

Kerbside Recycling Service Appraisal

Phase 2 of the new

**Alternate Weekly Collection Service
(Summary Report)**

**Report to
West Dunbartonshire Council**

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WDC Phase 2 Kerbside Recycling Service Appraisal

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Glossary

Alternate Weekly Collection (AWC): a kerbside collection system based on alternating weeks of recycling and residual waste collection

Average yield: the average weight of waste or recycling collected from each household per week (*kg/hh/wk*)

Phase 1: the first phase of implementation of the new kerbside (AWC) recycling service, carried out in April 2010

Phase 1 area: the geographical area corresponding to the Phase one implementation

Phase 2: the second phase of implementation of the new kerbside (AWC) recycling service, carried out in March 2011

Phase 2 area: the geographical area corresponding to the *Phase 2* implementation

Cycle 1: *Weeks 1 & 2* of the new service

Cycle 2: *Weeks 3 & 4* of the new service

Cycle 3: *Weeks 5 & 6* of the new service

Blue bin: blue 240L wheeled bin for the collection of co-mingled paper, card, plastic bottles and cans

Brown bin: brown 240L wheeled bin for the collection of co-mingled garden and food waste.

Set-out rate: the percentage of households that present a waste or recycling container for collection on any one collection day

Participation rate: the percentage of households that participate in a waste or recycling scheme. WRAP guidelines state that a participating household should be defined as one that presents a container for collection on any collection day over three consecutive collection cycles.

Known participation rate: for the purposes of this study, the percentage of households that are known to participate in a kerbside waste or recycling scheme following this study (which was only able to collect set-out data over two consecutive cycles and does not correspond to WRAP guidelines on the subject (see **Participation rate** above).

Contamination rate: for the purposes of this study, the percentage of bins presented that contained materials not collected as part of the WDC scheme (assuming one bin per household).

Side waste: any waste presented that is not contained within the wheeled bin.

Capture rate: the proportion of a specific material that has been collected relative to the total arisings of that material (from both the residual waste stream and the material recycled / composted)

1. Introduction

In March 2011 West Dunbartonshire Council (WDC) rolled-out the second and final phase of its new alternate weekly collection (AWC) kerbside waste and recycling service to approximately 14,000 low-level households. WDC, therefore, now has approximately 29,600 households on the new AWC kerbside waste and recycling service and approximately 15,000 households (mainly flatted properties) deemed not suitable for such a service delivery model.

The service changes to the designated low-level properties consisted of a number of key elements:

- The blue bin dry recyclate collection frequency was increased from once every four weeks to once a fortnight
- The brown bin garden waste collection frequency was increased from once every four weeks to once a fortnight
- Food waste collection was added to the brown bin service
- The brown bin service was extended from nine months per year to twelve months per year
- The residual waste collection frequency operated in conjunction with the new recycling service was reduced from once a week to once a fortnight.

Table 1.1 shows that the weekly waste capacity provided to households did not change with the introduction of the new service. More capacity has been made available for greater recycling and, hence, less capacity is available for material going to landfill.

Table 1.1 – Kerbside waste service capacity

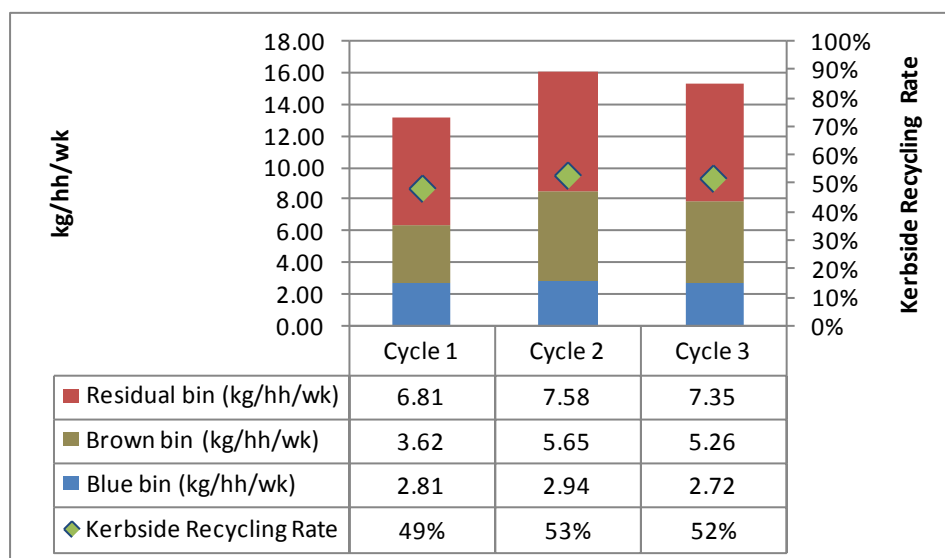
| | | Bin capacity (l) | Collections per 4 weeks | Weekly waste capacity (l) |
|--------------------|--------------|------------------|-------------------------|---------------------------|
| Old service | Residual bin | 240 | 4 | 240 |
| | Blue bin | 240 | 1 | 60 |
| | Brown bin | 240 | 1 | 60 |
| | TOTAL | | 6 | 360 |
| New service | Residual bin | 240 | 2 | 120 |
| | Blue bin | 240 | 2 | 120 |
| | Brown bin | 240 | 2 | 120 |
| | TOTAL | | 6 | 360 |

2. Analysis

2.1. Average yield and current performance

Figure 2.1 shows the average yield for each scheme by route.

Figure 2.1 – Average yields across routes (kg/hh/wk)



Tonnage analysis of *Cycles 1* to *3* suggests that *Phase 2* is on course to perform at the same levels as *Phase 1* of the new service, however, tonnage analysis from 2010/11 suggests that:

- the new blue bin service in *Phase 1* performed higher than projected
- the old blue bin service in the *Phase 2* area did not perform as well as projected i.e. the *Phase 2* area may be generally lower performing than the *Phase 1* area in terms of blue bin recycling.
- projections for 2011/12 should be made using the highest *average yield* figure observed in *Cycles 1* to *3* of *Phase 2* rather than the *average yield* achieved in *Phase 1* in 2010/11.

The *recycling rate* of all combined kerbside schemes on the new service was 53% by *Cycle 2*. This is comparable to *Phase 1* at the same stage of roll-out.

2.2. Participation

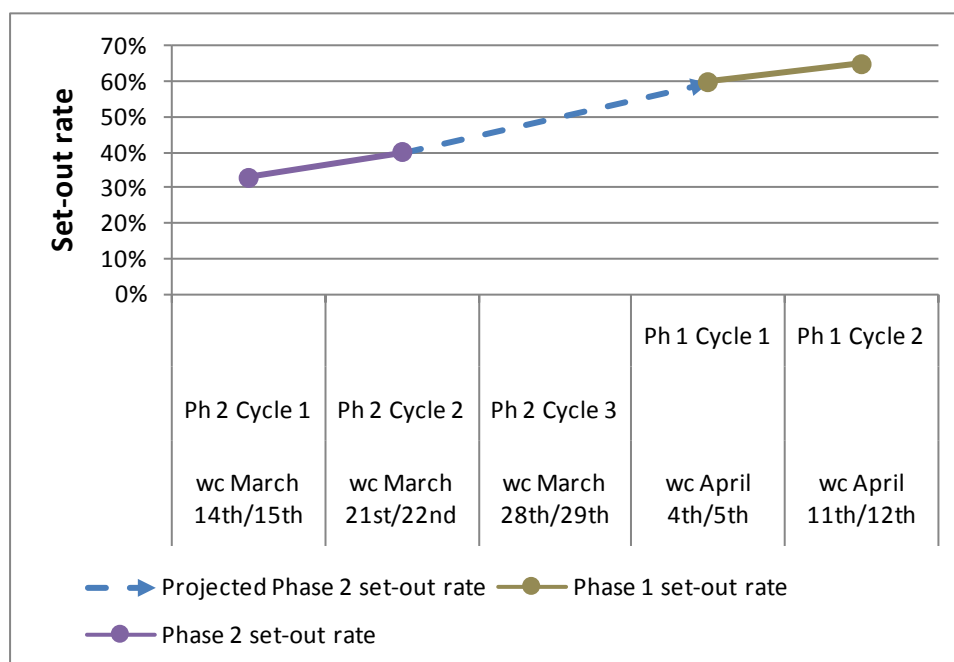
Table 2.1 shows the *set-out* and *known participation rates* for the blue and brown bin scheme in *Cycles 1* and *2*. The average *known participation rate* (Zero Waste Scotland guidelines on participation rates usually specify measurements over three consecutive cycles, however two cycles were carried out in this study) for the three routes in *Phase 2* of the implementation of the AWC on the new service is 79% on the blue scheme and 61% on the brown bin scheme; however, as *Phase 2* monitoring took place before the full onset of the growing season, participation in the brown bin scheme is expected to rise further.

Projections from *Cycles 1* and *2* suggest that average set-out in *Phase 2* is on course to replicate the levels observed in *Phase 1* (see *Figure 2.2*).

Table 2.1 – Set-out and known participation rates

| | | Blue bin | | Brown bin | |
|----------------------------|-----------------------------------|------------|------------|------------|------------|
| | | Cycle 1 | Cycle 2 | Cycle 1 | Cycle 2 |
| Route 11 | Set-out rate | 48% | 64% | 26% | 42% |
| | 2-cycle participation rate | | 79% | | 64% |
| Route 12 | Set-out rate | 63% | 64% | 41% | 39% |
| | 2-cycle participation rate | | 80% | | 58% |
| Route 13 | Set-out rate | 52% | 69% | 23% | 43% |
| | 2-cycle participation rate | | 77% | | 53% |
| All routes combined | Set-out rate | 55% | 65% | 33% | 40% |
| | 2-cycle participation rate | | 79% | | 61% |

Figure 2.2 – Projected Phase 2 brown bin set-out (Phase 1 2010, Phase 2 2011)



2.3. Projected performance

Table 2.2 shows the projected performance for both *Phase 1* and *2* throughout 2011/12.

It is estimated that following the implementation of *Phase 2* of the new AWC service a recycling rate of 46.1% of household waste could be achieved (compared to an estimated 40.9% in 2010/11).

- In order to meet the 2013 target of 50% recycling of household waste, WDC would require to increase annual household recycling by approximately 1,649 tonnes (assuming no change in annual arisings). This is the equivalent of around 1.07

kg/hh/wk additional recycling across all AWC households within West Dunbartonshire (0.71 kg/hh/wk across all households in West Dunbartonshire).

- The Council may wish to consider the inclusion of glass in the standard kerbside collection in the AWC areas – this would be expected to increase recycling performance considerably.

The Council may also wish to consider developing optimisation programmes aimed at increasing recycling across all service areas in order to change behaviour and help meet future Zero Waste Plan targets.

Table 2.2 – Projections for Phase 1 and 2 performance in 2011/12

| | HHs | kg/hh/wk | | 2010/11 | | Projected 2011/12 | |
|---|--------|----------|-------|----------------|--------------|--------------------------|--------------|
| | | Blue | Brown | Tonnes | | Tonnes | |
| | | | | Blue | Brown | Blue | Brown |
| Phase 1 2010/11 | 15,593 | 3.39 | 3.49 | 2,748 | 2,826 | 2,748 | 2,826 |
| Pre roll-out Phase 2 area 2010/11 | 14,048 | 1.76 | 1.70 | 1,289 | 1,240 | | |
| Projected Phase 2 2011/12 | 14,048 | 2.94 | 3.62 | | | 2,149 | 2,546 |
| TOTAL (tonnes) | | | | 4,037 | 4,066 | 4,897 | 5,372 |
| | | | | 8,103 | | 10,269 | |
| | | | | 2010/11 | | Projected 2011/12 | |
| MSW Arisings (tonnes) | | | | 47,925 | | 47,925 | |
| MSW Recycled/Composted (tonnes) | | | | 18,359 | | 20,525 | |
| MSW Recycling Rate (%) | | | | 38.3% | | 42.8% | |
| HH Waste Arisings (tonnes) | | | | 42,150 | | 42,150 | |
| HH Waste Recycled/Composted (tonnes) | | | | 17,260 | | 19,426 | |
| HH Waste Recycling Rate (%) | | | | 40.9% | | 46.1% | |

3. Monitoring

As part of the implementation a team of support assistants was deployed to monitor rates of participation, contamination and extra waste as well as to provide support to householders who required assistance:

- In *Cycle 1* (i.e. the first two weeks of the new service) yellow hangers were placed on residual bins if extra waste was presented and on recycling (blue or brown) bins if the bins were contaminated with materials that could not be recycled. The hanger stated that the bin and/or extra waste would be uplifted on this occasion but not on subsequent occasions.
- In *Cycle 2* (i.e. Weeks 3 and 4 of the new service) red hangers were placed on bins for the same reasons as yellow hangers, however, on this occasion the hanger informed householders that the bin or extra waste would not be uplifted.

A record was kept of all households which received hangers and these households were re-visited by support assistants and provided with assistance and support.

This approach was found to be very effective in communicating the requirements of the new system, and a general drop off in interventions required was observed between *Cycles 1* and *2*.

The monitoring and intervention by support assistants engaged by West Dunbartonshire Council has ensured a straightforward merge from the old service to the new service delivery model.

- Contamination rates of blue bins and brown bin are very low and are reducing.
- The overall percentage of households that presented extra residual waste reduced greatly between *Cycles 1* and *2* in Routes 11 and 13. Levels of extra waste are also expected to reduce greatly in Route 12 which had only received one fortnightly residual waste collection by the end of the monitoring phase. Additional monitoring may be required to confirm this.

Based on these figures and the low level of intervention required with householders, the new system appears to have been very well received.

4. Possible next steps – optimisation programmes

As part of ongoing optimisation work it is recommended that WDC continue to monitor the performance of its kerbside and Recycling Centre schemes in order to maximise recycling rates and to meet future targets. Some possible approaches are as follows:

- **Continued participation monitoring** – Participation is one of the key factors behind successful kerbside schemes. It is, therefore, recommended that WDC conduct regular set-out and participation monitoring to ensure a high level of participation and to identify areas of non-participation and the reasons behind this. WDC may wish to revisit the performance and contamination database compiled as part of the *Phase 1* and *2* implementation in order to monitor the ongoing effect of intervention and to put future participation studies into context.
- **Intervention and communication strategy** – WDC may wish to consider developing a communications and intervention campaign in order to optimise participation and recycling. This may be informed by issues participation monitoring, however, doorstep interviews with householders may be able to provide additional information regarding areas or issues to target.
- **Waste analyses** – Scheme performance can be measured in terms of *average yield* (kg/hh/wk) and this can be compared to performance at other similar local authorities; however, this does not take into account the amount of recyclable material still in the residual stream. It is, therefore, recommended that WDC carry out waste analyses at regular intervals in order to assess material *capture rates*. This will also identify additional materials which could be added to the list of currently collected materials.
- **Flatted properties** – The projections in this report are based on expected performance from the AWC system rolled out to the 29,600 main door properties but does not take into account any potential additional recovery possible from the 15,000 flatted properties.
- **Efficient Recycling Centres** – At Scottish local authorities in 2009/10 an average of 26% of MSW arose at Recycling Centres. It is, therefore, essential that Recycling Centres are equipped with adequate facilities and staff to ensure proper segregation of materials. It is, therefore, recommended that WDC conduct a series of monitoring activities at Recycling Centres in order to assess current performance levels and plan future optimisation strategy.