

Appendix A1 – The separate collection of glass- pilot

To improve the quality of recyclable material

Introduction

The Council currently collect glass within the mixed, dry recycling green bag. While this approach has served the public and the council well to date, the changing global recycling markets are now placing a challenge on this method.

In 2015, there was a significant shift in the glass market. A material that once produced an income now required a gate fee to process. The budget shift was almost £750k. The pressures on the global market also saw our re-processors stop taking glass for two months. The Council was able to identify space to stockpile Cardiff's glass but had space not been available, it would have been lost to disposal.

If the glass cannot be recycled, the gate fee for disposing of the glass will increase by a further +£40 per tonne, meaning the council will have to afford a further £320,000 annual bill, plus the risk of fines.

Currently, the Council collects over 8000 tonnes of glass each year, which is sent to be recycled for aggregates. As the global markets demand higher quality year on year, the outlets for glass are reducing. Currently, the council only have one outlet for glass and if this were to cease, the material could not be recycled. A loss of over 8000 tonnes to recycling would mean the council would fail the recycling targets, and could equate to fines in excess of £1.6m, plus £800,000 of disposal costs.

Another consideration when reviewing potential service change is the waste (England and Wales) (Amendment) Regulations 2012 and Welsh Governments Collection Blueprint. These regulations were implemented to deliver high quality (separate) collections of waste paper, metal, plastic or glass, whilst also being the best technical, environmental and economically practicable solution (TEEP).

An analysis of our current recycling collection methods (co-mingled, in a single use bag collected weekly) and operating costs demonstrated that there are significant improvements to be made if the glass was removed from the co-mingled bag and collected separately at source.

Current position

Cardiff's co-mingled (mixed) recyclable material is delivered to our in house MRF (Materials Recycling Facility). The MRF receives and segregates all material, through a mixture of automated and manual sorting.



Picture 1- artist's impression of the MRF

At one of the initial stages of processing, small fragments of glass fall through a separating screen to a lower conveyor belt below. Larger pieces of glass will continue through the process; once passed through a magnet to remove steel, the remaining pieces of plastic, aluminium and glass pass through a glass breaker. The smaller pieces of glass again fall through a separating screen, to join the pieces separated at the start of the process.

The separating screens permit other smaller bits of material e.g. ripped paper, small pieces of plastic etc. to within the glass. Although every attempt is made to further clean the material, the Council have to pay for the material to be further cleaned and recycled, rather than gain an income for the material.

The Council currently only supply into one glass reprocessing market, which carries significant risk if this end market was to become further weakened or cease all together.

Of a sample load of glass recycled, 59% could be re-melted back into glass. 18% was used as aggregate/insulation manufacture and the remaining 22% was rejected as contamination.

In addition, fragments of glass cause a lot of damage to equipment in the MRF particularly hard rubber 'stars' which are used on the screens that separate different materials. The abrasive nature of glass causes erosion, at a much faster pace. Annually, this is an additional strain on the MRF maintenance costs.

For the reasons identified above, it is clear that there are potential improvements to be made.

In summary, removing glass from the co-mingled bag collection could result in:

- ✓ Better quality closed loop glass recycling i.e. recycled glass being turned back into new quality glass.
- ✓ Income rather than a cost for processing the glass (market dependant)
- ✓ Reduced operating costs in the Materials Recycling Facility (MRF).
- ✓ Better quality paper recycling – due to reduced contamination.
- ✓ Better quality of glass and paper will lead to better income generated from their sale.
- ✓ Improved compliance with the Waste Collections Blueprint.

Proposal

1) Pilot areas

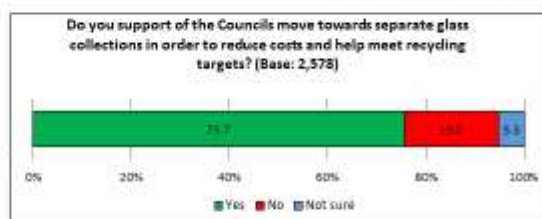
The Council is proposing an initial trial of 17, 164 properties to present their glass separately to the rest of their recycling. The initial pilot will enable us to fully identify the improvements made to the quality of the glass, the amount of glass that differing households present, the best collection method and identify the possible demand in terms of increased requests for assistance (registered collections), ordering of boxes/caddies etc.

Early consultation has suggested support for the scheme.

Waste Collection

76% of respondents supported the move towards separate glass collections in order to reduce costs and meet recycling targets.

Just 14% opposed the scheme in Cardiff South West compared to 24% in Cardiff South East.



Gweithio dros Gaerdydd, gweithio gyda'n gilydd
Working for Cardiff, working together



The pilot will be implemented over a period of at least 12 weeks. A minimum of 12 weeks will provide us with information required, to determine whether a citywide expansion will take place. Areas within the pilot would continue to take part in the separate collection of glass, until a scheme is rolled out across the City.

Collected once a fortnight, this will give residents the opportunity to present glass on at least 6 occasions throughout the pilot. To ensure maximum efficiency of vehicles, the trial would include 10 areas across the city allowing one area per day over a two-week period.

Areas selected would be based on the following criteria:

- Collection days – one on each day of the week is required
- High, medium and low performing recycling wards (1-4 scale, 1 = high, 4 = low)
- Average glass capture (1-4 scale, 1 = high, 4 = low)
- Housing type – high density flats, terraced houses, semi-detached houses and detached houses
- Segmentation data – demographic data, recycling behaviour and attitudes towards waste.

Main collection principles for properties on the glass pilot:

Traditional households Glass Collection Arrangements

- Glass will be collected on a fortnightly basis, on the same collection day
- Properties will initially receive 1 x box or caddy. 1 additional container can be ordered per property
- If properties request more than 2, the request will be considered by recycling communication officers
- Boxes/caddies will be replaced free of charge
- Food waste, garden waste, general waste and hygiene waste (where registered) collections will not be affected
- The following materials can be placed into a green bag, for a weekly collection
 - Paper
 - Tins/cans
 - Cardboard
 - Plastic
 - Aerosols
 - Shredded paper (in a single green bag separate to other material)
- There are a variety of containers that could be used. Officers have reviewed these options a number of types will be tested through the pilot period, box types will have a lid, or net to contain the material.
- For the duration of the initial phase, additional boxes/caddies can be ordered by contacting C2C. They can also be obtained from recycling communication officers during community engagement events.

- Collection crews will be told to considerately place containers back outside resident's properties
- The registered collection service remains for those who require assistance with placing out bins/sacks/bags for collection. The current service criteria will be reviewed, to accommodate the change
- There will be facilities to recycle glass only at any remaining bring banks across the City
- Residents can choose not to take part in the trial, but green bags containing glass will not be collected
- Collections of glass will take place between 8am-8pm; existing recycling and waste presentation rules apply
- Containers must be within the property boundary when not presented for collection
- Containers will be labelled with individual address details

Blocks of flats

- The Council will identify a block of flats within each trial area
- Before the trial, an assessment will identify whether there is sufficient space within the bin storage area for an additional communal bin
- We will provide a 140l or 240L bin, with an aperture (hole) for glass bottles/jars. The bin will have a gravity lock, so will be secure
- We will consider the benefits of providing residents with a sack, to enable them to safely transport glass to the communal bin area

Bring banks

Glass only bring banks can also be considered, but over recent years the use of bring banks has declined. Many banks have been removed due to abuse and contamination. Research shows this is not an issue specific to Cardiff, many authorities are moving away from bring banks due to the issues they attract. Consideration will be given to glass banks where it may suit a local community, but this will be after alternative solutions have been explored.

Monitoring and Evaluation

Monitoring will comprise of four separate components;

1. Public opinion surveys

A survey will be delivered to each property that will be participating in the trial. The initial survey can help in gauging the resident's current recycling habits, how much glass they believe they place out for collection, container preference and their likelihood of participating in the trial

Residents would be able to send back a hard copy of the survey or complete online. In addition, we will monitor response levels and where response levels are particularly low, complete face-to-face interviews at resident's homes.

A further opportunity to take part in a survey could take place before the end of the trial. The same response methods would be available. This survey would identify whether the container provided was appropriate, whether the collection frequency is appropriate and the challenges and benefits of the scheme as a whole.

2. Participation monitoring

Ongoing participation monitoring will need to take place before, during and after the trial. The teams will be walking the streets in front of the collection crews noting:

- Pre- trial- number of households presenting green recycling bags, number of households presenting general waste
- During and post- trial- number of household presenting green recycling bags, number of households presenting general waste (and whether any additional bags are next to bins) and number of household presenting glass container on a fortnightly basis

Monitoring will need to take place over a 6-week period during the pilot to account for three separate opportunities to present the glass container for collection.

The participation monitoring will be able to determine the amount of glass we collect per participating property. We will be able to apply assumptions across the remainder of the City, to determine the likely amount of glass (by weight and volume) we will need to collect across the City to meet recycling targets.

3. Analysis of material within green bags

Teams will remove green bags from a sample number of properties within each of the trial areas. This will take place before, during and after the trial.

Bags will be taken back to the analysis compound, where the material will be separated into different material types. Initially, this will present the Council with information about how much glass is in the green bags before the trial. We can use this information to help determine how many separate glass containers households will need to contain their glass.

During the initial phase, it will be determined how much glass is still within the green bags, as the crews will not have the opportunity to reject the bags during the collection (analysis team will collect first).

The analysis of the contents within the green bags, and participation monitoring will also determine confidence in residents' responses to surveys e.g. residents state they use the glass collection separate service, but are placing glass into green bags

4. Analysis of end material within MRF

Green bags collected from within the trial areas will be tipped into a separate location within the reception hall. The material will be processed separately to the areas not part of the glass separation trial.

The quality of all end material will be analysed, to determine the effects on quality.

Waste education, communication and enforcement

The pilot will be supported by a wide communication and engagement strategy. Briefly, this will comprise of:

- Community outreach in all areas
- Door knocking in all areas, with particular focus on evenings and weekends
- Consideration of the likely impacts of the trial on all protected characteristics, and mitigation (Equality Impact Assessment attached as Appendix 2)
- Educational support in all areas on recycling collection days
- Information sticker left on green bags containing glass
- Regular social media updates, and responses to queries through social media platforms as well as traditional phone calls/emails/letters
- Leaflet delivered to all properties explaining the change
- Promotion of tours of the MRF to offer a first-hand experience of why glass causes such problems (arranged in advance, limited availability)
- Website updates
- Press release & press call visit to Lamby Way
- Information in local community hubs/libraries/leisure centres

Education will be the initial key focus of the trial for first 3 collection cycles. Any green bags containing glass will be targeted so residents can be given the opportunity to understand what they have done wrong.

Assuming the only contamination is glass; the bags will be returned to the MRF and processed with the bags from the remainder of the City not partaking in the trial.

The remaining three collection cycles may have a stronger enforcement focus. By this stage, householders should be aware of how they now need to present glass for collection. The same process of placing a sticker on the bag will occur. Bags will be removed. However, during the enforcement phase of the campaign where bags remain on the street, the property will receive a Section 46 Notice. This notice legally stipulates the correct way to present recycling and waste for collection.

Operational Arrangements

The service will provide a fortnightly collection service from a box with a netted cover or a lidded caddy (similar to the food caddy). This will be collected by glass only vehicles, to ensure the glass is kept separate from other materials.

Initially the service will pilot an 8am to 8pm collection window, based on two, six hours shifts. This collection pattern will be a new shift pattern, which requires additional new collection teams. The savings achieved from no longer having to process the glass through the MRF will fund the cost the extra vehicle and operatives, and the associated gate fee changes due to the increased quality.

The MRF will require little or no change, as the glass will be bulked separately with no need to be processed through the plant.