



# Multifamily Recycling

## Case Studies on Innovative Practices from Around the World

Prepared for: Waste Management  
Snohomish County Solid Waste  
King County Solid Waste Division

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## Introduction

### About This Project

Implementing programs to increase recycling while reducing levels of contamination from multifamily properties is one of the most difficult solid waste diversion challenges for cities, counties, and garbage and recycling service providers. This report is the product of a collaboration between Waste Management, Snohomish County Solid Waste, and King County Solid Waste Division, which are working together to improve recycling at multifamily properties in areas of these counties where waste and recycling service is regulated under the Washington Utilities and Transportation Commission (WUTC).

This report summarizes research conducted by Cascadia Consulting Group between June and September 2012. The goal of this research was to identify innovative strategies implemented in communities around the world that have succeeded in improving multifamily recycling. The next step in this project will be to translate a selection of the innovative strategies described in the case studies into pilots that could be tested in multifamily properties in the Snohomish and King County WUTC areas.

The goal of this research was *not* to describe or study the list of commonly understood best practices in the region or across the U.S. A parallel project, the Washington Multifamily Recycling Study (WAMRS), led by a committee of the Washington State Recycling Association and supported in part by Kitsap County, is surveying recycling coordinators and multifamily property managers across the state to understand current practices and persistent issues in multifamily recycling in Washington. As part of the WAMRS project, research is also being conducted on best practices in multifamily recycling in the U.S. The WAMRS project is slated for completion in Spring 2013.

This report is designed to complement the WAMRS project to provide a full picture of current practices and opportunities to improve multifamily recycling in Snohomish and King counties, and across the state.

### The Case for Improving Multifamily Recycling

Local governments in Washington State have long been at the forefront of the recycling movement, and Snohomish and King Counties, together with their suburban cities, are among the region's strongest leaders.

Snohomish and King Counties have succeeded in achieving some of the highest residential recycling rates in the state and, indeed, in the country. But, despite remarkable success in increasing recycling and diversion in the single-family sector, both counties have been challenged to make similar progress in the multifamily sector. In 2009, the recycling rate for the multifamily sector in King County was 10 percent, compared to 54 percent among single-family residents.<sup>1</sup> Multifamily residents account for nearly 30 percent of households in Snohomish County and nearly 40 percent in King County.<sup>2</sup> Disposed waste from

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<sup>1</sup> King County data come from the King County (2012), *Draft 2011 Comprehensive Solid Waste Management Plan*. Data on the multifamily recycling rate in Snohomish County are not available.

<sup>2</sup> Multifamily population estimates are based on data from the U.S. 2010 Census.

the multifamily sector makes up 16 percent of all disposed municipal solid waste (MSW) in King County and 13 percent in Snohomish County.<sup>3</sup>

Both Snohomish County and King County governments recognize that improving multifamily recycling will play an important role in achieving their ambitious waste reduction and recycling goals, and both counties have listed improving multifamily recycling as a priority in their latest comprehensive solid waste management plans.<sup>4</sup>

## In Search of Innovative Multifamily Recycling Programs

There is more than a decade of research on multifamily recycling in the U.S., including several projects sponsored by King County and conducted by Cascadia Consulting Group. This research has been focused on identifying and documenting “best practices” for programs targeting the multifamily sector.<sup>5</sup> Many leading strategies have been applied and tested by local governments and recycling service providers in Snohomish and King counties. However, the goal of this project was *not* to describe or evaluate commonly understood best practices in the region or across the U.S.

**For this research project, our goal was to identify innovative strategies for increasing multifamily recycling that have been implemented in communities around the world.<sup>6</sup>**

Of the more than 20 programs that identified, eight were selected to be featured as case studies. These programs were selected because they provided sufficient program data and demonstrated new ideas, measureable results, and relevance for the goal of this study.

To the extent possible, both quantitative data and anecdotal evidence were gathered about the effect of these strategies on key measures including waste diversion and recycling rates, resident participation, and contamination. Cascadia also set out to understand the costs and efforts involved in designing and implementing the strategies.

Each of the case studies included in this report is unique and was designed to address specific challenges and achieve specific goals in the community where it was implemented. But, to make case studies more useful for program managers interested in identifying those that might be relevant for their community, case study strategies were grouped into the following five categories:

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<sup>3</sup> King County data come from King County (2012), *Draft 2011 Comprehensive Solid Waste Management Plan*. Snohomish County data come from Snohomish County (2009) *Waste Composition Study*.

<sup>4</sup> For more information, see King County (2012), *Draft 2011 Comprehensive Solid Waste Management Plan* at <http://your.kingcounty.gov/solidwaste/about/Planning/documents/DRAFT-2011-comp-plan.pdf> (accessed 9/28/2012) and Snohomish County (2012), *Comprehensive Solid Waste Management Plan* (preliminary draft) at [http://www.co.snohomish.wa.us/documents/Departments/Public\\_Works/SolidWaste/Information/CompPlan/Narrative.pdf](http://www.co.snohomish.wa.us/documents/Departments/Public_Works/SolidWaste/Information/CompPlan/Narrative.pdf) (accessed 9/28/2012).

<sup>5</sup> A full list of relevant research references is available in the *References* appendix to this report.

<sup>6</sup> The focus of this research was on recycling of those dry materials typically included in recycling programs, including: paper and cardboard; glass, metal, and plastic containers; and poly-coated drink and food cartons. Programs that address food scraps/organics diversion, or non-traditional materials, such as electronics or textiles, for recycling were not reviewed.

- **Education and outreach** strategies are designed to inform residents about how, where, and why to recycle. Strategies can either be targeted directly to residents or can utilize property managers as messengers. Examples of education and outreach strategies include informational mailings to residents, distribution of program materials, posters and signage to property managers, and door-to-door campaigns in which outreach staff deliver materials and attempt to speak directly with residents to provide information and answer questions.
- **Community engagement** strategies involve residents directly in some way, and are often designed and delivered by residents themselves. Examples include resident “champions” programs, which recruit and train residents to lead outreach and education efforts in their own buildings, often using unique approaches crafted by resident “champions” themselves and using culturally competent program designs which frame programs and delivery methods according to the values and priorities of the target community.
- **Communications and promotion** strategies use marketing techniques and multi-media platforms, such as television, radio, and public space advertising as well as social media sites to deliver targeted messages about recycling that create a “brand” image or draw on societal, community, and emotional norms and values to encourage resident participation in recycling.
- **Collection and processing** strategies address the recycling infrastructure rather than directly targeting the behavior of residents. Examples include moving shared collection containers to more convenient or desirable locations, improving container design to enhance the ease of use or deter contamination, and utilizing new processing systems or technology to increase recycling diversion. Distributing collection tote bags or indoor bins for individual resident use, although frequently paired with education and outreach efforts, can be seen as a collection and processing strategy, as it improves the collection infrastructure for residents.
- **Incentives and pricing** strategies use economic incentives such as variable fees and financial rewards to increase recycling or reduce waste. Incentives and pricing can either be targeted directly at residents or at property managers. Examples include unit-based pricing for waste services, also known as “pay as you throw” (PAYT), subsidized low- or no-cost recycling services, monetary or material rewards for increased recycling volume or reduced waste, and discounts, coupons, or other incentives for participation in recycling programs.

Some case studies highlighted in this report include strategies that cut across multiple categories.

**Policies and mandates**, such as universal recycling service mandates or requirements that new multifamily developments include sufficient space for recycling containers, are not addressed through a case study in this report. The scope of this research did not include policies and mandates, but strategies such as these have also been shown to positively influence multifamily recycling rates.<sup>7</sup>

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<sup>7</sup> Examples of policies and mandates designed to improve multifamily recycling were not included as case studies in this report for two reasons: First, several new policies that have been recently implemented, such as mandatory recycling in California, are too new to provide sufficient data or measurable results for evaluation. Second, policies such as the European Packaging Directive, which has been responsible for the implementation of EPR programs for packaging in 27 EU countries, exist under a very different set of circumstances and thus do not meet the criterion of offering findings of direct relevance for the service context in Snohomish and King County WUTC areas.

## Research Process

The research for this project involved two primary tasks:

- Literature review of secondary research on multifamily recycling programs and practices.
- Case study research, including secondary and primary research through interviews.

The research process and outcomes are described for each of the two tasks below.

### Literature Review

Cascadia staff reviewed research on the state of knowledge in the multifamily recycling field, including reports identifying commonly understood best practices (i.e. practices that have been shown, anecdotally or otherwise, to achieve desired results). Although no formal literature summary or analysis of findings was produced as part of this project, the literature review helped inform the development and definitions of the five categories of strategies used in this report. These categories are: education and outreach, community engagement, communications and promotion, collection and processing, and incentives and pricing.

The literature reviewed included both information about the challenges posed by the multifamily sector and research on various strategies used to improve recycling performance. Literature sources included:

- 20 academic journal articles and research publications
- 7 program evaluation reports, including one of the 2006/07 King County multifamily recycling pilot
- 13 best practices reports and toolkits

All reports published by King and Snohomish Counties related to multifamily recycling were included in the review. A full list of research references is included in **Appendix A**.

Each source was reviewed and classified as *highly relevant*, *moderately relevant*, or *not directly relevant*, in terms of the applicability to multifamily recycling. For those classified as *highly relevant*, staff recorded notes on major findings or other key information from research related multifamily recycling.

### Case Study Research

To identify innovative strategies related to multifamily recycling, Cascadia staff conducted web searches and reviewed program websites in target areas such as major U.S. cities, Canada, and Europe. A few case study leads were identified in articles and reports reviewed as part of the literature review.

Recommendations for innovative strategies were also solicited from program managers from Snohomish and King Counties, as well as from other industry experts and researchers with knowledge of specific multifamily recycling programs. Cascadia staff conducted phone interviews with five such contacts, and received email recommendations from eight additional contacts. A full list of research contacts is included in **Appendix A**.



Through this process of secondary and primary research, more than 20 multifamily recycling programs of interest were identified. *(See Appendix A for the full list of programs, including those not pursued.)*

The list of potential case studies was then narrowed to eight programs based on criteria developed along with staff from Snohomish and King Counties and Waste Management, including:

- **Available data.** Programs with sufficient information to be able to provide a full picture of the strategy(s) used. Key information needs included the methods and time frame of strategy implementation, implementation costs and staffing, performance measurement methodology and results and samples of support materials.
- **New ideas.** Programs that employed strategies or approaches that had not been tested or implemented in Snohomish and King Counties.
- **Measurable results.** Programs that did some kind of quantitative evaluation of their outreach which showed a positive effect on the variable they were trying to affect. Not all programs shared the same variables, but every program selected measured at least one of the following:
  - Increased number of residents with access to recycling
  - Increased number/percent of residents participating in recycling
  - Increased total or per household recycling collected
  - Reduced total or per household garbage collected
  - Increased diversion rate
  - Reduced contamination in recycling
- **Relevance.** Although Cascadia staff searched for new ideas, the focus was on strategies with some relevance for implementation at multifamily properties Snohomish and King County WUTC areas. Consequently, programs that utilize dramatically different collection infrastructure, such as programs that rely largely on deposit-refund/return-to-retail or depot-based collection, were not included.

Cascadia staff conducted phone interviews with the program managers of the eight programs prioritized for case studies. In addition to phone interviews, staff reviewed available program documentation and requested additional information from program managers, where needed, to ensure the case study reports adequately respond to the objectives of Snohomish and King Counties.

Once case study reports were drafted, the program managers interviewed for each case study reviewed them for accuracy. Snohomish and King County staff provided comments on the draft case studies. The final versions of these case studies are presented in the next section.



## Case Studies

Eight case studies highlighting innovative strategies to improve multifamily recycling are presented here. Brief summaries of the case studies, highlighting key innovative elements, strategies employed, and results, are provided first. The complete case studies are presented after the summaries.

| Program Name  |                                    | Organization   | Location                                 | Strategy(s) Type                                    |
|---|------------------------------------|--|--|---|
| <b>A</b>  | <b>Recycling in Flats Everyday</b> | <b>Resource Futures</b><br><i>Contracted by Bristol City Council</i> | <b>Bristol</b><br><i>United Kingdom</i>  | <b>Outreach and Education</b>                       |
| <p><b>Case study summary:</b></p> <p>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.</p>   |                                    |  |  |   |
| <p><b>Key strategies used:</b></p> <ul style="list-style-type: none"> <li>One-on-one resident engagement through door-to-door canvassing.</li> <li>Reusable tote bags.</li> </ul>   |                                    |  |  |   |
| <p><b>Results at a glance:</b></p> <ul style="list-style-type: none"> <li>✓ Door-to-door canvassing succeeded in reaching 66 percent of residents.</li> <li>✓ Recycling tonnage collected from MRCs increased by 77 percent between 2004 and 2007.</li> <li>✓ The average annual weight of recyclables collected rose from 44 kg (97 lb) in 2005 to 75 kg (165 lb) per household in 2007.</li> </ul>  |                                    |  |  |   |
| <b>B</b>  | <b>3Rs Ambassadors</b>             | <b>Toronto Solid Waste Management Services</b>                       | <b>Toronto, Ontario</b><br><i>Canada</i> | <b>Community Engagement, Outreach and Education</b> |
| <p><b>Case study summary:</b></p> <p>In an ethnically diverse city with numerous languages spoken, 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 techniques such as social marketing campaigns, and distribution of customized annual calendars to promote recycling and waste reduction among apartment and condo residents.</p> |                                    |  |  |   |
| <p><b>Key strategies used:</b></p> <ul style="list-style-type: none"> <li>Distribution of promotional "Recycling Calendars" to all multifamily building residents.</li> <li>Mandatory training and ongoing engagement of volunteer 3Rs Ambassadors.</li> <li>Property manager support and buy-in.</li> </ul>  |                                    |  |  |   |
| <p><b>Results at a glance:</b></p> <ul style="list-style-type: none"> <li>✓ 180 trained 3R Ambassadors are actively promoting recycling and waste reduction in 5 percent of all apartment and condo buildings across Toronto.</li> <li>✓ Buildings with 3R Ambassadors have saved 15 percent, on average, on garbage bills.</li> <li>✓ Multifamily diversion has increased from 16 percent in 2009 to 20 percent in 2011.</li> </ul>  |                                    |  |  |   |

| Program Name  |                              | Organization   | Location                                    | Strategy(s) Type                   |
|---|------------------------------|--|---|------------------------------------|
| C   | <b>Our Common Place</b>      | <b>WasteWatch</b><br><i>Contracted by Western Riverside Waste Management Authority</i> | <b>West London</b><br><i>United Kingdom</i> | <b>Community Engagement</b>        |
| <p><b>Case study summary:</b></p> <p>After years of achieving little success in increasing recycling at a group of large public housing complexes in West London, WasteWatch, an education and outreach service provider contracted by Western Riverside Waste Management Authority, decided to take a new approach. They developed Our Common Place, a long-term values-based community engagement approach that aims to change behavior by addressing issues and actions that are important to the community, rather than directly focusing on recycling.</p> <p>Through Our Common Place, outreach staff worked 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 did not focus directly on recycling, recycling-related messages and education were incorporated into the initiatives.</p> |                              |  |   |                                    |
| <p><b>Key strategies used:</b></p> <ul style="list-style-type: none"> <li>Integrating recycling education into community organized and initiated engagement projects.</li> <li>Supporting community-led initiatives.</li> </ul>   |                              |  |   |                                    |
| <p><b>Results at a glance:</b></p> <ul style="list-style-type: none"> <li>✓ 51 initiatives, reaching 3,200 residents in 13 public housing complexes, were designed and delivered by 67 resident volunteers in collaboration with program staff.</li> <li>✓ The 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.</li> <li>✓ Litter observed at pilot complexes declined slightly over the pilot period.</li> </ul>   |                              |  |   |                                    |
| D   | <b>Emotional Advertising</b> | <b>Sociedade Ponto Verde</b><br><i>Producer responsibility organization</i>            | <b>Portugal</b><br><i>Nationwide</i>        | <b>Communication and Promotion</b> |
| <p><b>Case study summary:</b></p> <p>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. It is less convenient than disposal, participation is voluntary, and residents have no direct incentive to reduce waste or recycle.</p> <p>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.</p>  |                              |  |   |                                    |
| <p><b>Key strategies used:</b></p> <ul style="list-style-type: none"> <li>National TV advertising campaigns promoting the use of public recycling collection containers.</li> <li>Messages and images linked to social causes of importance to the target audience.</li> </ul>  |                              |  |   |                                    |
| <p><b>Results at a glance:</b></p> <ul style="list-style-type: none"> <li>✓ 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.</li> <li>✓ The percent of households that recycle increased from 41 to 69 percent over the same period.</li> </ul>  |                              |  |   |                                    |

|  | Program Name                             | Organization                    | Location                                       | Strategy(s) Type  |
|--|--|---------------------------------|--|---|
| E  | <b>Preparing for Mandatory Recycling</b> | <b>Culver City Public Works</b> | <b>Culver City, CA</b><br><i>United States</i> | <b>Communication and Promotion, Collection and Processing</b> |
| <p><b>Case study summary:</b></p> <p>In Culver City, a small, densely population city where 60 percent of the housing units are in multifamily buildings and many properties do not have recycling services, a lot needed to be done to prepare for the start of mandatory multifamily recycling, which went into effect in July 2012. Culver City Public Works, which collects all residential recycling in the city, received a state grant to increase the number of properties signed up by providing free service for a limited time. 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.</p> <p>Through the same grant, Public Works also addressed a logistical problem facing its collection drivers, who could not access recycling containers located on low-ceilinged parking garages, by purchasing custom-built “scout” trucks used to move recycling containers from garages to the curb for easy pick-up by front-load collection trucks.</p> |  |                                 |  |   |
| <p><b>Key strategies used:</b></p> <ul style="list-style-type: none"> <li>▪ Communications campaign targeting multifamily residents with messages encouraging them to urge their property managers to sign up for recycling service.</li> <li>▪ Distribution of reusable tote bags or plastic mini-bins for residents.</li> <li>▪ Special trucks bring recycling containers from difficult-to-access areas to street for collection.</li> </ul>  |  |                                 |  |   |
| <p><b>Results at a glance:</b></p> <ul style="list-style-type: none"> <li>✓ New recycling services were established at 28 multifamily complexes, covering 3,420 units, which comprise one-third of all units in the city.</li> <li>✓ Overall recycling tonnage collected from multifamily buildings increased by 7.25 percent over the six months of program performance monitoring.</li> <li>✓ Contamination dropped to 8.4 percent, from 19.6 percent prior to program launch.</li> </ul>  |  |                                 |  |   |
| F  | <b>Post-Collection Waste Sorting</b>     | <b>City of San Jose</b>         | <b>San Jose, CA</b><br><i>United States</i>    | <b>Collection and Processing</b>                              |
| <p><b>Case study summary:</b></p> <p>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.</p>   |  |                                 |  |   |
| <p><b>Key strategies used:</b></p> <ul style="list-style-type: none"> <li>▪ Use of a “dirty MRF” to separate recyclables from garbage collected from multifamily buildings.</li> </ul>   |  |                                 |  |   |
| <p><b>Results at a glance:</b></p> <ul style="list-style-type: none"> <li>✓ With the use of post-collection sorting, San Jose’s multifamily recycling diversion rate increased from 18 to 40 percent. Including organics, the overall diversion rate rose to 77 percent.</li> <li>✓ The switch from landfilling to post-collection processing of garbage has created 65 new green jobs at the MRF and organics processing facility.</li> </ul>   |  |                                 |  |   |

| Program Name  |  | Organization                                 | Location                             | Strategy(s) Type              |
|---|--|--|--------------------------------------|-------------------------------|
| <b>G</b>  | <b>London Green Points - Bexley</b>      | <b>Bexley Borough and Green Rewards Inc.</b> | <b>Bexley, London United Kingdom</b> | <b>Incentives and Pricing</b> |
| <p><b>Case study summary:</b></p> <p>In partnership with Green Rewards Inc., 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.</p>   |  |  |                                      |                               |
| <p><b>Key strategies used:</b></p> <ul style="list-style-type: none"> <li>▪ Welcome packs and discounts to local retailers given to residents for program sign-up.</li> <li>▪ Participating residents are rewarded when waste reduction is achieved.</li> </ul>   |  |  |                                      |                               |
| <p><b>Results at a glance:</b></p> <ul style="list-style-type: none"> <li>✓ More than 30 percent of residents in the Phase 1 area have signed up to participate and are now eligible for local retail discounts and quarterly rewards.</li> <li>✓ Garbage tonnage has gone down, on average, from the baseline, with no visible increase in illegal dumping or contamination of recycling.</li> <li>✓ Cost savings from waste reduction totaled £1,500 (\$2,428) in the first three months of the program. Participating households each received a portion of the savings equal to £2.50 (\$4) in Green Points, approximately half of which were donated to local charity projects.</li> </ul> |  |  |                                      |                               |
| <b>H</b>  | <b>Sorting Street Stations with PAYT</b> | <b>City of Antwerp</b>                       | <b>Antwerp Belgium</b>               | <b>Incentives and Pricing</b> |
| <p><b>Case study summary:</b></p> <p>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 and metal containers and cartons. Paper, glass, and organics containers can be accessed for free.</p>   |  |  |                                      |                               |
| <p><b>Key strategies used:</b></p> <ul style="list-style-type: none"> <li>▪ Outdoor containers located near multifamily buildings that require keycards to access.</li> <li>▪ Source separation of materials into five separate containers.</li> <li>▪ PAYT (pay as you throw) by volume for garbage and for plastic/metal/cartons.</li> </ul>  |  |  |                                      |                               |
| <p><b>Results at a glance:</b></p> <p>Antwerp has not tracked diversion rates of Sorting Street stations compared to other multifamily areas. However, municipal staff reports that Sorting Streets have generated positive outcomes, such as:</p> <ul style="list-style-type: none"> <li>✓ Less litter in the neighborhoods surrounding the Sorting Street stations.</li> <li>✓ Higher quantities of paper, cardboard, and food scraps have been diverted.</li> <li>✓ Residents have increased satisfaction because of the convenience of being able to access the receptacles anytime and not having to remember collection schedules.</li> </ul>   |  |  |                                      |                               |

## 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.

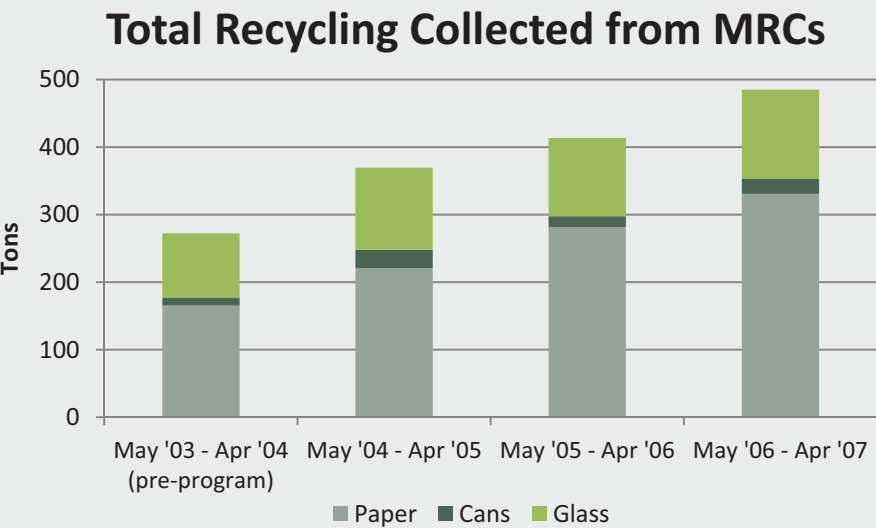
Before canvassing a given block of flats, Resource Futures staff contacted each property manager again to obtain permission to conduct canvassing at their property and to arrange an initial site assessment. The assessment visit provided information about optimum times to find residents at home, site 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.

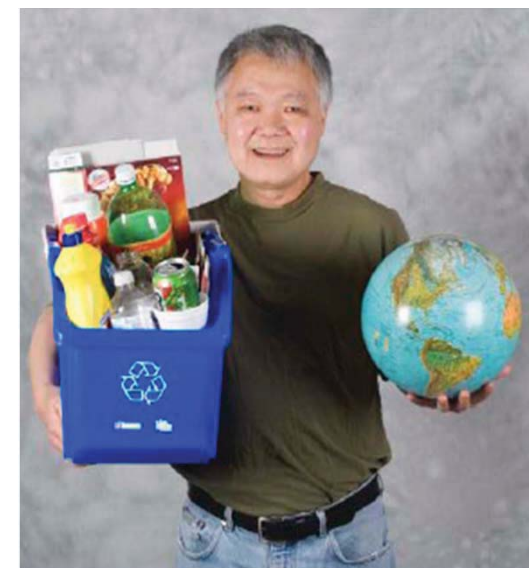
To participate in the program, interested residents were asked to:

- 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.

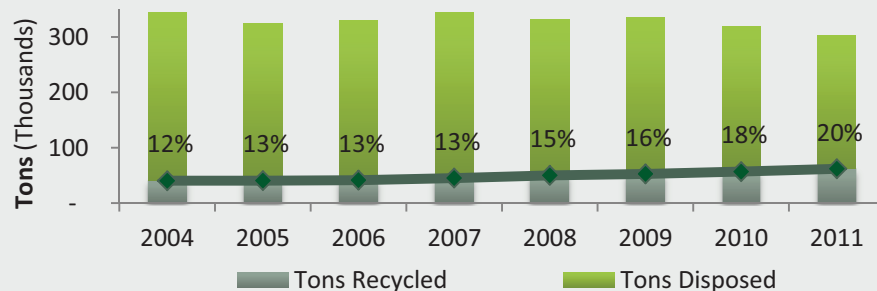
## Outcomes

### 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]."

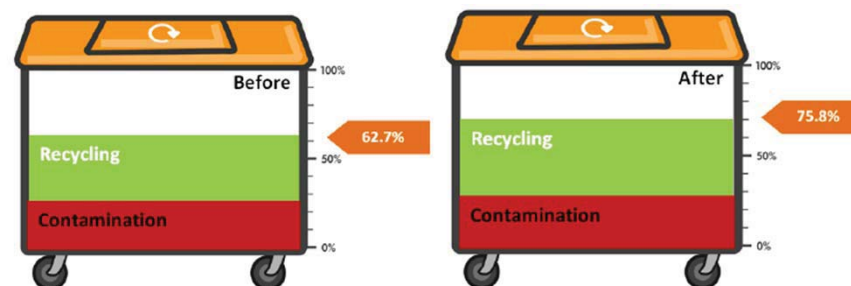


## Outcomes

### 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.

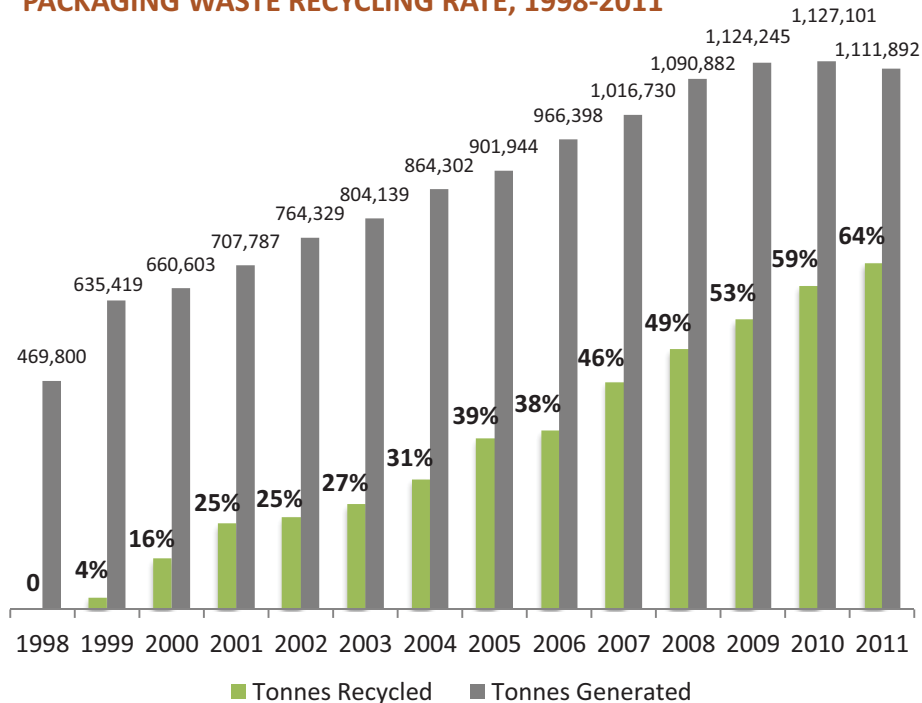


# Outcomes

## 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.

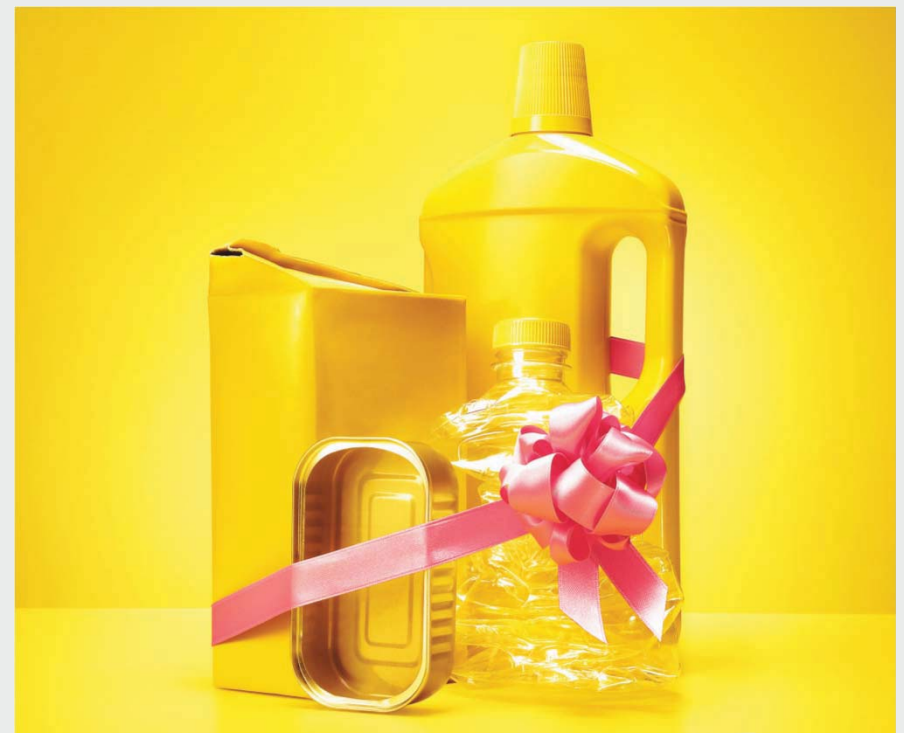
\*Packaging from SPV members only. Packaging that is generated by non-participating producers is not included.

## 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 inquires 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.

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

## "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.



# 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.





# 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.





## Conclusions and Recommendations

The purpose of this project was to identify and document examples of innovative strategies for increasing multifamily recycling being implemented in specific communities around the world. Because the focus was on developing in-depth case studies of a small number of programs, rather than on conducting an analysis of “best practices” through a broad survey of approaches and outcomes, there are no analytical findings to report.

Still, through the literature review and case study research, some overarching themes and takeaways have been identified that may be helpful for informing efforts to improve multifamily recycling. This section offers a summary of key takeaways, ideas, and recommendations for applying lessons learned from this project.

### **1) Improving multifamily recycling is a globally shared challenge that is gaining attention and investment.**

In publications and interviews, recycling professionals from Europe, Canada, and Asia confirm that recycling rates for multifamily buildings are generally much lower than rates for single-family houses. A number of European and Canadian programs (including in Toronto, Metro Vancouver, London, and France) have recently made increasing multifamily recycling a top priority, but many of the new strategies and programs being implemented are too recent to have demonstrated results.

Additional ideas and findings will likely arise as evaluation results from these programs are published in the coming year. Of particular interest is the evaluation of 29 programs specifically designed to increase multifamily recycling that have been funded by the London Waste and Recycling Board, which is due out in mid-2013. The evaluation report will be shared with Snohomish and King Counties, and should be reviewed when available.

### **2) Previous research has identified numerous best practices for multifamily recycling, but more work is needed to clarify how to prioritize and effectively deploy key best practices.**

A number of studies and evaluation reports have been published that identify best practices in multifamily recycling, but most do not rank or categorize them, making it difficult for local governments and recycling service providers to selectively implement those best practices that are likely to be most cost-effective and appropriate for their communities.

And, although the research demonstrates that there is a qualitative element to implementation of best practices that can influence their effectiveness, few reports provide sufficient information or tools for assessing the quality of their programs, even those that follow so-called “best practices.” For example, providing clear signage for recycling and garbage containers is widely considered a best practice, but little guidance is available about what “clear” signage means or how a local government or recycling service provider can assess whether its efforts to distribute clear signage have been successful. Development of definitions, criteria, and implementation guidance for best practices would be a helpful contribution to the field.

**3) Approaches to recycling in Europe are very different, especially under producer responsibility systems, making it difficult to compare to recycling in this region.**

In Europe, recycling systems operate under regulatory, infrastructure, and economic forces that are very different from those in this country, making it difficult to draw comparisons or to identify strategies with potential applicability here in the U.S. context, especially in European countries that operate under extended producer responsibility (EPR) systems for consumer packaging. *(See Appendix C for a detailed discussion of the key differences between EPR programs for consumer packaging and U.S. recycling programs).* Still, there are lessons to be learned from recycling programs in Europe, and should continue to be explored through additional research in the future.

**4) A number of strategies highlighted in the case studies included in this report could have a positive effect on multifamily recycling.**

The following strategies, some of which have already been applied on a small scale in this region, have demonstrated through the case studies to have a positive effect on recycling:

- Door-to-door outreach to multifamily residents paired with distribution of reusable tote bags.
- Programs that recruit and train resident recycling champions 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, 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. (This approach may require partnering with community organizations already operating in communities where multifamily complexes are located.)
- 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.
- PAYT bins with key cards or some other way of instituting PAYT directly for multifamily residents.

These innovative strategies could be adapted, singly or in combination, into pilot projects to test and better understand their potential effect on multifamily recycling.

In order to determine which strategy (or strategies) are most appropriate to pilot, additional research should be conducted on the attributes of multifamily residents and properties in the pilot areas. This will enable the selection of pilot projects that align with the specific barriers and behaviors related to multifamily recycling of the target audience, in accordance with community-based social marketing and behavior change principles.

## Appendices

- Appendix A.     Research Reference List**
- Appendix B.     Research Contacts and Programs Identified  
but Not Pursued as Case Studies**
- Appendix C.     Lessons from Extended Producer Responsibility  
Programs for Consumer Packaging Recycling in Europe**

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## Appendix B. Research Contacts and Programs Identified

### Case Study Research Contacts

| Name                 | Organization   | Title                                     | Contact?               |
|----------------------|--|---|------------------------|
| Anke Berger          | Capital Regional District, Victoria BC (Canada)      | Environmental Resource Management Planner | Corresponded via email |
| Jens Borregaard      | City of Copenhagen (Denmark)                         | Program Manager                           | Interviewed            |
| Steven Bouassemaere  | FostPlus (Belgium)                                   | Director of Operations                    | Corresponded via email |
| Paul Christiaens     | Nedvang (Netherlands)                                | Secretary                                 | Interviewed            |
| Luc De Rooms         | City of Antwerp (Belgium)                            | Project Leader                            | Interviewed            |
| Pascal Gislais       | Eco Emballages (France)                              | Director of International Programs        | Interviewed            |
| Rebecca Goodwin      | Bexley Borough Council (UK)                          | Waste Minimisation and Recycling Officer  | Interviewed            |
| Peter Hall           | Resource Futures (UK)                                | Program Manager                           | Interviewed            |
| Joao Letras          | Sociedade Ponto Verde (Portugal)                     |   | Interviewed            |
| Thomas Klockner      | BSR (Germany)  | Company Spokesperson                      | Interviewed            |
| Walter Lin           | San Jose Environmental Services                      | Residential Services Specialist           | Interviewed            |
| Shigeru Matsumoto    | Aoyama Gakuin University (Japan)                     | Researcher                                | Corresponded via email |
| Morgan Phillips      | WasteWatch (UK)                                      | Team Leder                                | Interviewed            |
| Joachim Quoden       | PRO Europe   | Managing Director                         | Corresponded via email |
| Mario Raposo         | Sociedade Ponto Verde (Portugal)                     | Marketing Director                        | Interviewed            |
| Beverley Simonson    | WRAP (UK)  | Research Analyst                          | Corresponded via email |
| Tomohiro Tasaki      | National Institute for Environmental Studies (Japan) | Researcher                                | Corresponded via email |
| Greg Tyson           | BC Ministry of Environment (Canada)                  | Environmental Management Analyst          | Corresponded via email |
| Charlotte Ueta       | Toronto Solid Waste Management Services (Canada)     | Research Analyst                          | Interviewed            |
| Catherine Vargas     | Culver City Public Works                             | Program Manager                           | Interviewed            |
| Mariagiovanna Vetere | COREPLA (Italy)                                      | Chief Internal Auditor                    | Interviewed            |
| Yung Yau             | City University of Hong Kong (China)                 | Researcher                                | Corresponded via email |

## Programs Identified but Not Pursued as Case Studies

| Program Name/ Service Area                               | Program Type           | Interviewed? | Reason for not pursuing                                      | Notes  |
|--|------------------------|--------------|--|--|
| <b>USA</b>   |                        |              |  |  |
| San Marcos, CA   | Incentives and pricing | N            | <i>Did not have time to pursue</i>                           |  |
| St Paul, MN  | Education and outreach | N            | <i>Did not have time to pursue</i>                           | Eureka recycling published "best practices" research or MF recycling   |
| BizSMART for MF Dwellings (SBWMA) – San Mateo County, CA | PM engagement          | N            | <i>No response</i>   |  |
| Apartment Building Recycling Initiative – New York City  | Community Engagement   | N            | <i>Similar to Toronto program, so did not pursue further</i> |  |
| Ann Arbor, MI  | n/a                    | Y            | <i>No special program in place</i>                           | The City canceled their contract with RecycleBank before the MF portion was implemented  |
| Chicago, IL  | n/a                    | Y            | <i>No special program in place</i>                           | Nearly 450,000 MF units with no formal MF recycling program, no full time staff; did create a toolkit with EPA funding.  |
| Los Angeles, CA  | Not sure               | Y            | <i>No program data</i>                                       | MF recycling is now mandatory, but very new and no enforcement mechanism yet. 430,000 MF units participating in free City service (paid for by AB939 and hauler contracts). Key Challenges: Franchised system makes it difficult to gather data; large City with small staff (3 FTE, 4 PTE). |
| San Antonio, TX  | Not sure               | Y            | <i>No program data</i>                                       | Just started a MF recycling program  |
| San Diego, CA  | Not sure               | N            | <i>Not enough time to pursue</i>                             | Standard toolkit for PMs, nothing jumped out as innovative   |
| San Francisco, CA  | Not sure               | N            | <i>Not enough time to pursue</i>                             | Primarily focused on food scraps collection until recently (July 1)  |
| Portland, OR   | Not sure               | N            | <i>Not enough time to pursue</i>                             | Primarily focused on "Be Resourceful" campaign for 'thoughtful consumption'  |



| Program Name/ Service Area   | Program Type  | Interviewed? | Reason for not pursuing  | Notes  |
|--|---|--------------|--|--|
| <b>CANADA</b>  |   |              |  |  |
| "Trash Talkers" resident-led recycling room upgrade – Victoria, BC | Community engagement                                  | Y            | <i>Not enough data to show impact; context was too different</i> | This was a resident-led initiative to improve the aesthetics of their recycling room as a way to encourage more participation and better recycling. But the focus was on capturing deposit-covered containers from the recycling bin, and on collecting non-traditional recyclables (e.g. batteries, CFLs, etc)        |
| Recycling Space and Access Ordinance – Metro Vancouver, BC         | Regulations   | N            | <i>Regulation is not yet in place</i>                            | MV is developing a model ordinance for local governments in its area to require adequate space and access for recycling.   |
| Northshore Recycling Program – North Vancouver, BC                 | Collection and Processing                             | Y            | <i>No special program in place</i>                               | MF recycling is a new priority for NSRP, in early stages of development  |
| <b>UK</b>  |   |              |  |  |
| Tower Hamlets borough, London                                      | Communications and promotion, PM technical assistance | N            | <i>Did not have time to pursue</i>                               | Tower Hamlets implemented a Recycling Improvement Plan to dramatically improve recycling rates in a borough with a high density of flats. The result was a doubling of recycling rates from 13% in 2007/08 to 26% in 2009/10. Actions taken are outlined in Case Study 11 of London Mayor's Waste Management Strategy. |
| Islington borough, London  | Multiple  | N            | <i>Did not have time to pursue</i>                               | Identified as "high performing" by London Municipal government, Islington operates co-mingled collection using a mixture of chutes, door step collections and centralized bins. The system collects a full suite of materials plus the addition of textiles, mixed plastic and drinks cartons using reusable bags.     |

|  |                           |   |  |  |
|--|---------------------------|---|--|--|
| Borough of Brent, London   | Collection and processing | N | <i>Context not directly relevant</i>                                     | MF buildings have implemented a 3-chute system   |
| Recycle for Your Community – East London Waste Authority Partnership | Collection and Processing | N | <i>Did not have time to pursue</i>                                       | Residents of flats are provided with disposable orange bags for recyclables (26 bags every 13 weeks) -- place bags in same bin as trash  |
| RecycleBank – Lambeth borough, London                                | Incentive program         | N | <i>No response</i>   |  |
| <b>EUROPE</b>  |                           |   |  |  |
| Copenhagen, Denmark  | Not sure                  | Y | <i>Context not directly relevant</i>                                     | High level of diversion, but mainly through streetside containers (glass), deposit-return, and focus on organics; just starting building-level collection of plastics, metal   |
| The Netherlands  | Collection and Processing | N | <i>Similar to Antwerp, so did not pursue further</i>                     |  |
| Lisbon, Portugal   | Collection and Processing | N | <i>Not enough time to pursue, and already partly covered by SPV case</i> | Recommended by Portugal PRO; only city in Portugal with centralized building collection (other collection is done streetside)  |
| Berlin, Germany  | Collection and Processing | Y | <i>Context not directly relevant; language barrier; no response</i>      | Berlin has a dual-stream EPR collection system, so waste is managed by the municipality while recycling is managed by producers; our contact was with the municipality; no response from the PRO responsible for recycling |
| <b>ASIA</b>  |                           |   |  |  |
| Hong Kong  | Incentive program         | N | <i>No response</i>   | Hong Kong partnered with a private firm to deliver a store-specific coupon/discount program for MF participants  |

## **Appendix C. Lessons from Extended Producer Responsibility Programs for Consumer Packaging Recycling in Europe**

As part of its research on innovative practices in multifamily recycling from around the world, Cascadia was asked to include programs operating within legislated Extended Producer Responsibility (EPR) systems for consumer packaging recycling in Canada and Europe. In addition, Cascadia was asked to identify any evidence to suggest that EPR systems resulted in different and innovative approaches or better results than have been achieved in the U.S.

Because most European countries have a large number of multifamily and high-density residential buildings, and because many also have well-established and high-performance recycling systems, Europe jumps out as a region with great potential as a source for innovative strategies for improving multifamily recycling. Cascadia did identify a number of innovative approaches being implemented in European countries under EPR systems for consumer packaging, including two that have been described in detail in case studies D and H. However, key differences in the recycling systems of European countries with EPR for consumer packaging make it extremely difficult to compare outcomes in multifamily recycling as it is measured and defined in the U.S. These differences are explained in this appendix.

### **About EPR Programs for Consumer Packaging Recycling in Europe**

Under the EU Directive on Packaging and Packaging Waste, recycling rate targets for consumer packaging in most European countries are now set at between 55 and 80 percent of all consumer packaging sold into the market, with specific recycling targets set for each material type (paper/cardboard, glass, plastic, metals, and wood). 24 of the 27 EU member countries have chosen to implement an EPR system to achieve the Packaging Directive targets.

Under EPR, producers of packaging are required to pay for some or all of the collection and recycling of consumer packaging. In Europe, there are three different models used for implementing EPR:

- 1) Under the **shared model**, which is the most common model and used by such countries as Belgium, France, Spain, Portugal, and the Czech Republic, producers (organized into a single producer responsibility organization, or PRO) enter into agreements with local governments for the collection of consumer packaging. Under these agreements, local governments collect consumer packaging in an agreed upon manner, and the PRO pays local governments for collected material according to agreed upon rates.
- 2) Under the **dual model**, which is in place in a few countries such as Austria and Germany, producers have full responsibility for collection and recycling of consumer packaging, and they operate a collection system that is separate from the collection system for non-packaging materials, with little or no involvement from local governments.
- 3) Under the **tradable credits model**, which is in place in the UK and Poland, there is no direct link between producers and the collection and recycling system for consumer packaging at the local level.

The shared and dual models of EPR in particular affect the structure of recycling systems in the countries where these models are in place, as well as how system performance and costs are measured and evaluated.

## Key Differences Between Recycling Systems in Europe and the U.S.

### 1) European systems focus on the collection of specific consumer packaging materials.

Because of the consumer packaging recycling rate targets set in the Packaging Directive, recycling systems in Europe tend to prioritize the collection of certain consumer packaging materials rather than focusing on diversion of recyclable materials overall. In addition, the economic incentives of EPR programs for consumer packaging, which are to maximize revenues from the sale of recyclables and minimize the costs of recycling, mean that programs tend to focus on collecting high quality, marketable materials rather than simply focusing on the quantity of material collected. These two attributes have led to critical differences in collection infrastructure in Europe compared to the U.S. Examples include:

- The use of multiple collection bags, bins or containers to capture specific source-separated materials, rather than multi-material, single-stream collection, as is increasingly the norm for recycling collection in the U.S. In Europe, it is common to collect at least three separate streams of consumer packaging (glass, paper/cardboard, and plastic/metal) from households, in addition to residual waste and (sometimes) organics.
- The use of alternative collection systems instead of, or in addition to, collection at single family homes or multifamily complexes. Many European countries with EPR systems employ deposit-refund systems or recycling centers (e.g., at grocery stores), as well as public collection containers distributed around the city to collect consumer packaging waste wherever it is generated. This is most common for glass, where collection “igloos” (domes that collect green and clear glass in separate compartments) are a frequent sight on street corners and in other public spaces. In cities that use this additional system, glass is either not collected directly from households, or household collection makes up a only a small portion of the total quantity of glass packaging collected.
- Focus on recovery of consumer packaging materials with the greatest weight (glass), the highest recovery targets (glass and paper/cardboard), and/or the highest market value (paper/cardboard and metal). The level of plastic recycling required by the EU Packaging Directive (22.5%) is significantly lower than for other materials, so plastic has not been prioritized in the recycling systems of many EU countries. In some places (such as the Netherlands), plastic wasn’t even collected from households until very recently. And even in places where it is collected, often only PET and HDPE bottles are collected (such as in France). In contrast, in recent years many U.S. programs have focused on expanding the range of materials, especially plastics, collected for recycling.

### 2) Recycling from multifamily households in Europe is often collected via curbside pick-up.

Many multifamily buildings in Europe are very old and were not built with space for waste collection of any kind. And because European cities tend to be densely built, there is often no room to retrofit or add centralized collection containers that can be picked up by a collection truck. So multifamily collection largely happens through curbside pick-up, where households place their own bags of materials directly on the curb. In typical European multifamily curbside collection systems, each material type is placed into a different semi-translucent color-coded bag or, in the case of paper and cardboard, simply tied together. In some cities, each material type is collected on a different day of the week.



In contrast, most multifamily buildings in the U.S. have centralized containers for waste and recycling, and residents may bring their materials to the containers at any time. This approach to multifamily collection gives rise to issues around contamination and illegal dumping that are largely absent in the European system.

**3) In Europe, recycling rules and messages are often nationally consistent.**

Because EPR systems for consumer packaging are national, there is often consistency in the collection infrastructure and in the materials collected from all households, whether in single family homes or multifamily buildings, throughout the country. This makes it possible (and more cost-effective) to invest in communications and marketing campaigns on a regional or national basis. Under EPR systems, producers often provide a centralized pool of resources to finance these types of campaigns.

In the U.S., the collection infrastructure for recycling and the list of acceptable materials varies from municipality to municipality. And for multifamily dwellings, the variation can be from building to building depending on the building's design or the recycling service provider (if located in an area where commercial waste and recycling services are unregulated). This makes it difficult for local governments and recycling service providers in the U.S. to coordinate messaging around what or how to recycle.

**4) In Europe, recycling rates for consumer packaging are tracked nationally based on percent of sales, not based on diversion at a municipal level.**

EPR systems for consumer packaging are organized around collection and recycling on a national scale, and the success of consumer packaging recycling is measured by the amount of consumer packaging collected and recycled nationally against the amount of consumer packaging sold into the market in a given year. Because consumer packaging can end up being collected from multiple sources, including directly from residents but also from restaurants, offices, and public spaces, it is not treated as a "residential" waste, per se. And, because EPR systems assign responsibility for recycling consumer packaging to producers, it is also not identified as "municipal" waste. Even when they are involved in the collection system, local governments often track consumer packaging recycling separately from other aspects of residential recycling and waste collection services, and report consumer packaging recycling in terms of tons collected, rather than as a percentage of the overall municipal waste stream.

In contrast, materials collected from households in the U.S. are generally classified as "municipal solid waste" and are treated as single universe of materials, from which a certain portion can be "diverted" in the form of recycling. Success in recycling in the U.S. is largely measured and tracked at the local level, and the recycling rate is calculated as the percent of all waste generated that is recycled. Consumer packaging is not treated or tracked separately from other recyclable materials.

These key differences in the recycling systems of European countries operating under EPR systems create challenges in collecting data and comparing programs, costs, and results to U.S. recycling programs in general, and especially to programs that are specific to the multifamily sector.