlegoodwill.org</p> <p>St Vincent De Paul Society 206-767-9975 giving@svdpseattle.org www.svdpsseattle.org</p> <p>Value Village 425-462-1515 customer@valuevillage.com www.valuevillage.com</p> <p>SWAP/SELL ONLINE www.2good2toss.com www.Craigslist.org www.swap.com</p>	<p><b>Foam Packing Materials</b></p> <p>V&amp;G Styro Recycle www.styrorecycle.com 253-838-9555</p> <p>Pony Express (packing peanuts) 425-881-2449</p> <p>Plastic Loose Fill Council www.loosefillpackaging.com</p> 	<p><b>Unopened People Food</b></p> <p>HopeLink 425-869-6000 hopeLink@hope-link.org www.hope-link.org</p> <p>Northwest Harvest 1-800-722-6924 www.northwestharvest.org</p>  <p><b>Unopened Pet Food</b></p> <p>King County Regional Animal Services 206-296-PETS (7387) Pets@kingcounty.gov www.kingcounty.gov/safety/regionalAnimalServices.aspx</p> 
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## Beyond the Curb Recycling

<p><b>King County "What Do I Do With?" Lookup Tool</b> 206-296-4466 kingcounty.gov/whatdoidowith</p> <p><b>CD &amp; DVD Recycling</b> Green Disk 800-305-3475</p> <p><b>Mattress Recycling</b> Correctional Industries 360-239-0452</p> 	<p><b>E-Waste, CFL and Battery Recycling</b></p> <p>Waste Management www.ThinkGreenFromHome.com</p> <p>Total Reclaim 206-343-7443 totalreclaim.com</p> <p>Take it Back Network 1-800-325-6165 ext. 64466 www.takeitbacknetwork.org www.ecyclewashington.org</p> 
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## Safe Disposal

<p><b>Hazardous Waste</b></p> <p>King County Hazardous Waste 1-888-869-4233 www.lhwmp.org</p> 	<p><b>Medical Waste</b></p> <p>WM Healthcare Solutions www.wm.com</p> <p>Take Back Your Meds www.TakeBackYourMeds.org</p> 	<p><b>Data Destruction</b></p> <p>InterConnection 206-633-1517 www.interconnection.org</p> 
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wmnorthwest.com

1-800-592-9995

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## RECURSOS UTILES PARA ANTES Y DESPUES DE MUDARSE

Hay muchas maneras de reusar y reciclar artículos que ya no quiera. Esta guía le puede ayudar a encontrar un nuevo hogar para los artículos que ya no use o para los que ya no tenga espacio después o antes de mudarse.



### ¿LLEGÓ RECIENTEMENTE A ESTA REGIÓN?

Use estas herramientas para explorar qué artículos pueden reciclar los inquilinos de un edificio de apartamentos o condominios en el Condado de King.

#### GUÍA GRATUITA SOBRE RECICLAJE

Este folleto de manejo fácil enumera todos los artículos que pueden ser reciclados en el Condado de King y también contiene información sobre cómo deshacerse de productos tóxicos que ya no quiera. Pídale al administrador de su complejo de apartamentos una copia de la Guía de Reciclaje de Waste Management para el Condado de King (Recycling Guide by Waste Management for King County).



**Centro de Servicio al Cliente de Waste Management**

**1-800-592-9995**

[wmnorthwest.com/espanol](http://wmnorthwest.com/espanol)



#### FOLLETOS GRATUITOS SOBRE RECICLAJE

Estos folletos son fáciles de colgar cerca de los botes de reciclaje dentro de su hogar como un recordatorio visual sobre qué puede reciclar en sus botes.

#### PÓSTERS GRATUITOS SOBRE RECICLAJE

Estos pósters laminados de 11 pulgadas x 17 pulgadas son fáciles de colgar arriba o enseguida del bote exterior de reciclaje.

**¡El uso no autorizado de los contenedores le cuesta a Ud.!**

Preste atención a los contenedores de sus apartamentos. Llame a la línea del Condado de King para Uso No Autorizado de Contenedores para reportar el uso de sus contenedores por personas quienes no residen ahí.

206-296-SITE

### Consejos para minimizar la basura cuando se cambie de vivienda

Opciones para minimizar el uso de cajas

- Contacte a "Frog Box" para rentar cajas reusables: [frogbox.com/seattle](http://frogbox.com/seattle) 206-588-5463
- Use maletas y equipaje en lugar de cajas

Use materiales reusables como periódico o burbujas usadas para empacar artículos frágiles.

Organice un intercambio de cajas en su complejo de apartamentos para compartir cajas con sus vecinos que se acaben de mudar o que estén a punto de mudarse.



### Limpieza con productos ecológicos

Ayude a proteger su salud y el medio ambiente mediante el uso de productos de limpieza que no son tóxicos y que no contienen químicos fuertes. Infórmese en [watoxics.org](http://watoxics.org).

Algunas compañías de limpieza locales que usan productos ecológicos son:

- Green Steam Carpet Cleaners  
[greenteamkirkland.com/services](http://greenteamkirkland.com/services)
- Green Cleaning Seattle  
[greencleaningseattle.com](http://greencleaningseattle.com)

Deshágase de los productos de limpieza que ya no use de una manera apropiada, ya que son desechos tóxicos:

206-296-4692 [lhwmp.org](http://lhwmp.org)



### ¿Qué hago con...?

¿No está seguro de cómo deshacerse de algo?

Use las herramientas del Condado de King para encontrar información local sobre reciclaje: [kingcounty.gov/whatdoidowith](http://kingcounty.gov/whatdoidowith)



### Recolección de artículos grandes

Si tiene artículos que son demasiado grandes para poner en los botes, contacte a Waste Management:


**1-800-592-9995**

[wmnorthwest.com/espanol](http://wmnorthwest.com/espanol)

[wmnorthwest.com/espanol](http://wmnorthwest.com/espanol)


**1-800-592-9995**

**THINK GREEN.®**



## ANTES DE MUDARSE

Use estos recursos para minimizar la generación de basura cuando esté preparándose para mudarse.






### Done los artículos que ya no quiere a:

<p>1-877-GIVE4GOOD goodwill@seattlegoodwill.org www.seattlegoodwill.org</p> <p>St Vincent De Paul Society 206-767-9975 giving@svdpseattle.org www.svdpsattle.org</p> <p>Value Village 425-462-1515 customercare@savers.com www.valuevillage.com</p> <p>INTERCAMBIE O VENDA ARTÍCULOS EN INTERNET www.2good2toss.com www.Craigslist.org www.swap.com</p>	<p><b>Materiales de espuma para empacar</b></p> <p>V&amp;G Styro Recycle www.styrorecycle.com 253-838-9555</p> <p>Pony Express (materiales para empacar conocidos como "packing peanuts") 425-881-2449</p> <p>Plastic Loose Fill Council www.loosefillpackaging.com</p> 	<p><b>Cajas o latas selladas de comida (para humanos)</b></p> <p>La despensa de Tukwila 3118 South 140th Street 206-431-8293</p> <p>El banco de comida de Des Moines 22225 9th Ave. So 206-878-2660</p> <p>El banco de comida de White Center 10829 8th Ave. SW, Seattle, WA</p> <p><b>Comida cerrada (para mascotas)</b> El refugio de animales de Seattle 2061 15th Ave W. Seattle 206-386-7387</p>  
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### Reciclaje de artículos especiales

<p><b>La herramienta "¿Qué hago con...?" del Condado de King</b> 206-296-4466 kingcounty.gov/whatdojowith</p> <p><b>Reciclaje de aparatos electrodomésticos</b> Budget Junk Hauling 800-305-3475</p> <p><b>Reciclaje de CDs y DVDs</b> Green Disk 800-305-3475</p> <p><b>Reciclaje de colchones</b> Correctional Industries 360-239-0452</p>   	<p><b>Desechos electrónicos, focos de baja energía (fluorescentes compactos) y reciclaje de pilas o baterías</b></p> <p>Waste Management www.ThinkGreenFromHome.com</p> <p>Total Reclaim 206-343-7443 totalreclaim.com</p> <p>El sistema "Take it Back" 1-800-325-6165 ext. 64466 www.takeitbacknetwork.org www.ecyclewashington.org</p>   
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### Eliminación segura de artículos delicados

<p><b>Desechos tóxicos</b> King County Hazardous Waste 1-888-869-4233 www.lhwmp.org</p> 	<p><b>Desechos médicos</b> WM Healthcare Solutions www.wm.com</p> <p>Take Back Your Meds www.TakeBackYourMeds.org</p> 	<p><b>Dstrucción de datos electrónicos</b> InterConnection 206-633-1517 www.interconnection.org</p> 
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wmnorthwest.com/espanol

1-800-592-9995

THINK GREEN.™







## Reciclando, estoy cuidando a mi planeta.

Usa este bolso para llevar tus reciclables limpios a tu contenedor de reciclaje.



**Plástico | Plastic**



**Vidrio | Glass**



**Aluminio & Metal**  
Aluminum & Metal



**Cartón & Papel**  
Cardboard & Paper

## By recycling, I'm protecting the environment.

Use this bag to carry clean recyclables to your recycling container.



[www.wmnorthwest.com](http://www.wmnorthwest.com)  
1-800-592-9995

**THINK GREEN.**

## King County UTC Multifamily Recycling Pilots



720 4<sup>th</sup> Ave, Suite 400  
Kirkland WA 98033

August 2013

Chao Apartments  
10025 Des Moines Memorial Dr S  
Seattle, WA 98168

RE: Recycling Improvement Program

Dear Resident,

King County, Waste Management, and your property manager have organized a pilot program to improve recycling and to prevent recyclable items from ending up in the garbage. The program also seeks to discourage illegal dumping by non-residents or by residents that may not know that bulky items, such as furniture or electronic appliances, do not belong in the garbage.

Several changes have been made as part of this program, such as changes to the size, quantity and/or location of your recycling/garbage containers. The goal of these changes is to make containers more convenient for residents to access and to make it easier to distinguish the recycling containers from the garbage containers.

In the following weeks, our staff will be stopping by to provide free reusable tote bags and information to help you and your family recycle more. We want to hear suggestions and answer questions that you have about recycling. Our staff will carry Waste Management Identification badges. They have been authorized by your property manager to visit residents, such as yourself. Waste Management recycling experts plan to visit your unit at some point between August 19 and September 8. The visit will take 5-10 minutes.

By recycling, you are protecting the environment, helping to conserve natural resources, and leaving a better planet for following generations.

I thank you in advance for your participation. If you have any questions, please call one of our recycling experts: Socorro Medina (206-372-3551) or Stuart Vasquez (425-672-6770).

Sincerely,

A handwritten signature in black ink that reads 'Candy Castellanos'.

Candy Castellanos  
Public Education Manager  
Waste Management

Traducción de español en el reverso.

7. DOOR-TO-DOOR OUTREACH DATA COLLECTION TOOLS

PROPERTY NAME: \_\_\_\_\_ STAFF: \_\_\_\_\_

Language	Unit #	Visit 1 Date/Time, Notes	Visit 2 Date/Time, Notes	Visit 3 Date/Time, Notes	Quiz Y/N	Spoke With	Done

# King County UTC Multifamily Recycling Pilots

Outreach tracking spreadsheet ☆

File Edit View Insert Format Data Tools Help Last edit was made 6 days ago by Stuart Vazquez

Comments Share

Building Name: Centerwood

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Building Name: Centerwood						Visit 1			Visit 2			Visit 3
2	Unit #	Staff	Spoke With	Language	Date	Time	Notes 1	Date2	Time 2	Notes 2	Date 3	Time 3	Notes 3
3	A302	Socorro	Head of household	English & Spanish	9/12/2013	12:00 PM	No answer	9/18/2013	5:00 PM	No answer	9/25/2013	5:30 PM	
4	A301	Socorro	Son	Spanish	9/12/2013	12:00 PM	No answer	9/18/2013	5:00 PM	No answer	9/25/2013	5:30 PM	
5	A303	Socorro	Mom	English (ESL, Vietnam	9/12/2013	12:00 PM	No answer	9/18/2013	5:00 PM	No answer	9/25/2013	5:30 PM	Stuat gave quiz
6	A304	Socorro	Dad, mom, kids	Spanish	9/12/2013	12:00 PM	No answer	9/18/2013	5:00 PM	Positive interaction			
7	A202	Socorro	Head of household	English	9/12/2013	12:00 PM	No answer	9/18/2013	5:15 PM	Positive interaction			
8	A201	Socorro			9/12/2013	12:00 PM	No answer	9/18/2013	5:15 PM	No answer	9/25/2013	5:30 PM	Left bag
9	A203	Socorro	Dad	English	9/12/2013	12:15 PM	Tries to recycling, feels like people			No answer			
10	B104	Socorro			9/12/2013	12:15 PM	No answer	9/18/2013	5:15 PM	No answer	9/25/2013	5:15 PM	Left bag
11	B103	Socorro			9/12/2013	12:15 PM	No answer	9/18/2013	5:15 PM	No answer	9/25/2013	5:15 PM	Left bag
12	B101	Socorro			9/12/2013	12:15 PM	No answer	9/18/2013	5:15 PM	No answer	9/25/2013	5:15 PM	Left bag
13	B102	Socorro	Mom	Spanish	9/12/2013	12:15 PM	No answer	9/18/2013	5:30 PM	Done			
14	B203	Socorro	Head of household	English (also Spanish)	9/12/2013	12:15 PM	Positive interaction						
15	C301	Socorro			9/12/2013	1:00 PM	No answer	9/18/2013	5:15 PM	No answer	9/25/2013	5:00 PM	Left bag
16	C302	Socorro	Not sure		9/12/2013	1:00 PM	No answer	9/18/2013	5:30 PM	Come back			
17	C303	Socorro			9/12/2013	1:00 PM	No answer	9/18/2013	5:15 PM	No answer	9/25/2013	5:00 PM	Left bag
18	C304	Socorro	Head of household	English (Vietnamese	9/12/2013	1:00 PM	Positive interaction						
19	C104	Socorro	Head of household	English (African Ame	9/12/2013	1:00 PM	Positive interaction						
20													
21	A104	Stuart	Mom	English	9/12/2013	12:00pm	Positive						
22	A103	Stuart	-		9/12/2013	12:10pm	No Answer	9/18/2013	5:00pm	No answer	9/25/2013	5:00pm	Left bag
23	A101	Stuart			9/12/2013	12:12pm	No answer	9/18/2013	5:00pm	No answer	9/25/2013	5:00pm	Left bag
24	A102	Stuart	Dad	English	9/12/2013	12:13pm	No answer	9/18/2013	5:00pm	No time to talk/took bag			
25	A204	Stuart	Adult male	English	9/12/2013	12:15pm	No answer	9/18/2013	5:00pm	No time to talk/took bag			
26	B304	Stuart	Couple	English	9/12/2013	12:20pm	No answer	9/18/2013	5:00pm	Positive interaction			
27	B303	Stuart	-		9/12/2013		No answer	9/18/2013	5:00pm	No answer	9/25/2013	5:30pm	Left bag
28	B302	Stuart	Mom	English	9/12/2013		No answer	9/18/2013		No answer	9/25/2013	5:30pm	Moving out in KC/took bag
29	B301	Stuart	-		9/12/2013		No answer	9/18/2013		No answer	9/25/2013	5:30pm	Left bag

Vinh Outreach Vinh Quiz + Questions Chao Outreach Chao Quiz + Questions Centerwood Outreach Centerwood Quiz + Questions Shorewood Outreach Sh



8. RESIDENT "RECYCLING REMINDER" CARD






**THINK GREEN.™**

## RECYCLING REMINDERS

for Residents of Coronado Springs

**Thank you for recycling!**  
*We know how confusing recycling can be, and you are doing great. The following list includes items recently found in the recycling that do not belong there. We need your help to keep these items out of the recycling.*

-  **Foam Cups and Packaging**  
*Put it in the garbage* 
-  **Food-soiled Paper, Take-out Containers, and Pizza Boxes**  
*Put it in the garbage or yard waste cart, if available* 
-  **Electronics**  
*Take TV's and electronics to E-Cycle Washington locations. Visit [ecyclewashington.org](http://ecyclewashington.org)* 
-  **Clothing, Shoes, and Fabric**  
*Take clothing, fabrics, and shoes to local thrift stores* 
-  **Plastic Bags**  
*Use plastic bags to clean up pet waste or take them to your local grocery for recycling. Find locations near you at [bagyourbags.com](http://bagyourbags.com)* 
-  **Garbage Bags**  


**By recycling, you're protecting the environment!**

RECYCLING GUIDELINES AND INFORMATION  
 1-800-592-9995      [wmnorthwest.com/kingcounty](http://wmnorthwest.com/kingcounty)






**THINK GREEN.™**

## RECORDATORIOS SOBRE CÓMO RECICLAR MEJOR

para los inquilinos de Coronado Springs

**¡Gracias por reciclar!**  
*Sabemos que reciclar puede ser complicado, sin embargo, ustedes lo están haciendo muy bien. La siguiente lista incluye artículos que se encontraron recientemente en los botes de reciclaje y que no deben ir ahí. Necesitamos su ayuda para evitar que estos artículos terminen en los botes de reciclaje.*

-  **Vasos y empaques de poliestireno (unicef o nieve seca)**  
*Por favor, póngalos en la basura* 
-  **Papel con manchas de comida, recipientes de comida para llevar y cajas de pizza**  
*Por favor, póngalos en el bote de basura o en el bote de desechos de comida si están disponibles en su complejo de apartamentos* 
-  **Aparatos electrónicos**  
*Por favor, lleve sus televisores y aparatos electrónicos a los locales de E-Cycle Washington. Visite la página [ecyclewashington.org](http://ecyclewashington.org)* 
-  **Ropa, zapatos y telas**  
*Por favor, lleve ropa, zapatos y telas que ya no quiere a las tiendas de segunda mano* 
-  **Bolsas de plástico**  
*Puede usar las bolsas de plástico para recoger los desechos de las mascotas o puede llevarlas a su supermercado local para que las reciclen. Puede encontrar su tienda más cercana en [bagyourbags.com](http://bagyourbags.com)* 
-  **Bolsas de basura**  


**¡Cuando recicla, usted protege al medio ambiente!**

PUEDE ENCONTRAR GUÍAS E INFORMACIÓN SOBRE CÓMO RECICLAR EN:  
 1-800-592-9995      [wmnorthwest.com/kingcounty](http://wmnorthwest.com/kingcounty)  
[wmnorthwest.com/espanol](http://wmnorthwest.com/espanol)

9. COMMUNITY EVENT INVITATION

# YOU ARE INVITED!

FREE Community BBQ & Recycling Fair  
Saturday, September 28th  
11 a.m. – 3 p.m.



Community BBQ  
DJ & Music  
Recycling games and giveaways  
Meet a recycling truck!

## what

## where

The Avenues Apartment  
Complex Parking Lot

## who

All residents of The Avenues,  
Centerwood, & Shorewood complexes  
are welcome!

## bring

Unwanted TVs, printers, computers  
and laptops for recycling!

## donate

Gently used items to the NW Center!

*(Only the following items will be accepted: clothing, shoes, books, toys,  
small (working household appliances such as blenders, toasters, dishes,  
glassware, utensils, and furniture less than 50lbs. No mattresses, please.)*

Join in the fun!  
Stop in anytime between 11am–3pm



# ¡LO INVITAMOS!

Parrillada/Carne Asada y Feria de Reciclaje

GRATUITAS para su comunidad

Sábado 28 de septiembre

De 11 a.m. a 3 p.m.



Parrillada/Carne Asada para la Comunidad

Disc Jockey y Música

Juegos para reciclar mejor y regalos

¡No pierda la oportunidad de ver a un camión de reciclaje en acción!

que

dónde

En el estacionamiento del complejo de apartamentos The Avenues

quién

¡Todas las personas que viven en los complejos de apartamentos The Avenues, Centerwood y Shorewood están invitadas!

lleva

Televisores, impresoras, computadoras y computadoras portátiles (laptops) que ya no quiera para reciclarlas

dona

Artículos que ya no quiera y que estén en buena condición a NW Center

*(Solo los siguientes artículos serán aceptados: ropa, zapatos, libros, juguetes, aparatos electrodomésticos pequeños que funcionen como licuadoras y tostadores, platos, vasos, utensilios y muebles que pesen menos de 50 libras (23 kg). No se aceptarán colchones.)*

¡Acompáñenos en este divertido eventol

Visítenos cuando pueda entre las 11 am y las 3 pm

**10. MULTIFAMILY COMMUNITY BBQ & RECYCLING FAIR MEMO**



To: Candy Castellanos, Waste Management; Gerty Coville, King County  
From: McKenna Morrigan and Katie Salinas, Cascadia Consulting Group  
Date: October 10, 2013  
Subject: WM King County UTC Multifamily Recycling Pilot – Multifamily Event Summary

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This memo provides a brief summary of the Multifamily BBQ and Recycling Fair that occurred on September 28<sup>th</sup> at the Avenues Apartments located in Waste Management's Unincorporated King County WUTC service territory. Although hosted by the Avenues Apartments, residents from two adjacent apartment buildings (Centerwood and Shorewood Apartments) were also invited to attend the event. Each of these properties had received technical assistance and door-to-door resident outreach prior to the event as part of the 2013 Waste Management and King County Promotion of Multifamily Recycling Pilot.

Specifically, this memo documents the following:

- Event Objectives
- Event Planning and Costs
- Event Recap
- Observations and Recommendations

---

#### EVENT OBJECTIVES

The objective of the Multifamily Community BBQ and Recycling Fair was to host an inviting, fun, culturally appropriate event for residents (focusing on Latino residents but open and welcoming to all) that promotes a sense of community and good will while providing a venue for residents to attain information about their building's recycling program. Specifically, three primary goals included:

- Utilize the cultural knowledge of our Spanish speaking outreach team members to engage with, and provide additional recycling education and information to, Spanish-speaking residents.
- Address the challenges of bulky item and special item disposal for residents at multifamily properties by providing a convenient opportunity for donating or recycling items not accepted in the regular garbage and recycling program (e.g. bulky items, clothing, household goods, and electronic wastes).
- Create an environment where recycling is perceived by residents as a community/social norm, showing residents that their neighbors are recycling and raising the visibility of recycling at the participating complexes.

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#### EVENT PLANNING AND COSTS

Cascadia staff were responsible for all aspects of event planning and implementation and received assistance from field staff that developed property manager relationships and facilitated communication with participating properties. Waste Management and King County staff provided oversight and feedback through the design process.

Major components of the planning process included:

- Identifying appropriate multifamily complex location and participants
- Securing property manager permission and support
- Attaining multiple quotes from event contractors (e.g. caterer, electronics recycler, DJs, event equipment rentals)
- Negotiation of agreements with selected event contractors
- Coordinating participation of Northwest Center and Facilitadoras from King County's Recicla Más program
- Developing and distributing bilingual event invitation
- Coordination of event materials and supplies (e.g. signage, educational materials)

Total event costs are detailed below.

Event planning labor costs	\$3,729
Event staffing costs	\$2,799.73
Event rental and catering	\$3,874.85
DJ	\$76.65
Northwest Center	No Charge
PC Recycle	\$300
<b>Total:</b>	<b>\$10,780.23</b>

#### EVENT RECAP

The event was held in the White Center neighborhood for residents of The Avenues, Centerwood, and Shorewood Apartments on Saturday, September 28<sup>th</sup> from 11am-3pm. The Avenues agreed to host this event, which was open to residents of all three participating properties. The event invitation, printed in both English and Spanish, was distributed to residents during the week of September 16 through door-to-door outreach, conducted by the pilot project's bilingual outreach staff. The event invitation was distributed to all units in the three participating properties, totaling 168 units, including 98 units at The Avenues, 34 units at Centerwood, and 36 units at Shorewood Apartments.

An event rental and catering company, Clowns Unlimited, provided and set up tables, chairs, and a tent prior to the start of the event. The caterer was prepared to provide food for up to 200 attendees, and also provided a hand washing station and recyclable and compostable food service products. Cascadia collected and disposed of these materials after the event.

Several catering staff prepared food onsite during event hours, including burgers, hot dogs, condiments, and a vegetarian option. Catering staff took requests from attendees and encouraged attendees to stop by to get food.

Cascadia hired a DJ to play music during the event. The DJ provided and looked after the equipment throughout the event.

Cascadia arranged for two specialty recyclers, PC Recycle and Northwest Center, to bring their donation trucks and accept donations for the duration of the event. Northwest Center accepted gently used clothing, shoes, books, toys, small (working) appliances such as blenders, toasters, dishes, glassware,

utensils, and furniture. PC Recycle accepted televisions, laptop computers, desktop computers, servers, cell phones, routers, keyboards/mice, monitors, stereo equipment, speakers, printers, microwaves, batteries, and fluorescent/CFL bulbs/lamps.

Residents participated in collection services offered by both PC Recycle and Northwest Center, in total:

- Northwest Center collected 96 lbs of clothing and 207 lbs of household goods.
- PC Recycler received 6 TVs averaging 50 lbs each for a total of 200 lbs.

Northwest Center and PC Recycle staff helped residents bring their materials to the recycling trucks from around the apartment complex, and also searched the complex at the end of the event for additional bulky items left in common areas throughout the complex.

Waste Management provided a recycling truck for the event that was parked near the event tent and was open to visitors. A Waste Management representative was on-site to answer questions about the recycling truck. Waste Management also provided interactive recycling games for kids, including a spinning wheel called the “wheel of waste”. This game and table was staffed by a Waste Management education staff person, who was onsite to answer recycling questions and facilitate recycling activities for children and adults.

Cascadia staff also set up an educational table with additional materials that included the recycling guidelines, hazardous waste information, and move-in/move-out flyers.

With assistance from TD Wang staff, Cascadia arranged for the participation of four Facilitadoras from King County’s Recicla Más program at the event. The Facilitadoras were briefed by TD Wang and provided with relevant recycling education materials and a program summary prior to the event. Facilitators were asked to interact with event attendees throughout the day and when appropriate, to engage attendees in discussion about recycling.

Despite the fact that September 28<sup>th</sup> was the rainiest September day on record, there were 87 total attendees of the event, excluding seven project staff and three property management staff. Most event attendees were residents of The Avenues. Project staff included Gerty Coville from King County, Amity Lumper, Katie Salinas and Olga Kachook from Cascadia, Socorro Medina from ECOSS, Stuart Vazquez from Eco-Logica Magazine, and Ha Na Park from TD Wang. Staff interacted with event attendees, helped them bring their donations to the recycling trucks, and discussed recycling topics. Property management staff from The Avenues was also on-site, and provided support gathering bulky items and helping project staff with event set-up.

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## OBSERVATIONS AND RECOMMENDATIONS

- I. **Property Manager Engagement** – Stuart established a close, trusting relationship with The Avenues’ property manager and maintenance staff. This was key to their willingness to coordinate with us on all aspects of the event and provide day-of assistance.
- II. **E-Waste Collection Services** – Residents seemed to really appreciate the e-waste collection opportunity and had materials to recycle, especially TVs. Going forward, there is an opportunity to organize regular e-waste collection events for large complexes, or to group multiple complexes in the same neighborhood together in one day and have

the e-waste collector pick up materials from a designated central location at each property. This could be made into a quarterly or bi-annual program e-waste collection sweep.

- III. **Facilitadoras** - All of the Facilitadoras mentioned that it would have been helpful if the event was later in the day. The residents expressed that many in the apartment complex work Saturday till later in the day so they couldn't attend. One Facilitadora noted that the residents that attended the event seemed to be knowledgeable and prepared about recycling compared to other communities and people she has encountered. All of them mentioned that it is important to provide activities that are fun and culturally relevant.
- IV. **Kid-friendly** – The more kid-friendly these events are, the more people they will attract. Many of the attendees brought their kids with them and appreciated the fact that it was a family-friendly event. Continuing to host these events in buildings with a high percentage of families is a good idea.
- V. **Pre-existing Recycling Awareness** – Most of the event-goers had received their recycling tote bag and were aware that the building was focusing on increasing recycling.
- VI. **Food** – Food was likely the main attracter to the event and encouraged attendees to linger and interact with our staff rather than just drop off their materials and leave.
- VII. **Weather** – Fall is not the ideal time to hold these events due to unpredictable weather. A late spring or summer event would be probably be safer and potentially attract even more attendees.



PHOTOS



Community BBQ event layout, including catering



Televisions for recycling



Resident bringing donations



Recycling games and donation truck



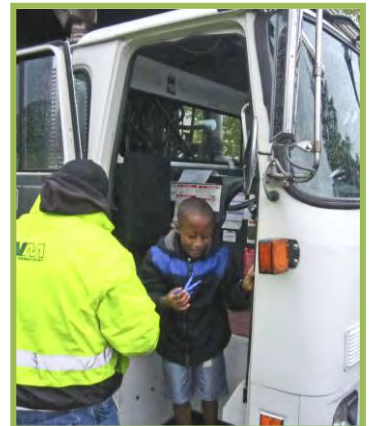
Project and WM staff



A Facilitadora engaging a resident




Attendants of the event





WM truck





































## 11. RECYCLING QUIZ AND RESIDENT SURVEYS

### English Pre- and Post-Outreach Recycling Quiz



Indicate where each product goes in your home:

Garbage  Recycling 

 Incandescent light bulbs <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>	 Aluminum food and soda cans <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>	 Plastic containers <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>
 Diapers <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>	 Caps <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>	 Take-out containers <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>
 Envelopes and newspapers <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>	 Yogurt or butter containers <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>	 Styrofoam <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>
 Milk or juice carton <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>	 Carton <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>	 Glass bottles and jars <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>



English Pre-Outreach Recycling Survey

Building Name:  
Unit #:

Date:  
Pre/Post:

1. Have you noticed any changes to your outside recycling and garbage containers?
2. Did you know that recycling is available for the residents at this complex?
3. Do you and your family use the recycling bins?
4. Who does the most recycling in your home (adults or children)?
5. Who is normally in charge of taking the garbage and recycling to the outside container?
6. If you have children at home, how often are they the ones in charge of taking the garbage and recycling to the outside container? (1-Never; 2-Rarely; 3-Every once in a while; 4-Frequently; 5-Always) *[Probe child's age.]*
  - a. If the kids take the garbage and recycling out: Do you know whether your kids have any problems getting the garbage/recycling into the containers? *[Probe: Can they reach the containers; can they lift the lid on the container?]* If they do have problems, do you have any ideas of how we can make it easier for them?
7. Have you noticed anyone inappropriately dumping material in or near the recycling or garbage containers?
8. Would you be willing to watch for this and alert the property manager if you see it happening?
9. Do you have any other suggestions for how to promote recycling in this neighborhood?
10. Which community organizations, service centers, churches, or gathering places do you use? (e.g., the White Center library, a specific church, a local CBO?) Are there community organizations or leaders that you especially trust?
11. *[For residents in Centerwood, Shorewood, and The Avenues only]* We are planning a community party for you and other residents on [DATE/TIME]. There will be food, games for kids, and live music. Are you interested in attending? Do you have any ideas for other activities that might make residents want to attend?

Spanish Pre- and Post-Outreach Recycling Quiz



Indica que haces con  
cada uno de estos  
productos en tu casa:

Basura  Reciclaje 

 Focos incandescentes <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>	 Latas de comida y refrescos <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>	 Envases de plástico <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>
 Pañales desechables <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>	 Tapas <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>	 Recipientes de comida para llevar <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>
 Sobres y periódicos <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>	 Envases de yogur o mantequilla <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>	 Poliestireno (Hielo seco) <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>
 Cartón de leche o jugo <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>	 Cartón <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>	 Botellas y frascos de vidrio <div style="display: flex; justify-content: center; gap: 20px;"> <span> <input type="checkbox"/></span> <span> <input type="checkbox"/></span> </div>



## Spanish Pre-Outreach Recycling Survey

Building Name:  
Unit #:

Date:  
Pre/Post:

1. ¿Ha notado Ud. algún cambio en los contenedores exteriores de basura y reciclaje?
2. ¿Sabía Ud. que hay contenedores en este edificio donde puede poner ciertos artículos para que sean reciclados?
3. ¿Usan los contenedores para reciclaje Ud. y su familia?
4. ¿Quién recicla más en su casa (adultos o niños)?
5. ¿Normalmente quién saca la basura y los artículos reciclables al contenedor exterior?
6. ¿Si tiene niños en casa, qué tan seguido son ellos los encargados de sacar la basura y los artículos reciclables a los contenedores? (1- Nunca; 2-Muy rara vez; 3-De vez en cuando; 4-Frecuentemente; 5-Siempre)  
[Tratar de averiguar la edad de los niños]
- a. Si los niños sacan la basura y el reciclaje: ¿Sabe si sus niños tienen algún problema para poner los artículos en los contenedores? [Mencione por ejemplo: ¿Pueden alcanzar los contenedores?, ¿pueden levantar la tapa del contenedor?] Si tienen problemas, ¿tiene alguna sugerencia sobre cómo hacerlo más fácil para los niños?
7. ¿Ha observado Ud. a alguien dejando artículos no permitidos o haciendo uso no autorizado de los contenedores de basura y reciclaje?
8. ¿Estaría dispuesto a poner atención y avisarle al administrador cuando vea que esto pase?
9. ¿Tiene alguna otra sugerencia sobre cómo podemos animar a que la gente recicle más en esta colonia?
10. ¿Qué organizaciones comunitarias frecuenta o en que lugares se reúne con sus amigos, su comunidad, etc., por ejemplo centros comunitarios, iglesias, bibliotecas, etc. ¿Hay alguna organización comunitaria o líder que sea de toda su confianza?
11. [Para inquilinos en Centerwood, Shorewood, and The Avenues exclusivamente] Estamos planeando una fiesta comunitaria para este y otros edificios el día [DÍA/HORA]. Tendremos comida, juegos para los niños y música en vivo. ¿Le interesaría asistir? ¿Tiene alguna sugerencia sobre otras actividades que le pudieran interesar a sus vecinos?

## English Post-Outreach Resident Survey

## Final Resident Survey Questions

PROPERTY NAME \_\_\_\_\_ LANGUAGE/ETHNICITY \_\_\_\_\_

Over the past few months, we have been working with all the residents in this complex to make recycling easier. Throughout this program, we have provided each resident with a number of handouts and tools. Today we are looking for feedback on how we could improve our program. Do you have a few minutes for a quick program survey?

## CONTAINERS AND DECALS

1. Does your family use the outdoor recycling containers?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
Would you say you have used the recycling containers more, less, or the same in the past few months than you did before?	Why not?
<input type="checkbox"/> More <input type="checkbox"/> Less <input type="checkbox"/> The Same	

2. Have you noticed any changes to your building's outdoor recycling containers? ☐ Yes ☐ No
3. Some changes have been made to the recycling containers. Do you think the following changes made it easier to recycle?  
[PROMPT: Go through the five changes.]

	Adding containers	Making recycling containers blue	Placing the garbage and recycling containers in the same location	More signs and labels	Signs and labels in other languages
Yes					
No					
No opinion					
Didn't notice					

## TOTE BAGS AND OUTREACH MATERIALS

4. Did you receive a blue recycling tote bag? ☐ Yes ☐ No
5. Does your household use your tote bag?

<input type="checkbox"/> Yes	<input type="checkbox"/> No
Do you feel like the recycling tote bag makes it easier for you to recycle?	Why not?
<input type="checkbox"/> Yes <input type="checkbox"/> No	What do you use to take your recyclables to the outdoor containers?

6. How useful were the recycling materials that you received in your tote bag? [PROMPT: Show visuals as needed]

	It was useful and helped me recycle more	It was confusing/not useful	I haven't looked at it/don't recall receiving it	Other/Comments
Recycling guidelines				
Move in/out flyer				
Refrigerator magnet				

# King County UTC Multifamily Recycling Pilots

## Final Resident Survey Questions

### COMMUNITY EVENT *[For residents of The Avenues, Centerwood, and Shorewood only]*

7. Did you receive an invitation to the community event (held at The Avenues on Sat, Sep 28)? ☐ Yes ☐ No
8. Did you attend? ☐

<input type="checkbox"/> Yes	<input type="checkbox"/> No
What did you think of the event?	What would motivate you to attend?
Was it at a convenient time and location? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Did you bring any recyclable materials to the event? <input type="checkbox"/> Yes <input type="checkbox"/> No	
What did you like most about the event?	
Is there anything about the event that you would have liked to change?	

### "RECYCLING REMINDER" CARDS *[For residents at Coronado Springs, Beverly Park, and Glen Crest only]*

9. Did you receive a "Recycling Reminder" card? [SHOW EXAMPLE] ☐ Yes ☐ No
10. Did you find the feedback on the card helpful? ☐ Yes ☐ No
11. What materials, if any, did you learn don't belong in the recycling?

### "NO DUMPING" SIGNS *[At properties where signs have been posted only]*

As part of this pilot program, your property manager installed signs to discourage illegal dumping at your complex.

12. Have you noticed any change in the amount of materials being improperly dumped in or near the outdoor containers in the past few months? ☐ Yes ☐ No
13. If you've noticed any illegal dumping, have you reported it to your property manager or someone else? ☐ Yes ☐ No
14. Do you have other comments about the signs?

### OVERALL

15. Are you recycling more, less, or the same as a result of the containers, materials, and services provided to you through this program?

☐ More ☐ Less ☐ The Same

16. What, if anything, has changed your recycling habits? *[Mark all mentioned, do not prompt]*

☐ Changes to recycling containers ☐ Having someone come to my door to talk about recycling

☐ Tote bag ☐ Attending the community event

☐ Information in the tote bag ☐ No change

## Spanish Post-Outreach Resident Survey

Final Resident Survey Questions - Spanish Version

PROPERTY NAME \_\_\_\_\_ LANGUAGE/ETHNICITY \_\_\_\_\_

En los últimos meses hemos estado trabajando con los inquilinos de este complejo de apartamentos para invitarlos a que reciclen y para hacer el proceso más fácil. Durante este programa, le hemos dado a cada inquilino folletos informativos y materiales. Hoy quisiéramos recolectar sus impresiones y sugerencias sobre cómo mejorar nuestro programa. ¿Tiene unos cuantos minutos para contestar unas preguntas?

## BOTES Y ETIQUETAS

1. ¿Usa su familia los botes de reciclaje de su edificio?

<input type="checkbox"/> Sí	<input type="checkbox"/> No
¿En los últimos meses, diría Ud. que han usado los botes de reciclaje más, menos o igual que anteriormente?	¿Por qué no?
<input type="checkbox"/> Más <input type="checkbox"/> Menos <input type="checkbox"/> Igual	

2. ¿Ha notado algún cambio en los botes de reciclaje de su edificio?
- ☐
- Sí
- ☐
- No

3. Hemos hecho algunos cambios a los botes de reciclaje. ¿Cree Ud. que los siguientes cambios le han facilitado reciclar?

[RECORDATORIO: Mencionarles a los inquilinos los cinco cambios]

	Agregar botes	Hacer los botes de reciclaje azules	Colocar los botes de basura y reciclaje en el mismo lugar	Agregar más letreros y etiquetas	Agregar letreros y etiquetas en diferentes idiomas
Sí					
No					
No tengo opinión					
No lo noté					

## BOLSAS Y MATERIALES

4. ¿Recibió Ud. una bolsa azul para reciclar?

☐ Sí ☐ No

5. ¿Usan la bolsa en su casa?

<input type="checkbox"/> Sí	<input type="checkbox"/> No
¿Siente que la bolsa le facilita reciclar materiales?	¿Por qué no?
<input type="checkbox"/> Sí <input type="checkbox"/> No	¿Qué usa para llevar sus artículos reciclables al bote exterior?

6. ¿Qué tan útiles fueron los materiales sobre reciclaje que venían incluidos en su bolsa? [RECORDATORIO: Muestra ejemplos a los inquilinos si lo necesitan]

	Me pareció útil y me sirvió para reciclar más	Me confundió/ no me fue pareció útil	No lo he visto/ No recuerdo haberlo recibido	Otra respuesta/Comentarios
Información sobre que artículos son reciclables				
Información para antes y después de mudarse				
Imanes				



## King County UTC Multifamily Recycling Pilots

### Final Resident Survey Questions

**EVENTO COMUNITARIO** [Exclusivamente para los inquilinos de The Avenues, Centerwood y Shorewood]

7. ¿Recibió la invitación para el evento comunitario? (llevado a cabo el sábado 28 de septiembre en The Avenues)

☐ Sí ☐ No

8. ¿Asistió?

<input type="checkbox"/> Sí	<input type="checkbox"/> No
¿Qué le pareció el evento?	¿Qué lo hubiera motivado a asistir?
¿Le parecieron convenientes el día, la hora y el lugar del evento? <input type="checkbox"/> Sí <input type="checkbox"/> No	
¿Trajo algún artículo para donar al evento? <input type="checkbox"/> Sí <input type="checkbox"/> No	
¿Qué fue lo que más le gustó del evento?	
¿Hay alguna cosa que le hubiera gustado que fuera diferente en este evento?	

**"RECORDATORIO SOBRE COMO RECICLAR MEJOR"** [Exclusivamente para inquilinos de Coronado Springs, Beverly Park y Glen Cross]

9. ¿Recibió el "Recordatorio sobre como Reciclar Mejor"? [MOSTRAR UN EJEMPLO] ☐ Sí ☐ No

10. ¿Le pareció útil la información en la tarjeta? ☐ Sí ☐ No

11. ¿Se enteró de algún material que no debe de ir en el reciclaje por ese medio? ¿Qué material?

**LETREROS SOBRE USO NO AUTORIZADO DE LOS BOTES DE BASURA** [Exclusivamente en las propiedades donde han sido colocados]

Como parte de este programa piloto, el administrador de los apartamentos puso unos letreros para desalentar el uso ilegal de los botes de basura (esto es, el uso por gente que no vive aquí o que viviendo aquí deja muebles y electrodomésticos en los botes).

12. ¿Ha notado algún cambio en la cantidad de material que se deja ilegalmente en o alrededor de los botes en los últimos meses? ☐ Sí ☐ No

13. ¿Si ha observado el uso ilegal de los contenedores, lo ha reportado al administrador o a alguien más? ☐ Sí ☐ No

14. ¿Tiene algún otro comentario sobre los letreros?

### PREGUNTAS GENERALES


15. ¿Esta reciclando menos, más o igual como resultado de los botes, materiales y servicios que le hemos brindado a través de este programa?

☐ Más ☐ Menos ☐ Igual

16. ¿Hay alguna parte específica de este programa que ha modificado sus hábitos de reciclaje? [Favor de marcar todas las cosas que se mencionen y de no ayudar a los inquilinos mencionando ejemplos]

- |                                                                    |                                                                                                        |
|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Los cambios en los botes de reciclaje     | <input type="checkbox"/> El hecho de que una persona vino a su puerta a hablar con Ud. sobre reciclaje |
| <input type="checkbox"/> La bolsa azul                             | <input type="checkbox"/> El evento comunitario                                                         |
| <input type="checkbox"/> La información que venía en la bolsa azul | <input type="checkbox"/> No ha habido cambios                                                          |
| <input type="checkbox"/> El recordatorio sobre como reciclar mejor | <input type="checkbox"/> Otra cosa: _____                                                              |

## 12. WASTE AUDIT FIELD FORMS



WMA King County UTC Multifamily Project: Site Visit Forms

Property: CANYON VIEW APARTMENTS/10225 DES MOINES MEMORIAL DR S, SEATTLE, 98168-1659

1: GENERAL

1. Site Visit Date and Time:
2. Team Member:
3. Customer Account #: 410-379240
4. Property Name: CANYON VIEW APARTMENTS  
Edits:
5. Property Address: 10225 DES MOINES MEMORIAL DR S, SEATTLE, 98168-1659  
Edits:
6. # of Units: \_\_\_\_\_
  - a. Did you estimate the number of units:                      Yes                      No
  - b. If yes, how? (doors, mailboxes, other)
7. Property Type?
  - Apartment
  - Condominium
  - Mobile Home Park
  - Townhomes
  - Other (specify)
  - Don't know
8. Property Manager:
  - a. Location:    On site                      Off site                      Don't know
  - b. Office Address:
  - c. Business Hours:
  - d. Other details:
9. Photos (please take in this order):
  - a. Property address (sign with the street number or picture of the address on the survey if not visible on the property)
  - b. Outside of main building(s) including identification (where possible, include building name)
  - c. Dumpster enclosure(s) and areas/configuration
  - d. Individual dumpsters (include decals/signage)
  - e. Contents inside of each dumpster, preferably after bags are broken open during audit
  - f. Evidence of illegal dumping anywhere on the premises



Please note the following information for all dumpsters located on site, including waste, recycling, and organics.

WASTE: 1, 8 yard containers	RECYCLING: , containers containers	ORGANICS: ,
-----------------------------	---------------------------------------	-------------

- Please record the following information for each dumpster area. (Information for individual dumpsters will be recorded in Section 3.)

1. Location	2. Enclosure description	3. Convenient for residents to access	4. Percent of resident units served	5. Number of dumpsters in each area	6. Type of dumpsters in the area (circle all that apply)	7. Other notes
Example: SE parking lot Near exit Indoor room	Locked or Unlocked?	(1 very inconvenient to 5 very convenient)			Waste Recycling Organics	
a)	Lock    Unlock	1 2 3 4 5 Don't know			Waste    Rec    Org	
b)	Lock    Unlock	1 2 3 4 5 Don't know			Waste    Rec    Org	
c)	Lock    Unlock	1 2 3 4 5 Don't know			Waste    Rec    Org	
d)	Lock    Unlock	1 2 3 4 5 Don't know			Waste    Rec    Org	
e)	Lock    Unlock	1 2 3 4 5 Don't know			Waste    Rec    Org	
f)	Lock    Unlock	1 2 3 4 5 Don't know			Waste    Rec    Org	
g)	Lock    Unlock	1 2 3 4 5 Don't know			Waste    Rec    Org	
h)	Lock    Unlock	1 2 3 4 5 Don't know			Waste    Rec    Org	



### 13. PILOT ACTIVITY PHOTOS

#### Site Documentation Photos



Mattress in recycling dumpster



Enclosure for recycling and garbage dumpsters



Contents of recycling cart



Installed "No Dumping" sign at Chao Apartments



New dumpster decals



Resident at The Avenues using tote bag

Door-to-Door Outreach Photos



Socorro Medina, outreach staff member



Stuart Vazquez, outreach staff member



Door-to-door outreach at Coronado Springs





Multifamily Event Photos



Community BBQ event layout, including catering



Televisions for recycling



Resident bringing donations



Recycling games and donation truck



Project and WM staff



A Facilitadora engaging a resident



Attendants of the event



WM truck

## 14. AVERAGE WASTE GENERATION AT PILOT PROPERTIES

Ongoing visual waste audits, conducted as part of the evaluation activities of this pilot program, provided the following preliminary information about average weekly waste generation at the test and control properties.

Weekly Totals													
Property Name	Type	Occupied Units	Garbage			Recycling			Organics			Total	
			%	CY/ Property	CY/ Unit	%	CY/ Property	CY/ Unit	%	CY/ Property	CY/ Unit	CY/ Property	CY/ Unit
Vinh	Test	5	24.3%	0.5	0.11	51.9%	1.2	0.23	23.8%	0.5	0.11	2.2	0.45
Chao Apartments	Test	6	28.6%	0.6	0.09	53.8%	1.1	0.18	17.6%	0.3	0.06	2.0	0.33
Rustic Chalet	Control	8	35.8%	1.2	0.15	48.1%	1.6	0.20	16.1%	0.5	0.07	3.4	0.42
Centerwood	Test	34	31.9%	4.8	0.14	48.4%	7.2	0.21	19.8%	2.9	0.09	14.9	0.44
Shorewood	Test	34	29.9%	5.2	0.15	59.6%	10.4	0.31	10.5%	1.8	0.05	17.5	0.52
The Avenues	Test	97	31.8%	10.3	0.11	50.6%	16.3	0.17	17.6%	5.7	0.06	32.3	0.33
Strength of Place Village	Control	30	42.3%	3.7	0.12	43.4%	3.8	0.13	14.2%	1.2	0.04	8.7	0.29
Glen Crest	Test	17	44.6%	2.7	0.16	34.6%	2.1	0.12	20.8%	1.2	0.07	6.0	0.35
Beverly Park	Test	16	31.6%	1.8	0.11	48.0%	2.7	0.17	20.4%	1.1	0.07	5.6	0.35
Coronado Springs	Test	326	31.6%	45.7	0.14	55.4%	80.0	0.25	12.6%	18.1	0.06	144.5	0.44
Park Terrace	Control	52	38.6%	9.6	0.18	43.3%	10.8	0.21	18.1%	4.5	0.09	24.8	0.48
Average		56.8	32.8%	7.8	0.14	52.3%	12.5	0.22	14.6%	3.5	0.06	23.8	0.42



15. WASTE AUDIT RESULTS

			Baseline				Post-Outreach Averages							
			Garbage		Recycling		Garbage				Recycling			
Type	Property Name	Unit Count	Cubic Yards	% Contamination	Cubic Yards	% Contamination	Cubic Yards	% Change	% Contamination	% Change	Cubic Yards	% Change	% Contamination	% Change
Control	Park Terrace	52	24.0	75%	4.2	20%	20.1	-16%	55%	-20%	3.6	-15%	47%	27%
	Rustic Chalet	8	3.5	60%	0.7	10%	2.7	-22%	55%	-5%	0.4	-47%	45%	35%
	Strength of Place	30	5.6	65%	0.2	0%	7.3	31%	42%	-23%	2.4	929%	50%	50%
	Average (weighted)		11.0	72%	1.7	18%	10.1	-9%	52%	-20%	2.1	23%	48%	30%
Pilot 1	Chao	6	1.8	70%	0.1	0%	1.4	-22%	58%	-12%	0.6	1000%	33%	33%
	Vinh	5	1.3	65%	1.2	15%	1.2	-2%	57%	-8%	0.9	-20%	23%	8%
	Average (weighted)		1.5	68%	0.6	14%	1.3	-14%	58%	-10%	0.8	29%	27%	13%
Pilot 2	Avenues	97	18.9	80%	2.2	37%	25.2	33%	50%	-30%	10.8	383%	17%	-20%
	Centerwood	34	6.5	60%	4.2	20%	5.6	-14%	57%	-3%	10.7	156%	39%	19%
	Shorewood	34	4.7	70%	1.5	0%	7.9	70%	45%	-25%	13.4	810%	4%	4%
	Average (weighted)		10.0	74%	2.6	29%	12.9	29%	50%	-24%	11.6	342%	19%	-11%
Pilot 3	Beverly Park	16	1.8	75%	2.5	30%	1.8	3%	60%	-15%	4.2	71%	33%	3%
	Coronado Springs	326	84.7	73%	24.6	41%	111.6	32%	49%	-23%	44.6	81%	18%	-23%
	Glen Crest	17	8.4	70%	1.0	50%	1.9	-78%	40%	-30%	2.9	195%	38%	-12%
	Average (weighted)		31.6	72%	9.4	41%	38.4	21%	49%	-23%	17.3	85%	20%	-20%
Pilots Overall	Average (weighted)		16.0	73%	4.6	36%	19.6	22%	50%	-23%	11.0	137%	20%	-16%

\*Cubic yards are per week