



Belfast City Council

Waste Management Service

**Project Report: Improving recycling in inner city
apartments**

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1. Purpose

This report discusses the implementation of improved recycling services in Belfast city apartments as a result of the new inner city recycling contract let to Bryson Recycling in 2013, and the key findings, lessons learned and outcomes from this initiative.

2. Background

Apartment blocks tend to recycle poorly (across the UK) and Belfast apartments were acknowledged to be no different. A project team was set up in autumn 2012, to research and recommend ways to improve apartment recycling performance in Belfast.

In the course of this research, data from Land & Property Services (LPS - obtained 12-12-12) indicated that there were in the region of 28,000 apartments in Belfast (23% of households); 17,000 of these in the 'inner city' and 11,000 in the 'outer city'.

Given these proportions, it was evident that apartment recycling performance had the potential to significantly influence the city's recycling rate.

A new kerbside sort contract was awarded for inner city recycling in June 2013, when the previous kerbside sort contract came to the end of its term. The new contract placed particular emphasis on the implementation of an effective recycling system for apartments. The contract was won by Bryson Recycling.

The standard system adopted for individual houses was:

- A fortnightly collection of residual waste in a wheeled bin
- A weekly collection of dry recyclable waste, collected in 2 No. 55-litre boxes (one red, one black), each accommodating a separate designated range of materials
- A weekly collection of food waste, collected in a 23-litre kerbside caddy; households were also issued with a 7-litre kitchen caddy

The approach for apartments will be discussed in detail in this report.

3. Summary of research findings

3.1 Introduction

This section of the report discusses the initial research which was carried out between autumn 2012 and summer 2013, to establish the state of recycling in Belfast apartments and recommend ways to improve performance.

Due to the timing of this exercise, it served better to prepare the Service to plan and implement the contractor's proposed recycling systems to apartments as part of the new inner city recycling contract, rather than yielding any conclusive findings or specific recommendations to shape the system to be used.

3.2 Data from Land & Property Services (LPS)

Detailed listings obtained from Land & Property Services (12-12-12) indicated that there were 28,347 individual apartments in Belfast, which might be a single apartment above a shop, for example, or one of many apartments in a major block or complex.

The individual apartment addresses were summarised into blocks and grouped according to the collection routes which they were located in.

The team established that 17,277 individual apartments were located in the inner city and the remaining 11,070 in the outer city.

This meant that apartments comprised about:

- 23% of Belfast households
- 31% of inner city households
- 17% of outer city households

Clearly therefore, apartment recycling performance has the potential to significantly influence the city's recycling rate.

3.3 Types of managing party

The project team established that there are essentially three types of managing party for apartment blocks in Northern Ireland:

Northern Ireland Housing Executive (NIHE)

NIHE is NI's overall housing authority; it is a non-departmental public body and is centrally managed. Relatively few apartment blocks in Belfast are directly managed by NIHE.

Housing Associations

Registered Housing Associations are funded and regulated by DSD to provide social housing. The Northern Ireland Federation of Housing Associations (NIFHA) represents the sector and promotes good practice within it.

Management Companies in association with Managing Agents

A Property Management Company is a particular type of company set up to look after the overall management of an apartment block where the apartments are privately owned. Each apartment owner (as opposed to tenant) is a shareholder in the company, and there must be at least one Director.

Most management companies will employ a *property management agent* to look after the day-to-day maintenance and upkeep of the premises. Alternatively, some companies directly employ caretaking staff. Whereas a management company is only responsible for its own apartment block, managing agents generally look after many blocks (on behalf of the relevant management companies). Some of the larger managing agents will look after blocks all across NI and not just in Belfast.

Unlike NIHE and Housing Associations, there is no single point of contact or register for either Management Companies or Management Agents.

3.4 Apartments management surveys

A survey was developed and issued to a number of managing parties, prior to rolling out the new system in the inner city (see Appendix 1).

The survey set out to:

- establish whether the various systems which were already in use in outer city and inner city apartments were effective
- ascertain the reasons as to why they were or were not effective
- understand how they might be made more effective
- capture any other ideas or suggestions that managing parties could offer.

Only six parties responded to the survey. Four respondents were from Housing Associations, and their observations were in relation to 21 sites – 20 of which were located within the Belfast City Council area, and the vast majority of these in the inner city. Two respondents were from private managing agents with responsibility for around 400 sites which were spread across the province.

Feedback specific to sites using the box-based recycling system

Responses in relation to the effectiveness of the box-based system were mixed. Some respondents indicated that it worked well and others that it didn't. However, the reasons appeared to be in relation to poor resident attitude and knowledge, as well as lack of space or lack of recycling capacity.

The only fundamental issue with the system itself - and this was only implied rather than stated in the responses - was that it took up a lot of space.

One Housing Association raised the issue of fire risk, but this was because their bin areas were external and not secured.

One private agent indicated that the cost of stands was not feasible for small sites. Presumably this referred to developments outside of Belfast, as they are provided free of charge in the city.

It was not clear from the responses whether the respondents believed that it was more beneficial to locate general waste and recycling together or separately.

All respondents appeared to believe that good signage and educational literature was essential. One Housing Association suggested that 'educational seminars' for new tenants – presumably presented by BCC - prior to handover, would be beneficial.

Respondents largely indicated that residents' attitudes and understanding varied. One private agent offered the extra information that owner-occupiers had more responsible attitudes to recycling than tenants, larger sites were more difficult to control and transient populations were more difficult to educate.

Only one respondent (a private agent) indicated that the extra difficulty for apartment residents in terms of transporting their waste had an adverse impact on recycling (the others did not comment on this issue).

The ability of elderly residents to grasp recycling was raised as an issue. An additional complication in the case of the elderly was the fact that visiting friends, family, carers or home helps sometimes dealt with the waste, and their attitudes and understanding also varied.

Feedback specific to sites using the bin-based recycling system

Only a couple of the HA sites had recycling bins, but many of the privately-managed sites did. Those sites which had bins indicated that the system worked well, although one agent indicated the problem of a single resident being able to contaminate a bin, resulting in it not being emptied.

Only one respondent clarified that locating general waste and recycling bins together made recycling easier for residents (the others did not comment on this issue).

As with the box system, there was a mixed response as to residents' attitudes.

One private agent and one HA agreed that having different colours for general waste and recycling bins would be beneficial; one HA indicated the current system worked fine, the other respondents did not comment.

There were no comments in relation to the effectiveness of education or available information.

General feedback

The broad consensus of feedback in relation to getting people more committed to recycling was in relation to increasing education and awareness. Two HA's mentioned going beyond just the residents, to find ways to educate family members and carers on the recycling schemes in place.

There were no comments specifically related to the physical systems - although simplifying arrangements by broadening the range of plastics for example - was mentioned.

There was some concern about working with landlords to avoid any potential penalties for not recycling, and to introduce financial incentives or reduced rates for good recycling.

The proposed idea of the council donating money to a local charity in line with the city's recycling rate obtained a mixed response.

Author's comment and interpretation

There was a relatively low number of respondents, which poses questions as to whether the feedback is truly representative. However, those responding did have responsibility for a significant number of sites.

The questionnaire was designed with a large number of open questions, to allow a range of responses and the gathering of new information and ideas, rather than restricting respondents to pre-set or predicted answers. However, this has,– perhaps,– resulted in a more patchy response and made it more difficult to identify clear patterns.

It was surprising to the author that (although the questions were not specifically asked) the survey did not generate several responses indicating the following issues, which are normally assumed by the Waste Management Service:

- co-mingled recycling bins encourage contamination
- owner-occupiers recycle better than tenants
- settled residents recycle better than transient residents

That said, there was a clear indication that all respondents agreed that good communication and education systems and literature are key to effective recycling.

3.5 Apartments residents surveys

A short survey was also issued via the Council's intranet to capture the views of employees living in apartment blocks (see Appendix 2).

There were only 4 responses, 2 from employees in a complex with a bin system and 2 from employees with a box system; all living in Belfast.

All 4 employees indicated that they believed that recycling was worthwhile; however, they may not have felt comfortable to indicate otherwise.

One respondent (from Annadale Flats where residents have individual boxes) clearly indicated that they would prefer a bin to a box. Other than that, there was no clear indication as to whether they felt that one system was better than the other; all respondents complained about something, whether it be problems with capacity, access to the containers or poor markings on the bins.

The answers appeared to imply that locating general waste and recycling bins together was better for recycling as, otherwise, residents were likely to simply use the closest bins for all of their waste.

The answers also indicated that it required a level of discipline and organisation to sort and transport the different types of waste to the different types of bin, with some of the respondents having more difficulty with this than others.

There seemed to be little or no recycling information available to residents on site; the employees seemed to be able to get enough information from City Matters and the Council website (one mentioned 'BCC website' and the other 'Interlink').

The respondents all gave different answers as to what would help or make them recycle more: fines; a bin instead of a box (as mentioned above); information via the property mgt companies for new tenants; smaller kerbie-type boxes or bins for individual flats; food waste collection; increased recycling capacity.

Respondents seemed to be cautiously in favour of having recycling included in a tenancy agreement, although they questioned whether it could be enforced.

4. Apartments recycling systems and equipment

4.1 Box stands

Bryson Recycling proposed the use of 10-box stands (accommodating 10 x 55-litre boxes) for dry recyclable materials from apartment blocks. Although sizes could be manufactured as required, the project team adopted 10-box stands and 6-box stands as standard to simplify manufacturing and ordering. The team kept a stock of these stands at all times so that they could be deployed quickly.

These metal stands consisted of two rows of boxes, with lids to keep the contents dry and intact. A lid consisted of a metal frame to hold five standard box lids (in the case of a 10-box stand). Each box was labelled to accept a single material, to simplify and speed up collection. (See Appendix 3.)

Steel lids were fitted as standard, but lighter aluminium lids were used where residents were older or infirm. However, the aluminium lids were more expensive and were also more prone to bending out of shape.

Due to the large quantities (but light weights) of plastics arising from households, a 240-litre blue bin was deployed with each box stand to accommodate plastics and beverage cartons. These bins created the greatest problems in terms of co-mingling and contamination.

4.2 3-Tier stands

In the course of the project, the team were faced with several sites where space was limited. They considered the problem and revised the existing box stand design, to develop '3-tier' stands - stands consisting of 3 rows of boxes. This innovation overcame the space limitations at several sites.

To keep the top tier of 3-tier stands at a usable height, the spacing between all rows had to be reduced and, in order to achieve this, lids were not fitted on any row. This meant that they could only be used in internal stores and not outdoors. (See Appendix 4.)

As these stands were used as a bespoke solution where space was limited, many versions were used (typically anything from 9 boxes to 18 boxes). So, the team only ordered these stands as required.

Boxes were generally labelled to accept a single material, and 240-litre blue bins were deployed as standard for plastics and beverage cartons.

4.3 Wheelie-boxes

Banks of wheelie-boxes were seen as a third potential solution for dry recyclables in some applications, primarily where the materials needed to be moved some distance from the storage area to the collection vehicle. However, they tended to be unsuccessful and were eventually replaced by box stands at a number of sites. (See Appendix 5.)

It was difficult to establish the exact problem, but the team suspect that the restricted aperture size was problematic for communal applications. It appears that residents tended to dump materials on the ground rather than take time to deposit any significant quantity of recyclables through the apertures. The situation would then further deteriorate through the general lack of ownership which appears to be endemic in communal situations.

Each wheelie-box was assigned a particular material and, again, 240-litre blue bins were deployed as standard for plastics and beverage cartons.

4.4 Tote sacks

Each apartment was also issued with a 60-litre reusable tote sack to facilitate residents carrying dry recyclable materials to the communal recycling equipment.

4.5 140-litre brown bins

140-litre brown bins were used for the collection of food waste from apartments. Each apartment was issued with its own 7-litre kitchen caddy.

Issuing replacement caddy liners to individual apartments proved difficult. A system was eventually adopted whereby each site was also given a 23-litre caddy to store liners; these were replenished each week at collection.

4.6 Individual recycling equipment

The standard approach to apartments in blocks of 12 or fewer apartments was to treat them like houses and issue them with individual sets of recycling equipment.

However, this approach was also used for a small number of larger sites where the use of communal equipment was not practical. This individual kit approach was only suitable where the layout of the site, and the abilities and attitudes of residents, accommodated the presentation of large numbers of individual boxes without incurring unmanageable problems and confusion.

Depending on space considerations, sometimes apartments using this approach were issued with only a single box and allowed to deposit the full range of dry recyclable materials in it.

4.7 Multiple recycling collections per week

A number of sites which did not have sufficient space for the required amount of recycling equipment were given two recycling collections per week.

4.8 Variations in the proportions of each material

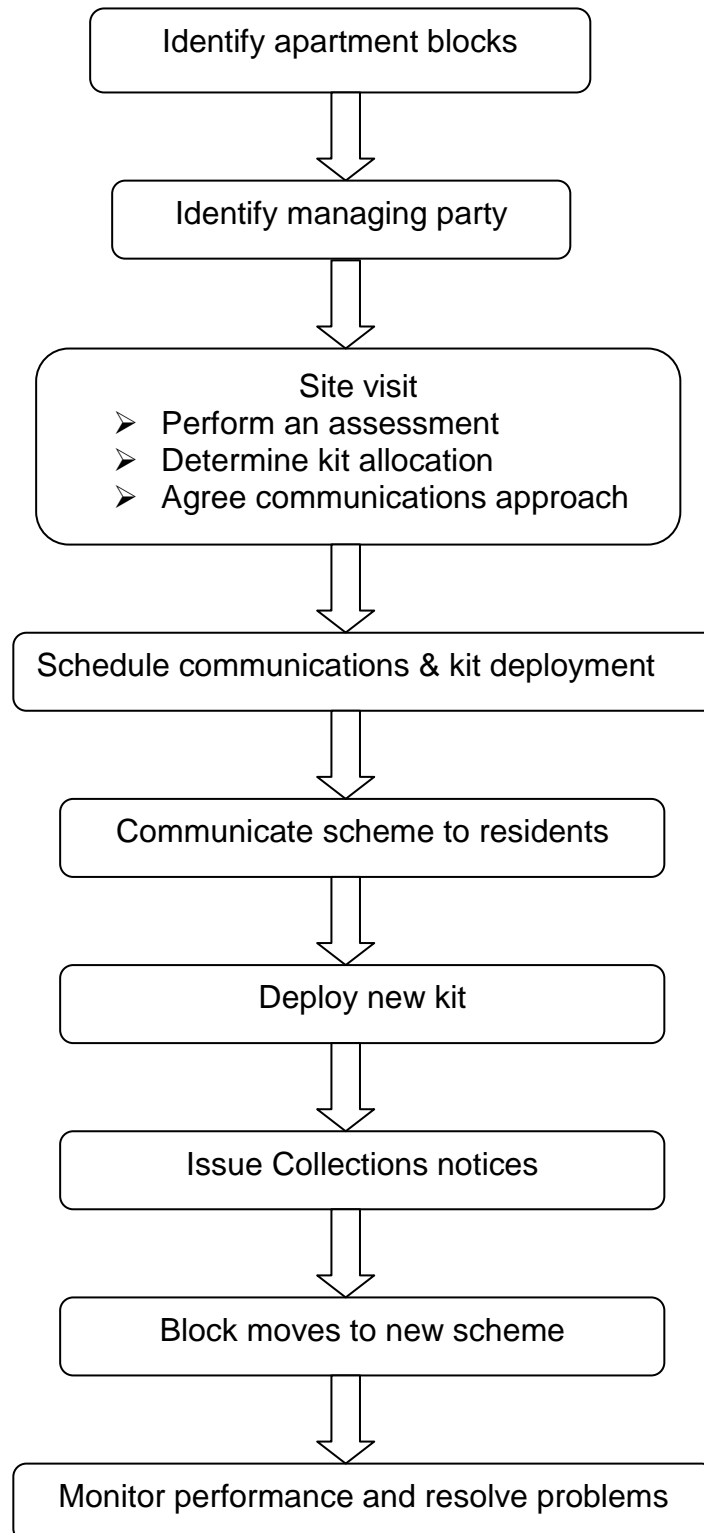
It has already been mentioned that large volumes of plastic were generated in comparison with other dry recyclable materials. As a starting point, a 10-box stand was normally fitted with 3 boxes for card and 2 boxes each for paper, glass and cans.

The 10th box was meant to be used for miscellaneous materials – hand tools, textiles, etc. but sometimes it was more effective to use this box to provide extra capacity for other materials. Where more than one stand was deployed, normally no more than one box in total would be allocated to the miscellaneous materials.

However, the proportions varied from site to site and the box stand arrangement provided flexibility to adjust the capacities to suit.

5. Process for the introduction of improved recycling in apartments

The following process was developed and followed for the deployment of new recycling equipment to inner city apartments in conjunction with the rollout of the new inner city waste and recycling regime:



5.1 Identify apartment blocks

Most of the work involved in identifying apartment blocks was done as part of the apartments research work discussed in Section 3.

Inner city apartment blocks were categorised as follows:

- Small: 1-12 apartments
- Medium: 13-29 apartments
- Large: 30+ apartments

The initial indications were that the breakdown of inner city apartments was as follows:

Block/ Complex Size	No. Blocks/ Complexes	No. Apts
Small (1-12 Apts)	4685	9385
Med (13-29 Apts)	82	1544
Large (30+ Apts)	106	6348
Totals	4,873	17,277

In order to make implementation manageable, it was agreed that apartments in 'small' blocks should be treated like non-apartment households and issued with individual recycling kit. This left 188 blocks to be issued with communal equipment.

However, as the project progressed, it became clear that a number of the blocks which had initially been classified as 'small' actually formed part of medium or large 'complexes'. As well as this, managing agents at a number of small blocks also requested communal equipment; this appears to have provided a good – although expensive – solution for those sites. As a result, the number of apartment locations actually addressed in the initiative totalled around 300.

All of the apartment blocks to be addressed were compiled into a single spreadsheet (referred to as the Apartments Summary Sheet). The Summary Sheet became a living document which was continually updated with all key information for each apartment block and used as the main point of reference throughout the project.

5.2 Identify managing party

There are essentially three types of managing party for apartments in Northern Ireland (these are discussed in more detail in Section 3):

- *Northern Ireland Housing Executive (NIHE)*
- *Housing Associations – represented by NIFHA*
- *Management Companies in association with Managing Agents – operate independently*

The team made early contact with NIHE and NIFHA and this helped to identify the relevant contacts for many of those apartment blocks managed by NIHE and Housing Associations.

Relevant Managing Agents were identified by calling at sites and talking to residents. This was a much more involved process, but got easier as the team built up knowledge and contacts.

In general, representatives from NIHE and Housing Associations bought into proposed changes more easily. Managing Agents' attitudes were more dependent on the individual, the attitudes of the management company they served and the complexity of the changes required.

5.3 Site visit

The site visit and discussion with the relevant managing party was the critical element of the process. There were 3 main elements to a site visit:

Perform an assessment

The team developed a *pro forma* to capture relevant information for each site (see Appendix 6). The *pro forma* considered:

- the waste arisings from the site
- the existing facilities, processes and arrangements for waste management
- the resident profile and considerations with respect to waste

Much of this information is self-explanatory, but the critical element is with regard to the calculation of waste arisings and, specifically, the proportions of dry, food and residual waste.

The Service had been instrumental in developing the *Local Government Waste Storage Guide for Northern Ireland (2010)* which sets out a formula for estimating the total weekly waste arisings from an apartment block for design purposes. In January 2014, the Service also published *Supplementary Guidance* specifically for developments in Belfast, setting out the proportions of dry, food and residual waste which would be expected from outer city and inner city apartment blocks. These proportions differ due to the different ranges of materials collected in the two areas.

The NI Guidance and Belfast's *Supplementary Guidance* are intended to ensure that waste and recycling are duly considered in the design of new apartment blocks. However, this project presented a different situation, where solutions were being retrofitted into existing apartment blocks.

The project team determined the total *actual* quantity of waste arising from each site (in litres) on a weekly basis. This was found to be generally lower than (although broadly similar to) the total quantities predicted in the NI Guidance for similar size developments.

The team then applied the 'inner city' breakdown (see Table 1), as set out in the *Supplementary Guidance*, to the total quantity of waste being collected each week, to estimate the quantities (in litres) of dry recycling, food and residual waste being generated.

Table 1: Inner City apportionment of communal waste (volume rather than weight)

Material	Estimated proportion of total weekly waste arisings
Residual waste	19%
Dry recyclables	70%
Food waste	11%

It should be noted that, towards the end of the project (in addressing complaints about and resistance to implementing the new scheme), the team carried out crude characterisation studies at three sites, all of which yielded results which were consistent with the apportionment set out in the *Supplementary Guidance*.

Determine kit allocation

Having arrived at an estimate of the quantities of dry recycling, food and residual waste being generated, the team had to decide how much equipment/ capacity to allocate to each of the three streams.

This process became an art in itself, as it involved negotiations with the managing party and the recycling contractor, as well as considering:

- The estimated quantities of each material being generated, including any special circumstances – such as a higher proportion or volume of medical waste
- The space available on site
- The attitudes and ability of residents to recycle
- The accessibility of the storage area
- The fact that all sites owned their residual waste bins, so the Council could not remove them (although they could refuse to empty them)
- The fact that residual waste would be collected on a fortnightly basis and the other materials on a weekly basis

In the majority of cases the team were faced with a situation where all waste was being disposed of in residual bins and there was little or no recycling equipment on site.

The team applied a level of realism and settled for ‘less than optimum’ recycling. In general, sites were allowed to retain all of their residual waste bins – but these would have to last for a fortnight rather than one week. However, some sites even agreed to reduce their residual capacity; the team agreed to a total of three additional residual euro bins being issued in the course of the rollout.

As a ‘rule of thumb’, the team aimed to issue 1 x 10-box stand + 1 x 240-litre blue bin + 1 x 140l brown bin for every 1100-litre euro on site.

This recycling ‘package’ totals 930 litres, but collected weekly as opposed to the residual containers which were collected fortnightly.

Such a setup would accommodate the following breakdown in materials (over a fortnight):

Table 2: Inner City ‘rule of thumb’ allocation of communal waste capacity

Material	Estimated proportion of total weekly waste arisings
Residual waste	~37% (around twice the theoretical requirement)
Dry recyclables	~53%
Food waste	~10%

Agree communications approach

The team discussed with the managing party whether it would be more appropriate and effective to educate residents via a residents’ meeting or for every individual apartment to be door-knocked – or both.

All of this information was detailed on the assessment *pro forma* and a summary transferred onto the Apartments Summary Sheet. Sometimes further visits and adjustments were required after implementation.

5.4 Schedule communications and deployment

The project team held weekly meetings with the contractor to schedule deliveries of recycling equipment to those sites which had been assessed and for which a plan had been agreed.

Deadlines for equipment deliveries (by the contractor) and for education (by the Waste Management Service) were entered into the Apartments Summary Sheet, and the updated Summary Sheet was issued to the contractor and to the Senior Resource Advisor (Senior RA) in the Service's Resource Education and Promotions Team.

The Senior RA checked whether the sites had requested a single residents meeting or for all residents to be individually canvassed (or both). Where an individual canvass had been requested, the Senior RA contacted the managing party at each site to schedule visits by the RA's; evening and weekend visits were arranged where necessary. The Senior RA also liaised with the Resource Education and Promotion Officers (REPO's), who contacted the managing party to arrange residents meetings where these had been requested.

5.5 Communicate new scheme to residents

The Waste Management Service's dedicated Resource Advisors (RA's) canvassed individual apartments to provide information and engage with residents. The visits yielded various 'hit rates', but were generally on the low side. However, information was put through each door and the equipment was clearly labelled as to which materials were acceptable.

The project team experimented with issuing notices to advise customers of the RA visits in advance, but this proved quite difficult to resource and there was not enough evidence to firmly indicate whether it improved the yield.

As part of their visits, the RA's also left reusable 'tote sacks', to facilitate customers in transferring their recyclable materials from their apartment to the recycling equipment.

Some sites requested residents' meetings instead of or in addition to the individual canvass. Combining both was the ideal approach as it doubled the opportunity for direct engagement with residents; in these cases the meeting was normally held first and followed up with an individual doorstep canvass.

A Resource Education and Promotion Officer (REPO) attended the meetings to inform residents of the new scheme and distribute tote sacks. The effectiveness of the meetings varied. Some were very poorly attended; others were only attended by residents who were interested in participating in the scheme or wanted to complain about it. Some residents simply used the meetings as an opportunity to air some unrelated grievance with the managing party.

However, even if the discussions were initially heated, residents could usually be brought on board once they were told how the scheme would work and why it was required. Meetings provided REPO's with time to go into greater detail than was possible in the door-knocking exercise, and they could use more aids to learning (such as presentations) to help get the information across. Meetings were also a more reassuring vehicle and environment for many elderly and vulnerable residents who found change difficult to cope with.

5.6 Deploy new kit

After the information sessions had taken place, the contractor deployed the new recycling equipment to the sites. It proved best to use a dedicated team for this, as they learned how best to place the kit. The Waste Management Project Team sometimes attended deliveries where the placement of the kit was known to be very specific or more awkward, as well as delivering in the region of 50-60 box stands with caddies and sacks, themselves.

The communications team generally issued the tote sacks and kitchen caddies to individual apartments in the course of their door-knocking activities.

5.7 Issue collections notice

Once the kit was deployed and residents had been educated, the Project Team Manager issued a covering email and Collections Notice to the managing party (see Appendix 7).

This confirmed to the managing party that all arrangements were now in place for moving to the new scheme, and advised of the new collection schedule for all materials. Weekly residual collections were normally continued for a short period, to give the site time to inform residents and adjust.

5.8 Move block to new collections regime

The contractor commenced dry recycling and food waste collections on the next scheduled collection day following delivery. Weekly residual collections were normally continued for a short time to give sites an opportunity to adjust.

The Project Team Manager issued a 'weekly apartments list' each week to the Council's Cleansing Services. This listed only those apartments which were still to receive weekly residual waste collections. Apartment blocks were removed from the list in accordance with the Collections Notices which had been issued to their managing parties.

5.9 Monitor performance and resolve problems

Sites needed ongoing monitoring to ensure that collections were taking place and that residents were participating well and not contaminating the materials.

Managing agents had the contact details of project team members, who were able to respond quickly to problems, which typically involved:

- resolving missed collections
- resolving access problems for the crews
- needing to re-arrange or re-site equipment
- adjusting the capacities for various recyclable materials
- delivering additional recycling equipment
- arranging additional communications and education

Some sites were very resistant to the new regime; these are discussed in more detail in Section 6.

The monitoring, management and maintenance of apartments recycling is an ongoing consideration for the Waste Management Service, with typically 1-2 sites per week requesting or requiring some form of attention or intervention.

6. Dealing with problematic apartment blocks

At the time of writing, over 280 of the 300 apartment blocks have satisfactorily adopted recycling and moved fully to the new scheme and fortnightly collections of residual waste.

Many of these were transitioned using the standard process outlined. Some needed a mix and match of approaches – 3-tier equipment and twice-weekly collections, for example.

The majority of the outstanding sites suffer from severe lack of space and, therefore, difficulties in implementation are understandable. The Service continues to seek solutions for these sites, but accepts that they may take some time to resolve.

However, where difficulties in implementation arose due to unwillingness or lack of co-operation on the part of managing parties or residents, the Service had to take a different line. In all such cases, the Service engaged more fully with managing parties and residents in an attempt to understand the situation and arrive at a suitable solution. Some blocks were canvassed multiple times and some residents groups had repeat visits.

Where the Service had negotiated for a reasonable period of time, and re-educated residents, to no effect, a firmer line was eventually taken. In many cases, the sites were simply given notice of a date that the new scheme, including fortnightly collections of residual waste, would come fully into effect. After this date, the Council refused to collect more than the allocated number of residual containers.

At three sites where residents complained that the allocated number of residual containers was simply not adequate, the Service carried out crude characterisation studies (on site) of the contents of full residual containers. These exercises all demonstrated that the vast majority of the contents were in fact recyclable materials (roughly consistent with the proportions set out in Table 1 - see p13). This information has been used to address similar claims at other sites.

7. Key success factors and issues

This section discusses a number of factors which influenced the success of the initiative, either in terms of rolling out the scheme or in relation to the scheme's actual effectiveness post-implementation.

7.1 Public attitudes:

While not everyone is on board with recycling, there is generally more acceptance that waste is travelling in that direction. Some people now expect more of a focus on recycling, and some are requesting it. While no actual research was carried out, anecdotally the Service believes that the public were more receptive to the changes than they would have been a number of years ago.

7.2 Council-driven:

The contractor was of the opinion that Council officers carried more weight than the contractor's staff would have done in driving the introduction of recycling at the apartment blocks. The contractor had extensive kerbside recycling experience in Belfast and other council areas, and indicated that they would not have received the level of co-operation that Council staff did, when dealing with managing parties and residents.

7.3 Dedicated staff:

The Council dedicated a small team of staff to this initiative, which meant that they had a focus and developed a passion for the project. They built up a wealth of knowledge and contacts and established good relationships with the managing parties, contractors and other internal stakeholders. They became familiar with the issues and options, and became very adept in reaching solutions.

Obviously this was a very labour intensive approach, but it was key to the success of the initiative. It was essential to have staff assigned to work through the detail involved in tailoring a workable solution for each site and ironing out any teething problems.

There was a risk that this knowledge and benefit would be lost when the team moved on to other projects, and the sites moved into the operational phase. However, this was minimised by the team members being part of the Service and, therefore, available for reference and advice after implementation.

The Contractor also dedicated particular Supervisors and operatives to their elements of the rollout, which meant that those individuals got into a routine, developed good practices and built up good relationships with the Council officers, leading to smoother implementation.

7.4 Good procedures and documentation:

The team developed good and effective procedures (as discussed in Section 5) to manage, administer and communicate every element of the process, from surveying the site right through to starting the collections.

The team were disciplined in documenting and updating information, and keeping all other parties informed as necessary.

7.5 Communications:

Tailored versions of customer information were developed for each of the different types of apartment scheme, as they evolved. While this meant that there was literature suitable for each scheme, managing the resulting range of materials became quite cumbersome and confusing.

The range of approaches which was eventually arrived at could not have been predicted from the outset, so the situation was somewhat unavoidable. However, for future reference, it may be more beneficial – if possible - to amend the literature to arrive at one more generic version, rather than several bespoke versions, should the Service find itself in a similar situation.

The equipment was all clearly labelled to indicate which materials were accepted, and this meant that there was no real justification for contamination.

Communications and labels were also provided in various languages, as well as Braille, on request.

Following the main rollout of the scheme and, in response to ongoing issues at some sites, the Service is currently engaged in providing additional signage and posters to raise awareness of the scheme, the accepted materials and the locations of recycling equipment. It is finding this valuable.

7.6 Space and layout:

The issues presented by a lack of adequate space being available on site are self-evident; the range of approaches developed to address this are documented in Section 6 and throughout this report and shall not be discussed in any further detail here.

However, even where there was sufficient space, there were various options and arguments as to the best use of that space. As a general rule, the team argued for recycling to be given equal prominence and accessibility to residual waste, with all container types being located together where possible. It was suspected that residents would simply tend to use the most accessible bins for all of their waste, so it was feared that giving recycling containers greater prominence and accessibility may have led to greater contamination, while giving residual containers greater prominence may have led to a lower recycling yield.

It was not always possible to have the containers located together or equally accessible, either due to the layout of the building or the attitude of the managing party. Sometimes managing parties became more receptive to layout changes after implementation, either because of persistent problems (contaminated recycling or over-filled residual bins) or as residents got into the habit of recycling.

7.7 On-site management and/or caretaker presence:

It was no surprise that recycling was generally more effective where there was a management presence or caretaker on site to ensure correct resident behaviour and to take corrective action when necessary.

Such arrangements also had the added advantage of providing good quality feedback on contractor performance.

7.8 *Transient or settled residents*

Resident behaviour is clearly a key factor in the recycling performance, no matter how convenient or simple the recycling system.

Anecdotally, it appeared that settled residents appeared to buy in to recycling better than transient populations.

Even where attitudes to recycling were good and enthusiastic, it was important that residents properly understood what could and could not be recycled. Where there is a high level of churn in the resident population this knowledge gets lost and the recycling performance tends to deteriorate as a result.

7.9 *Equipment costs:*

10-box stands cost in the region of £300 and, because of the unexpected success of the initiative, the Service allocated 2-3 times as many stands as they had initially predicted.

In hindsight, some costs could have been saved by making versions without lids for internal use.

Because of the terms of the contract, the Service was effectively tied to a particular supplier. Should a similar exercise be carried out in future, the Service would employ a more effective procurement strategy.

7.10 *Contamination:*

Contamination of the box stands is relatively uncommon, and can normally be addressed by the collection crew, due to the manageable size of the boxes.

Food waste is seldom contaminated.

However, the blue bins which are allocated for plastics and beverage cartons have been continually problematic in terms of contamination; this is one of the key outstanding issues for the scheme. Sometimes the contaminants are general waste materials, but sometimes they are other dry recyclable materials.

It is not clear whether residents tend to use the blue bin for other materials simply because it is a 'bin', or because other parts of the city use a blue bin for the collection of co-mingled dry recyclables.

Plastic appears to be the material which causes most confusion among customers. The inner city scheme accepts all solid household plastic items – bottles, pots, tubs and trays. However, plastic bags and wrapping, as well as crisp packets, are also commonly deposited by residents. It is not clear why residents cannot differentiate between solids and films. The project team speculate that perhaps the term 'plastic packaging' is being used. Customer understanding on this issue may merit further investigation.

Unfortunately, the terms of the contract did not clearly detail which party was responsible for dealing with unmanageable contamination. The Service felt that it was unrealistic to expect that managing parties or residents would satisfactorily address the issue. They were also aware that instances of contamination needed to be cleared as quickly as possible in order to avoid problems escalating and customer behaviour deteriorating.

As a result, the Service is paying an additional fee to the contractor to handle the problem. They do this by having crews report instances of unmanageable contamination to their supervisor daily; these are compiled into a list to be visited the following day by a vehicle and operative which are better equipped to remove contamination and capture any recycling.

The Service was careful to learn from this and established clear responsibility for addressing contamination on the next relevant contract tendered.

7.11 Bulky cardboard:

It quickly became clear that apartment blocks tended to generate large amounts of bulky cardboard. To make cardboard manageable, the contractor's policy was that it needed to be presented in pieces no larger than the size of the lid of a 55-litre box. It seemed unrealistic to expect that apartment residents would comply with this requirement, but there was too much cardboard to disregard or lose. Therefore, crews were instructed to report instances of bulky cardboard to their supervisor, and it was collected by the same vehicle which was employed to deal with instances of unmanageable contamination (see para 7.10).

7.12 Systemic apartments management issues:

While the project team have been able to successfully negotiate suitable arrangements for recycling on a site by site basis, it has become evident that there are a number of systemic problems which impact on the recycling performance of apartment blocks.

For example, 'home helps' deal with the waste arising from many residents in particular types of housing schemes. However, recycling that waste is not generally a consideration as it is not necessarily included in their job description or training, and they have a limited time to carry out their assigned duties.

Another issue is the limited range of actions which managing parties can take to enforce good recycling behaviours among residents. Compliance with recycling requirements is not generally included in any leasing or accommodation agreement.

The Service is considering arranging a workshop with relevant stakeholders in order to air these types of issues and find a way to address them in the long term, so that the proper management of waste becomes a standard consideration in their everyday planning.

8. Output and outcomes

The recycling performance of the new inner city scheme has improved considerably with dry recyclables increasing from 3,100 tpa to 4,700 tpa and food waste contributing a further 2,400 tpa.

Appendix 8 shows photos of the typical states of apartment recycling kit before and after the rollout. There is no 'before and after' data specifically for apartments, so it is impossible to know how much of this success can be attributed to them. We do know that the following, quite substantial, volumes of kit were issued in the course of the project:

Table 3: Recycling equipment issued to apartments in the 'inner city' rollout

Waste type	Kit	No. units issued
Dry recycling	10-box stands (steel + aluminium)	286
	6-box stands (steel + aluminium)	70
	3-tier stands	38
	Wheelie boxes	334
	240l blue bins	459
Food	140l brown bins	431

Based on the information we have on waste densities, even if this kit were to be half-filled each week, it would equate to more than 900 tonnes pa.

While the scale of equipment deployed to apartments was unexpected and the overall reception encouraging, they have required a considerable amount of ongoing attention in terms of repeat education, adjusting capacity and layouts, and dealing with operational problems (missed collections etc.). The Service is still grappling with how best to resource this ongoing workload in the longer term.

9. Summary and next steps

The Waste Management Service has successfully introduced recycling to over 280 inner city apartment blocks through its hands-on, detailed and yet flexible approach, devising suitable solutions from a range of available options. This has been under-pinned by suitable procedures and documentation to ensure efficient implementation, and supported by tailored and timely communications to residents.

However, an unexpected level of ongoing monitoring and management has been required to address and resolve operational issues at those sites where solutions have been implemented. The Service will have to consider how best to resource this in the longer term.

Around 20 sites remain with no obvious solution. Some of these have a token recycling presence, but no imminent prospect of moving to a fortnightly residual waste collection. The Service continues to investigate and trial ideas at these locations.

There are frequent instances of unmanageable contamination, particularly in the blue bins allocated for plastics and beverage cartons, and the Service is currently paying for a supplementary operation to deal with these. It would be beneficial to find a way to minimise or eliminate this problem.

The Service has successfully negotiated solutions with a wide range of managing parties on a site by site basis. However, a number of systemic issues will need addressing to ensure that recycling becomes embedded in the thinking of these and other relevant organisations. The Waste Management Service is currently considering hosting a workshop for these other stakeholders, to air these issues and find a way to address them in the long term.

Appendix 1: Research Survey issued to managing parties



Recycling in apartments - Questionnaire for managers and landlords

In Belfast, we must meet challenging European recycling and waste diversion targets. If we do not meet the targets, we will face financial penalties, which we may have to pass on to ratepayers.

Recycling levels in apartments are particularly low. We would be grateful for your help in completing this questionnaire. Any information that you provide could help us improve our recycling performance.

By 'recycling' we mean both food waste and dry recyclable materials.

<i>Organisation name and address:</i>	
<i>Contact name:</i>	
<i>Tel. or mobile:</i>	
Email address:	

Q1a	How many blocks or complexes do you manage or look after? That is, how many completely separate locations?
1b	Please list the locations and give an indication of their size. That is, how many blocks, floors and apartments at each (approximately).
1c	Please list any locations which don't have any recycling facilities.
Q2a	Please list any locations which have the Bryson Box scheme for recycling.

2b	Does this system work well? Why or why not?
2c	How could the box system be improved or made more effective?
Q3a	Please list any locations which use Council bins or Eurobins for recycling.
3b	Does the system work well? Why or why not?

3c	How could the bin system be improved or made more effective?
Q4a	How do residents get waste from their apartments to the bin area? Does this affect how much they recycle?
4b	In general, are the bin areas suitable? For example, are they big enough? Are they easy for residents to access?
4c	Do you find that recycling works better when general waste bins and recycling containers are located together, or when they are located separately?
Q5a	Do residents show an interest in recycling?

5b	Do you think that your own views on recycling have an effect on the recycling performance at the various locations which you look after?
5c	From your experience, please describe whether any specific factors (for example, age or income) appear to affect how much people recycle.
Q6a	What information do residents have about recycling? Do they need more or better information? Are there enough recycling signs or labels?
6b	To what extent is language a barrier? Which foreign languages are the most common?
Q7	What is the best way to inform residents or to get information to them?
Q8a	For those locations with recycling Eurobins, would it help if the general waste bins and recycling bins were different colours?

8b	In your opinion, would people be motivated to recycle more, if the Council agreed to donate money to a local charity in proportion with the City's recycling rate?
8c	Would you consider including a recycling clause in the tenancy agreement? Do you think this would be effective?
8d	Have you any other thoughts on how waste management and recycling can be improved in apartments in Belfast?
8e	Would you be willing to let us trial new ideas or initiatives at any of your sites?

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE

Please return your completed questionnaire by email to Michael Ferguson at FergusonMichael@belfastcity.gov.uk

Or by post to:
**Marcus Campbell, Waste Management Service, Belfast City Council,
The Cecil Ward Building, 4-10 Linenhall Street, BT2 8BP.**

Appendix 2: Research Survey issued to employee-residents via Council intranet



Recycling in apartments – Questionnaire for residents

In Belfast, we must meet challenging European recycling and waste diversion targets. If we do not meet the targets, we will face financial penalties, which we may have to pass on to ratepayers.

Recycling levels in apartments are particularly low. We would be grateful for your help in completing this questionnaire. Any information that you provide could help us improve our recycling performance.

By 'recycling' we mean both food waste and dry recyclable materials.

Name (optional):							
Apartment number (optional):							
Age:	16-25		26-45		46-65		66+
Apartment block name and address:							
Date:							

1	Do you think that recycling is worthwhile? Why or why not?
2	What waste and recycling facilities are available at your apartment block?
3	Do you think this is a good system? What is good about it? What would make it better?

4	Is the bin storage area big enough to hold the general waste bins and recycling bins or boxes? Are all of the bins easy to get to?
5	Are the general waste bins and the recycling bins or boxes located together or separately? Does this make a difference to how much you recycle?
6	How do you get waste and recyclables from your apartment to the bin area? Does this affect how much you recycle?
7	What information do you have about recycling and how did you get it? Do you need more or better information? What is the best way for us to inform you or get information to you?
8	What would make or help you recycle more?
9	If you are renting, do you think it would be a good idea for recycling to be a requirement of the tenancy agreement?
10	Can you provide contact details for the person or company who manage the bins and bin areas at your apartments?

Please return this questionnaire by email to Una McKeown: McKeownU@BelfastCity.gov.uk

Or by internal post to: Marcus Campbell, Waste Management Service, 3rd Floor South, Cecil Ward Building.

Appendix 3: Standard 10-box stand arrangement



Appendix 4: Example of a 3-tier stand



3-tier stand. Overall height reduced by not having lids on each tier – therefore only suitable for indoor locations.

Appendix 5: Bank of wheelie-boxes



Appendix 6: Assessment *pro forma*

Inner City Apartments Assessment Form

Apartment details	Postal Address:			
	Also known as:			
	Key contact	Organisation		
		Name		
		Position		
		Telephone		
Email				

Planned collections

BCC Day/Route:		Bryson Dry Recyclables:		Bryson Food Waste:	
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Waste Assessment/ Apportionment

1-bed		@100l =		Residual @ 19% x 2 =	litres =	x 1100l bins
2-bed		@170l =				
3-bed		@240l =		Dry R/C @ 70% =	litres =	x 790l systems
4-bed		@310l =				
Other:				Food @ 11% =	litres =	x140l bins
Total:						

Physical Setup/ Arrangements

<p>Check/ consider:</p> <ul style="list-style-type: none"> • Existing facilities/W/F Waste usage. • Is it working? • Chutes? • Size of area(s) available? • Any other/ back area(s)? • Access for residents? • Access/ presentation for collections? • Caretaker on site? • Squad observations? 	
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Site/ Resident Profile

<p>Check/ consider:</p> <ul style="list-style-type: none"> • Age range? • General Needs / Sheltered / Supported/ Disabled? • Settled/ transient? • Languages? • Vandalism / ASB • Attitude to R/C (residents and caretaker) • Anything else? 	
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New Arrangements

Site Meeting	Date / time:	Present:
Operations		
<p>Discuss/ consider:</p> <ul style="list-style-type: none"> • Assessed allocation • Stands / Wheelie-box / separate glass collection? • Layout • Restricting access to R/C to reduce contamination • Restocking stands/ rotating boxes from back area • Tote sacks • New areas/ sheds etc? • Replenishing liners • Fire risk 		
Communications		
<p>Discuss/ consider:</p> <ul style="list-style-type: none"> • Tenants' meetings? • Newsletters? • Noticeboards? • Website? • Access for door-knocking • Comms to staff/ care assistants? • Access for container deliveries 		

Appendix 7: Collections Notice



Waste & Recycling Collections Notice

Location

Complex Name	Whatever apartment block name
Postal Address	Whatever address

Collection days (see schedule below)

Residual waste – fortnightly collections on:	Thursday
Dry recyclables – twice-weekly collection on:	Thursday
Food waste – weekly collection on:	Friday

In case of problems or queries

Black bins not collected	028 90 270 230
Bulky Household Waste collections	028 90 270 230
Recycling boxes or food waste not collected	0800 032 8100
Need more food waste liners	
Need more recycling boxes or food waste bins	
Need more recycling information	0800 032 8100 www.belfastcity.gov.uk/recycling

Collections schedule:

Week	Black bins collected	Recycling Collected	Separate Food Bins Collected
15/09/14 – 19/09/14	Thurs	Thurs	Fri
22/09/14 – 26/09/14	Thurs	Thurs	Fri
29/09/14 – 03/10/14	Thurs	Thurs	Fri
06/10/14 – 10/10/14	-	Thurs	Fri
13/10/14 – 17/10/14	Thurs	Thurs	Fri
20/10/14 – 24/10/14	-	Thurs	Fri
27/10/14 – 31/10/14	Thurs	Thurs	Fri

Appendix 8: 'Before and after'

The following photos depict the typical state and presentation of recycling equipment in inner city apartments, before and after the rollout of the new scheme.

