RECYCLE ON THE GO

A guide for organisations managing or implementing recycle on the go infrastructure

Issued: October 2012
WRAP’s vision is a world without waste, where resources are used sustainably.

We work with businesses, individuals and communities to help them reap the benefits of reducing waste, developing sustainable products and using resources in an efficient way.

Find out more at www.wrap.org.uk

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CHAPTER 1

Introduction: aims, scope and overview

Overview
This chapter introduces the guide and what it covers. It explains the target audience and the scope of the guide, and recommends how it can be used.

1.1 Target audience
1.2 Scope of this guide
1.3 Using the guide
This guide sets out key information for organisations in England on the options for, and benefits of, introducing recycle on the go (RotG) facilities. Its principal aim is to aid and inform decision-making, and to highlight the different options for introducing new, or enhancing existing, RotG facilities.

Large amounts of waste are disposed of away from home when people shop, travel or visit places of interest. This waste is often rich in recyclables, such as newspapers, magazines, bottles and cans. RotG is a way of providing public-facing recycling facilities to enable people to recycle when they are away from home or work.

RotG is increasingly identified as the next challenge in encouraging pro-recycling behaviour change across England. Whereas the challenges and issues around in-home recycling are relatively well understood, practice and knowledge in the field of RotG is limited. A number of schemes have been trialled and introduced in recent years, but there is no central body of evidence assessing their effectiveness.

This guide summarises evidence and best practice from a number of RotG schemes that have been trialled and introduced in recent years.

1.1 Target audience

As many organisations have an interest in providing RotG facilities, this guide is targeted at a range of audiences and decision makers. Local authorities have a responsibility for maintaining many of our public spaces, and therefore the provision of RotG facilities in streets and public parks falls to them. In other public places, such as shopping centres, railway stations and other transport hubs, hospitals, educational establishments and sporting arenas, the implementation of RotG is at the discretion of the owner or manager of each facility (these may be run by the public or the private sector). Consequently, there are different audiences for this guidance.

The guide is aimed at organisations that plan to provide RotG in the future as well as those seeking to improve or expand their existing RotG facilities.

It is targeted at decision makers within these organisations and aims to communicate the key messages around the implementation and enhancement of RotG facilities in an easy-to-understand, concise online format.

You could work for a local authority or run a leisure centre, hospital, educational establishment or transport hub. Whatever your organisation or role, this guide will tell you all you need to know about how to set up or expand a RotG scheme, and the tangible business benefits you can derive from this process. Please note, initially the guide is to be read in its entirety, from beginning to end – if you select chapters in isolation, you may not get the full picture necessary to devise and implement a successful RotG scheme.

If you require more detailed advice on RotG, please contact WRAP on 0808 100 2040, or visit www.wrap.org.uk/rotgengland. The guide also provides links to other useful sources of information.

1.2 Scope of this guide

The guide covers both on-street recycling infrastructure and recycling facilities in other publicly-accessible places.

For the purpose of this guide, RotG sites are classified as:

- event locations (e.g. commercial, cultural and sporting);
- hospitals – consumer-facing areas only (e.g. restaurants, public waiting areas and car parks);
- leisure attractions/venues (e.g. sporting arenas, theme parks, conference facilities);
- on-street (e.g. city centres, market towns and other public spaces);
- educational establishments (e.g. universities and colleges);
- shopping centres; and
- transport hubs (e.g. airports, ferry ports, motorway services and railway stations).
A number of organisations have been consulted during the development of the guide and their feedback has been integrated throughout. The guide also contains case study examples which provide insights into scheme development and, critically, lessons learned that will be beneficial to other organisations. More detailed case studies are available at www.wrap.org.uk/rotgengland.

Recycling at work falls outside of the scope of this guide, but more information on how to set up a recycling scheme for staff within your workplace can be found at RecycleNow.com.

1.3 Using the guide

The guide is structured in a number of logical steps that will take you through the process of planning, delivering and optimising RotG facilities. As stated above, we recommend you read each of the chapters within the guide. You can also direct colleagues with specific roles to key chapters; for example, your communications team may be interested in Chapter 6, which provides information on communications and branding.

If you are looking to expand or enhance an existing scheme, you may want to focus on Chapter 8, which covers performance monitoring and evaluation, and Chapter 4, which gives an overview of different types of units and systems.

A glossary of terms can be found in Appendix 1 of the guide.
CHAPTER 2

Reasons for implementation

Overview

This chapter sets out the key reasons for and benefits of implementing a RotG scheme. It outlines the policy, strategy, legislation and organisational drivers, including national waste strategies, the role of WRAP and the legislative requirements for the collection and storage of waste.

2.1 Cost-savings, commitment and CSR
2.2 The environment
2.3 Operational efficiencies
2.4 National policy and strategy
2.5 Legislation
2.6 Duty of care
2.1 Cost-savings, commitment and CSR

Being resource-efficient may help you to cut the costs associated with waste disposal. It could also help improve your standing with customers who, more than ever, are looking for companies to demonstrate their commitment to environmental sustainability. A visible RotG system sends a strong message to both your employees and customers that you’re considering the environment as part of your wider corporate social responsibility (CSR) commitments.

Figure 1: Drivers for implementing RotG

Organisational corporate social responsibility
Operational efficiencies
National and local policy
Environmental protection
Legislative compliance

Drivers for implementing RotG

2.2 The environment

We are entering an era of resource scarcity. The extraction and processing of raw materials to manufacture new products is becoming more and more challenging. If we can capture and recycle certain waste materials, we will help reduce the extraction and processing stages and so help to protect the environment. By providing facilities to enable people to recycle away from home and work, we can close the loop on materials otherwise destined for final disposal. What’s more, using recycled materials in any manufacturing process requires considerably less energy than that needed to create new products from scratch.

Recycling helps to:
- conserve resources;
- protect the environment;
- reduce landfill; and
- save energy.

2.3 Operational efficiencies

The introduction of RotG can improve operational efficiencies through:
- increased recycling and reduced disposal to landfill;
- reduced costs to enable service investment;
- responding to customer requests for enhanced recycling facilities; and
- for local authorities it can also streamline services by combining RotG with other recycling services (e.g. trade waste recycling, and incorporating recycling collection into street cleansing operations).
2.4 National policy and strategy

The provision of RotG facilities is increasing rapidly, and this is reflected in the focus placed on RotG by the devolved administrations and their support organisations.

Defra’s Review of Waste Policy in England Action Plan 2011 states that WRAP will update and develop guidance for RotG, which will include guidance on costs, different options/models, partnership opportunities and case studies. The Action Plan identifies the need for cost-effective RotG services that maximise the quality and quantity of material recycled.

The Landfill Directive aims to reduce the amount of biodegradable waste sent to landfill. Paper and card is a biodegradable material and providing RotG services for this material represents an opportunity for local authorities to help meet their targets under the Landfill Allowance Trading Scheme (England). However, this scheme ends in 2012/13.

2.5 Legislation

The Waste Framework Directive [WFD]\(^1\) is an EU-wide directive that aims to reduce the amount of waste across Europe and increase recycling and re-use.

The most recent revision – adopted in December 2008 for implementation in December 2010 – includes a requirement for member states to ‘Ensure that separate collection is set up for at least the following: paper, metal, plastic and glass by 2015 (for all waste producing sectors).’

Articles 10(2) and 11 of the WFD relate directly to the requirement for the provision of source-segregation of recyclate from the municipal, commercial and industrial sectors by January 2015. This means that where RotG is provided, it has to allow for the separate collection of each material stream. However, Article 11 (1) also states that separate collections should be set up where ‘technically, environmentally and economically practicable (TEEP) and appropriate to meet the necessary quality standards for the relevant recycling sectors.’ If implementing complete separation at a RotG site is not TEEP in certain limited circumstances, then some form of partial commingling of two or three streams might be appropriate. However, commingling of recyclate should not be the default option.

The WFD also introduced a revised waste hierarchy, which prioritises different waste management options based on their environmental impact. The WFD requires that waste producers or other holders of waste ensure that the waste is treated in accordance with the waste hierarchy.

\(^1\) http://www.defra.gov.uk/environment/waste/legislation/eu-framework-directive/
Materials collected by RotG schemes are waste; therefore you must follow the Duty of Care Regulations when storing and transferring it. This means ensuring that:

- all waste movements are accompanied by a waste transfer note which describes the waste and its origin;
- anyone that material is passed on to is authorised to take the waste (i.e. is a registered waste carrier) and that the receiving site is authorised to accept the waste; and
- waste is stored securely and not allowed to escape.

Further guidance on duty of care requirements are provided in Section 2.6 below.

In addition to the above, you must ensure that your activities are compliant with the appropriate permit or exemption, as well as any other guidance. Furthermore, local authorities providing RotG facilities will need to ensure their services meet the requirements of Part IV of the Environmental Protection Act 1990. This places a duty on local authorities to ensure that their land or land for which they are responsible is kept free of litter and refuse, so far as is practicable. Please see the Code of Practice on Litter and Refuse and Associated Guidance for further information.

The RotG material collected must be taken to a suitable authorised site, typically a waste transfer station, which holds an environmental permit or an exemption. Non-local authority organisations providing RotG facilities, for example leisure facilities, shopping centres, railway stations, must comply with an exemption to allow for the storage of waste and recycling.

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2 The Waste (England and Wales) (Amendment) Regulations 2012 were laid on 19 July and come into force on 1 October 2012. The Regulations amend the Waste (England and Wales) Regulations 2011 to replace regulation 13 and 14(2).
Waste disposed of by users of your site (i.e. by the public or visitors) is your responsibility. You may store this waste while you wait for it to be removed from your site but only if you only store waste:

- produced on your premises;
- for 12 months or less;
- in a secure place; and
- that is removed regularly from your site by an authorised waste carrier.3

Alternatively, source-segregated materials can be temporarily stored at a collection point. This is a non-waste framework directive exemption, which does not require registration with the Environment Agency, and this exemption sets the following criteria appropriate to RotG:

- material must be kept separate (i.e. commingled material is not permitted) and stored in secure containers;
- no more than 50 cubic metres of material may be stored at any one time;
- some ancillary activities are permitted (e.g. compacting or separating mixed recyclables into separate containers); and
- the waste should not be stored for more than three months.

Visit the Environment Agency website for further guidance on this exemption. This exemption may be relevant to local authorities who wish to bulk materials at intermediate facilities prior to onward transfer to a transfer station.

Additional guidance is available on Environmental Permits and Exemptions.

### 2.6 Duty of Care

Table 1 outlines the aspects you need to consider in order to ensure compliance with the requirements of Duty of Care.

If you are working with a contractor organisation that exports the material collected from your site, your Duty of Care requirements extend to ensuring that this export is compliant with the appropriate legislation. Further guidance on the Trans-frontier Shipment of Waste Regulations (TFS) which regulates the export of waste is available.

**Table 1: Complying with the duty of care regulations**

<table>
<thead>
<tr>
<th>Aspect/issue</th>
<th>What to do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the waste stored securely?</td>
<td>Check that waste receptacles (individual receptacles as well as any bulking containers) are secured (e.g. locked) to minimise opportunity for entry. Take reasonable precautions to ensure that receptacles are not left to become overfull and spill out. Check that vehicles used in the collection service provide a secure means of containing and transporting the material(s) during collections.</td>
</tr>
<tr>
<td>Is the transporter of the material authorised to carry the waste?</td>
<td>Check with the Environment Agency. Further guidance on how to become an authorised waste carrier is also available.</td>
</tr>
<tr>
<td>Is the site receiving the material authorised to accept it?</td>
<td>Check that the receiving site holds an environmental permit or exemption which allows them to accept the material. It is recommended that copies of these are obtained from the receiving sites on an annual basis. The Environment Agency also advise on this.</td>
</tr>
<tr>
<td>Is the transfer of the material accompanied by a waste transfer note?</td>
<td>Check that waste transfer notes have been provided for the movement of all waste, and are retained for the minimum period of two years. Note that waste transfer notes are not necessarily required for every movement, as ‘season tickets’ can be used for regular transfers of the same quantity and type of material.</td>
</tr>
</tbody>
</table>

Waste transfer notes, which form part of the Duty of Care requirement, must include the following information:

- written description of the waste (e.g. paper, plastic bottles and cans);
- any process that the waste has been through (e.g. compaction of cardboard);
- how the waste is contained or packaged (e.g. bags, plastic drums, skip);
- the quantity of the waste (weight or volume) (e.g. 2 x 60 litre bags of waste, 1 x 9 cubic yard skip);
- the appropriate European Waste Catalogue (EWC) code for the waste;
- the place, date and time of transfer;
- the name and address of both parties involved in the transfer (i.e. the waste producer and waste contractor);
- details of the permit or exemption of the person receiving the waste (i.e. the waste contractor);
- declaration that the waste hierarchy has been considered before disposing of the waste; and
- Standard Industrial Classification (SIC) 2007 code of the person holding the waste.

Key messages:

There are many benefits to introducing a RotG scheme, including:

- Competitive advantage
- Demonstration of corporate social responsibility commitments
- Environmental protection
- Legislative compliance
- Operational efficiencies leading to reductions in costs
CHAPTER 3

Key decisions for developing and delivering RotG facilities

Overview
This chapter takes you through the key aspects to consider in the development and delivery of a RotG scheme, including unit design, infrastructure requirement, collection systems, unit siting and location and selection of materials.

3.1 The recycling system in England
3.2 Situation analysis
3.3 What are the options?
3.4 How to decide which materials to include in your RotG scheme?
3.5 Unit design
3.6 Reverse vending
3.7 Location and siting
3.8 Security and Health and Safety
3.9 Airports
3.10 Hospitals
3.11 Reducing the risk of bomb threats
3.1 The recycling system in England

Recycling collections within England can be undertaken by local authorities, private or third sector organisations. Local authorities in England have a statutory responsibility to provide household waste and recycling collections, but also services for other organisations, including businesses. These can be delivered either by the local authority or a waste management contractor on their behalf.

From the point at which a user (e.g. member of the public) deposits their material within a RotG unit, the waste becomes the responsibility of the managers of the site where the unit is located. The material is emptied from the unit and taken to a store or prepared for collection on site, when it is then collected by a waste management contractor. Next, the material is taken for sorting, treatment and reprocessing.

In terms of RotG, the method of collection by the waste management contractor (whether all materials are collected together (commingled) or separately (source-segregated) will set the context for which materials are collected.

3.2 Situation analysis

It is important to understand and analyse your current situation before planning a RotG scheme. If you already have a RotG scheme in place and are looking to expand, you must also consider whether your current scheme can cope with expansion, or whether a new collection service will be needed. You should consider:

- what your current waste management arrangements are;
- where your existing RotG units are located;
- how the existing units are used by the public (performance and observation); and
- what information you have on usage, including tonnage, waste composition, user statistics and anecdotal information.

For local authorities, resources to provide a completely different service may be limited. Therefore, alignment with what you already have in place will enable service links and synergies. It is vital to review:

- street cleansing requirements and existing collection logistics, vehicles currently used for collection (refuse collection vehicle, cage vehicles etc.) and available capacity;
- emptying frequency of litter bins and any existing RotG units;
- types of material collected by existing services (e.g. kerbside, bring sites and trade recycling);
- any existing contracts in place (in order to assess the impact of potential variations); and
- expansion potential and restrictions.

3.3 What are the options?

Figure 3 sets out a step-by-step decision-making process. Each step is discussed within the sections that follow.
We want to introduce ROTG or improve existing ROTG services

What do we want to achieve? What’s our objective? Points to consider:

- Which materials?
- Waste composition
- Meet targets (e.g. Waste Framework Directive, Welsh Government Targets)?
- Reduce waste to landfill?
- Current contract
- Increase recycling?
- Please residents/staff
- Optimise existing services (value for money)?
- Avoid confusion by having a single service
- Financial return
- Address MRF requirements/deal with contamination (commingled collections)

What are the options?

- Unit design
- Simplicity and convenience for public
- Infrastructure
- Location and siting of units
- Contamination
- Storage of materials
- Signage and communications
- New or existing service
- Funding
- Partnership

Figure 3: Decisions flowchart
3.4 How to decide which materials to include in your RotG scheme?

You need to decide which materials to collect through your RotG scheme. Site managers should bear in mind that users will expect to be able to recycle all four commonly-produced materials: paper, drinks cans, plastic containers and glass containers. In some cases, separate collections for food waste may also be required. If you do not provide facilities for the disposal of all these materials, users may deposit them anyway, leading to contamination of your collection. Decisions about target materials are closely linked to the availability of space on site (how many materials can you collect in separate units on the site?), which materials are produced and the materials your waste management contractor can deal with.

As specified in Article 11 of the WFD, separate collections should be set up for at least paper, metal, plastic and glass where technically, environmentally and economically practicable. It is appreciated that in some locations it will not be practical to have containers for each material stream and so partial commingling of some streams may appropriate.

It is recommended that the same system is used throughout the site but a thorough review should be carried out to take account of any site specific requirements. A RotG unit located near a train station entrance, for example, might have a higher-than-normal paper composition due to the large volume of (often free) newspapers read by commuters during train journeys. Another example would be RotG units at airport security points which focus on capturing restricted items such as plastic bottles, containers or drinks cans.

Other drivers behind your decisions will include what materials reprocessing facilities accept, the market for these materials, and what value they can bring you. Article 11 includes the requirement to promote high quality recycling through the source-segregation of materials at the collection point. Higher quality of collected materials will ensure a higher market value.

Other issues you need to consider are the collection, treatment and disposal options available, as well as the location of your organisation, how much litter is produced, local area footfall, and your corporate objectives. Remember, some materials might be of greater interest to your organisation than others.

The most common materials to collect ‘on the go’ are paper, drinks cans, plastic bottles and glass bottles, as these are the materials most commonly found in street litter bins, and also at events and venues and can have high value. Other materials to consider are cardboard, plastic packaging and film, and food waste. With cardboard and plastic packaging, for example, you might consider areas where these are likely to be generated on your site, or whether you sell glass or plastic materials within your on-site catering facilities.

The different types of material you collect will influence the success of your RotG scheme. And contamination can be a big issue (see Edinburgh airport case study below on contamination reduction). Staff responsible for emptying the RotG units can be asked to monitor contamination levels. It may also be possible to ask litter pickers to collect recyclable materials separately, although this may have an impact on contract costs.
Edinburgh Airport has recently contracted Specialist Waste Recycling (SWR) to manage waste on-site. SWR is acting as a waste broker and is responsible for overseeing waste collections, invoicing and monthly reporting.

Previously, no action was taken on-site to remove contamination. SWR on-site members of staff now help to determine if material is suitable for recycling and will remove large items of contamination. As a result, less waste is being placed in the residual compactor. The airport is now reviewing residual waste collection arrangements to see if the number of collections can be reduced, along with an associated reduction in costs.

The biggest contamination issue has been found to be liquids from coffee cups as these can potentially contaminate all the material in a recycling sack. SWR is currently conducting a study to assess the level of contamination per bag collected from the recycling containers.

There has been a year-on-year improvement in recycling performance at the airport - from a 41% recycling rate in 2010, to more than 65% (exceeding the 50% recycling target). A recycling target of 80% has been set for 2012, with year to date figures suggesting the airport is achieving 67% recycling.

It is important to know what is in a waste stream before tailoring a RotG collection service. Assessing which materials to collect might involve a waste composition analysis or a visual inspection to identify what materials are being collected locally:

- Find out what materials are produced on site;
- Analyse what is brought on site by visitors to the area – what is sold within the area and what comes from retail outlets;
- For on-street RotG locations find out if nearby fast-food outlets provide an internal RotG collection or litter bins, as this will influence the local positioning of RotG facilities. Some fast-food retailers provide branded litter bins outside their restaurants; and
- Look at what can be recycled elsewhere in your local area and what your current waste management contract will enable you to do – do you need to agree a contract variation, or will your current contract cover the new collection/treatment requirements and materials to service the new RotG units?

Figure 4: Which materials - decision list summary

<table>
<thead>
<tr>
<th>Question</th>
<th>Decision List Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>What waste materials are currently collected on site?</td>
<td></td>
</tr>
<tr>
<td>What materials can be bought/are sold on the site?</td>
<td></td>
</tr>
<tr>
<td>What materials will visitors bring on site?</td>
<td></td>
</tr>
<tr>
<td>What materials do we want to collect?</td>
<td></td>
</tr>
<tr>
<td>What will our customers expect?</td>
<td></td>
</tr>
<tr>
<td>What materials will our waste contractor accept?</td>
<td></td>
</tr>
<tr>
<td>Do we have space for multiple units and separate storage of materials?</td>
<td></td>
</tr>
</tbody>
</table>

A more detailed version of this case study is available at [www.wrap.org.uk/rotgengland](http://www.wrap.org.uk/rotgengland).
3.5 Unit design

Once you’ve considered all of the questions within the decision list summary (Figure 4), you will be able to determine how many units you need to provide to collect source-segregated materials.

There is a large variety of RotG unit types available from a range of manufacturers. Some include a split unit with one container for litter and one for recycling, while others focus on recycling with stand-alone units. WRAP has produced a detailed guidance document on RotG containers, which you can access in Appendix 2.

Broadly speaking, the RotG unit types fall into the categories detailed in Table 2 and displayed in Figure 5.

**Figure 5 Examples of RotG units. (Sources: Used with permission).**

- Dual modular (commingled) unit used by Westminster City Council
- Internal triple compartment (source-segregated) unit, used by Birmingham Airport Ltd.
- Twin compartment (commingled), used by Sherwood Forest Center Parcs
- Single compartment (source-segregated) RotG units for wheeled unit housings, used by Aberdeenshire Council.
- Nodal (source-segregated) unit used by East Lothian Council, based at Dunbar High Street.
Table 2: RotG unit categories

<table>
<thead>
<tr>
<th>Location Type</th>
<th>Unit Type</th>
<th>Materials Collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>External – small units akin to typical on-street litter bins</td>
<td>Single compartment unit</td>
<td>Single compartment used for the collection of recyclables (singly or commingled).</td>
</tr>
<tr>
<td></td>
<td>Twin compartment unit</td>
<td>Two compartments – either for two recyclable streams, or one recyclable and one for residual waste stream.</td>
</tr>
<tr>
<td></td>
<td>Triple compartment unit</td>
<td>Three compartments – either for three recyclable streams, or two recyclable and one residual waste stream.</td>
</tr>
<tr>
<td></td>
<td>Quadruple compartment unit</td>
<td>Four compartments – either for four recyclable streams, or three recyclable and one residual waste stream.</td>
</tr>
<tr>
<td>External – large capacity units</td>
<td>Nodal systems</td>
<td>Four 800 litre units that can be used for the collection of four recyclable streams, or three recyclable and one residual waste stream.</td>
</tr>
<tr>
<td></td>
<td>Twin compartment wheeled unit housings</td>
<td>Two compartments – either for two recyclable streams, or alternatively, one recyclable and one residual waste stream.</td>
</tr>
<tr>
<td>Internal units</td>
<td>Single compartment wheeled unit housing</td>
<td>Single compartment unit for one recyclable material.</td>
</tr>
<tr>
<td></td>
<td>Single compartment unit</td>
<td>Single compartment unit for one recyclable material.</td>
</tr>
<tr>
<td></td>
<td>Twin compartment unit</td>
<td>Two compartments – either for two recyclable streams, or one recyclable and one residual waste stream.</td>
</tr>
<tr>
<td></td>
<td>Triple compartment unit</td>
<td>Three compartments – either for three recyclable streams, or two recyclable and one residual waste stream.</td>
</tr>
</tbody>
</table>

Please note the need to use consistent colour-coding throughout an area’s RotG facilities to ensure that users are familiar with which receptacles to use for which waste stream. This will significantly reduce waste contamination levels and enable better levels of recycling. When units at the same site collect different materials or use different colour-coding schemes, users become confused. So be as consistent as possible, follow the Recycle for Wales colour streams, as they are widely used on a national level allowing consistency and easy recognition.

If you think that larger units might be preferable for your site, there are a number of different options to consider, one of which is the nodal system (see Figure 5 for Dunbar High Street – East Lothian, and Figure 6). Here, a cluster of up to three units (nodes) are attached in a circle with the apertures facing outwards, offering different material streams. The units come in a range of sizes.

Larger units can be beneficial if you have space for them, as they can reduce collection frequency (depending on footfall). They are commonly used by local authorities at events and other venues with sufficient available space.

**Figure 6: Examples of nodal units**

![Bexley Council nodal unit](image)

(A) Nodal unit in a South Ayrshire park. (B) Nodal unit used by Bexley Council.
Source: Taylors, used with permission;
The design and specification of the unit is a crucial factor to consider when introducing or expanding a RotG scheme. You should think about the visual aspect of the unit and whether it presents any issues relating to corporate image. You should also bear in mind all key considerations listed in Table 3.

### Table 3: Key considerations for unit design

<table>
<thead>
<tr>
<th>Design and specification</th>
<th>What to consider</th>
</tr>
</thead>
</table>
| **Fit for purpose for chosen locations** | - Does the unit provide the right service for the location, e.g. does it have the facility to collect paper at a transport hub?  
- Will it be accessible to the members of the public using it? Is it in the best journey to site position?  
- Will it be accessible to collection staff and vehicles? |
| **Type and range of materials collected** | - Is the unit designed to collect everything you want it to collect? |
| **Unit capacity** | - Is the unit big enough for the needs of the location?  
- Does the capacity match the frequency of collection that we can provide? (smaller units may need to be emptied more frequently)? |
| **Colour, size and shape** | - What colours and design fit with your site?  
- How can you incorporate the colour-coding of the national branding into your unit design?  
- Do you have to follow corporate guidelines or branding?  
- For local authorities, what street-scene requirements are there?  
- What size unit do you want to provide? Between 120 – 240 litre, or do you have space to provide larger units (240 litre – 1,100 litre or more)?  
- What shape do you want the unit to be? Regular (box shaped), contoured, stylish, single or multiple units etc.? |

<table>
<thead>
<tr>
<th>Design and specification</th>
<th>What to consider</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aperture(s) and on-unit signage</strong></td>
<td>- What materials are you going to collect? What size and shape of aperture will encourage recycling and discourage unwanted items? (E.g. a slit will encourage the recycling of paper and will discourage users to insert round items such as drinks cans and bottles. A round hole will encourage users to recycle drinks cans and bottles).</td>
</tr>
</tbody>
</table>
| **Make and model of the unit (look and feel)** | - Will the unit fit within the local surroundings?  
- How easy will it be to obtain replacements or maintain the unit?  
- How expensive is the unit and what will be the cost of replacement units or keys? (Keys are used to gain access to the storage container within the unit and are used by staff when emptying and cleaning).  
- How easy are they to open and to clean? |
| **Special requirements** | - Are there any special requirements that we need to consider? (Bomb proofing, anti-graffiti, vermin control, infection control, does the unit need to be rust proof for sites beside the sea or be designed to stop access by seagulls?)  
- Are there any add-ons such as cigarette plates or notice boards?  
- Do the units need to be mobile if they are being used internally or at events? Planning permission will be required if the sites are fixed; for other sites there may still be some requirement for fixing plates and site preparation. |
3.6 Reverse vending

A RotG option that is particularly suitable for high footfall areas is “reverse vending”. Reverse vending machines (see example in Figure 7) allow recyclable material, such as a can or plastic bottle, to be placed into a recycling container via an external aperture. These machines can be pre-programmed to recognise and accept certain materials [e.g. cans, plastic bottles, glass bottles] for recycling. Users are offered an incentive such as a printed voucher or token.

Reverse vending equipment varies in size and capability. In some instances, material can be sorted by the vending unit into separate material streams. Some machines utilise technology to scan, identify and sort, count, then crush and compact the recycled items to increase storage capacity. This reduces emptying frequency and maximises material density for onward transport.

Reverse vending technology allows more waste material to be collected than conventional recycling units. The machines can also carry prominent branding and corporate logos, and have space for advertising or even television screens playing videos with sound. While they constitute a high capital cost option compared to other RotG systems, they can capture high volumes of used containers.

As with standard RotG units there are many types of these systems available (see example in Figure 7).

However, there are concerns that such units, and other recycling reward schemes, may encourage waste generation and over-consumption rather than waste prevention. Such units are also open to abuse with consumers finding ways to maximise the rewards with minimal material input. For example by ‘feeding’ non target materials into the unit but still gaining the rewards, resulting in the capture of poor quality recyclate. It is important that such initiatives work in partnership with local waste prevention and recycling initiatives to ensure they are used correctly and provide good quality material for recycling.
### 3.8 Security and Health and Safety

Each site is unique and will have its own opportunities and restrictions in terms of RotG system security, and health and safety (H&S).

H&S is an important aspect to consider in the development and implementation of RotG. Under the Management of Health and Safety at Work Regulations 1999, all organisations must carry out a risk assessment to identify and minimise the risks to employees or those engaged in the collection of materials from RotG facilities. The risk assessment should also encompass the potential impact of the scheme on members of the public. Guidance on conducting risk assessments is available from the Health and Safety Executive (HSE).

The two major risks associated with RotG facilities relate to the use of vehicles and the manual handling of waste/recycling containers. You can find further information on these in the following guidance documents:

- **Waste and recycling vehicles in street collections** provides guidance on H&S issues around the use of vehicles in on-street waste and recycling collections. Much of this guidance will also be relevant to other sites where the collection team is in close proximity to visitors, e.g. tourist attractions.
- **Safe waste and recycling collection services** provide guidance from the Waste Industry Safety and Health (WISH) Forum and Health and Safety Executive on the safe collection of waste and recycling. Although this is focussed on kerbside collections, the recommendations are relevant to other types of services including RotG.

In addition to unit selection, location and servicing, other key H&S considerations include:

- Does the unit have any sharp edges?
- Is there potential for any sharp items to fall out of the unit? The use of brushes on apertures can minimise this.
- Is there potential for users to access the units to remove material, with a risk of injury from sharp objects such as broken bottles? (The type and size of aperture selected can be used to minimise this, e.g. circular aperture for bottles, slot for paper – lids can also be locked.)
- Is there potential for the unit to be moved by the public? The use of fixed units and locking plates can limit this, but it needs to be considered particularly for the provision of units at events.
Does the unit design allow easy access to the service for disabled or young users? For example, is the aperture too high to prevent usage by children or those in wheelchairs?

Is there space for the public/visitors to move freely around the unit, or is the space around the unit too large so that the unit causes an obstruction on a pathway?

Is there sufficient space available to safely enable collection staff to service the unit?

Is there sufficient space available to ensure that the unit can be cleaned and maintained regularly?

Does the unit block access to any emergency exits?

Table 5 sets out the key H&S requirements to complete before rolling out RotG, as well as recommended actions.

### Table 5: Key health and safety issues for RotG

<table>
<thead>
<tr>
<th>Aspect/Issue</th>
<th>What to do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has a risk assessment been completed for the RotG service? Does the risk assessment consider the aspects outlined in this chapter?</td>
<td>Consult HSE guidance on conducting risk assessments. Consult with your organisation's H&amp;S officer and any operational staff for their input into the risk assessment.</td>
</tr>
<tr>
<td>Have standard operating procedures or method statements been prepared, based on the findings of the risk assessment?</td>
<td>If no standard operating procedures or method statements are in place, draft a simple procedure or flowchart outlining the steps to be taken to conduct activities safely. An audit template and timetable should also be developed to regularly review site operations and assess compliance with procedures. The results of the audit should be fed back to staff, and the risk assessment and procedures updated if appropriate.</td>
</tr>
</tbody>
</table>

### 3.9 Airports

At some airports, operators provide specific advice relating to units in airport environments, covering requirements for airside, not landside, recycling facilities. BAA, for example, provides such information.

### 3.10 Hospitals

Within hospitals, infection control is essential and will influence the type and location of unit selected. This means it is important to liaise with the hospital’s infection control team, facilities management team and cleaning staff, as well as H&S officers. Usually RotG units will be confined to non-clinical areas such as restaurants and cafés, entrances, exits and car parks/transport hubs and waiting areas. Key considerations include:

- Will units installed within waiting areas need to be of a specific design or type to meet local infection control or fire safety requirements?
- Will all units need to be lightweight and mobile due to cleaning requirements?
- What additional signage may be required?
- Are there any locations where units cannot be installed due to fire safety requirements?

Further guidance on best practice can be found in the Safe Management of Healthcare Waste guidance.
3.11 Reducing the risk of bomb threats

Unfortunately litter bins have been used in the past to plant bombs. If your organisation perceives terrorism as a risk, you may wish to consider additional security requirements as part of your RotG service. For example, you could opt for units that are bomb proof (which may result in an additional cost per unit) or transparent, such as those displayed in Figure 8, so that suspicious packages can be easily identified. Consult with your in-house security team and unit manufacturers to determine your options.

Figure 8: Bromley train station RotG units

Source: Recycle Zone report

Key messages:

Carry out a situation analysis. Consider all the options including:

- what materials to target;
- waste composition – the nature of the waste you are currently collecting at your site(s);
- what waste you are currently collecting at your site(s);
- unit design;
- infrastructure;

http://www.recycle-zone.co.uk/recycle_zones/
CHAPTER 4

System options for different sites

Overview

Each site is unique and will have its own opportunities and restrictions in terms of the type of RotG system operated. This chapter provides an overview of the options available to organisations, and highlights the key points to consider when planning RotG systems. The following site types are considered:

- events (e.g. commercial, cultural and sporting);
- hospitals – consumer-facing areas only (e.g. restaurants, waiting areas and car parks);
- leisure attractions/venues (e.g. sporting arenas, theme parks, conference facilities, academic establishments);
- on street (e.g. city centres, market towns and other public spaces);
- shopping centres; and
- transport hubs (e.g. airports, ferry ports, motorway services, railway stations).

4.1 RotG at commercial, cultural and sporting events

4.2 Hospitals (e.g. restaurants, waiting areas and car parks)

4.3 Leisure attractions and venues (e.g. sporting arenas, theme parks, academic establishments etc.)

4.4 On-street (e.g. city centres, market towns etc.)

4.5 Shopping centres

4.6 Transport hubs (e.g. airports, railway stations, motorway services, ports and ferries etc.)

4.7 What capacity does your RotG scheme need?
When planning your RotG system, there are a number of common criteria you should consider:

- what type of materials to target and how your choice can influence the quality of recycled material and contamination;
- the best locations for units;
- what the collection and storage arrangements are, how they fit in with current operations (for residual waste), and how they influence the number and type of units chosen;
- what is required to ensure maximum user engagement and understanding; and
- what staff training needs to be conducted to support this.

4.1 RotG at commercial, cultural and sporting events

Events can attract very high visitor numbers. It is essential to plan a system that is convenient and easy to use for the public, and simple for organisers to operate.

Your choice of system for an event location will depend upon a number of factors, most importantly whether the site is fixed (e.g. there is infrastructure already in place) or temporary (e.g. all infrastructure needs to be taken to the site for the event).

For fixed sites, the choice of RotG units and materials at an event may be restricted to those already in place. However, some large venues that host events can tailor the units used and materials collected to the specifications of individual customers.

For temporary sites, there is scope in terms of the choice of system but there may be greater operational constraints due to space or other on-site restrictions. A key consideration is what type of RotG units to use and where to source them from. Options available include leasing, hiring or purchase. Purchase can be preferable if you can use the units after the event and you have a storage facility. Leasing or hiring may be available from a local authority, charity or waste management contractor, and may be available as a stand-alone service (hire of units), or part of a larger package including the emptying of units and provision of advice to customers. For temporary events, it may be easy to use standard wheeled units with specific event covers [see Cylch case study below].

Organisers may want to specify the look and feel of units to match the theme of their event. For example, for The Ryder Cup golf tournament a ‘Green Drive’ brand was developed to promote the event’s environmental initiatives including the RotG. As part of the scheme, on-site catering facilities used biodegradable food packaging that could be recycled with food waste generated on site (Figure 9).

Additionally, you might want to provide pre-event guidance to inform attendees what is or isn’t allowed on site and to ensure all staff and stallholders receive appropriate training and information. This will ensure staff involved in waste management at the event are using the correct bags, know what recycling units to use and are aware what schemes are in place and how they are expected to interact with them. You should also make sure all ‘litter pickers’ are collecting recycling in one bag and residual waste in another.

Figure 9: RotG scheme at the Ryder Cup 2010

(A) Green Drive brand; (B) Biodegradable food packaging.
Source: AEA, used with permission.
Figure 10: Waste and recycling collection units at Hackney Weekend and examples of messaging

Source: Hackney Council, used with permission.

(A Hackney Case Study is available at www.wrap.org.uk/rotgengland)

Working in partnership with event organisers, local authorities and community sector partners, Cylch leases recycling units and branded signage tarpaulins to national and community events around Wales to promote RotG. Cylch works with the event organisers during the planning phase of the event to understand their aims and provide advice on the number of units required, where they should be located and what materials should be collected on site. The RotG units used are 240 litre wheeled units. Specially printed tarpaulins are available which cover the units and use Recycle for Wales iconography with bilingual text. Both the RotG units and tarpaulins are washable and are cleaned prior to each event.

A more detailed version of this case study is available at www.wrap.org.uk/rotgengland

Example of RotG units used by Cylch at events.
Further guidance for recycling at events is available from:
- WRAP Event Resource Management Plan tool; and
- Waste Awareness Wales and Cyllh Events Recycling Guide.

You need to ensure that you have enough capacity on site, but also that key locations are serviced by RotG units. Such locations might include:

- At pedestrian entrances / exits;
- At approaches to exits or car parks if within the same site – every 50 metres and on both sides, dependent on the width of the pedestrian route;
- Within car parks and by pedestrian refuge areas;
- At key pedestrian intersections;
- Every 50 metres along internal pedestrian routes (but only if other units are not provided locally);
- Adjacent to all food/snacks outlets, dependent on their scale and service;
- Around any attractions likely to generate queues – rides, ticket booths, etc.;
- In any adjacent children’s play areas, picnic areas and overflow car parks; and
- Outside any toilet facilities including portable toilets.

If an event carries on beyond daylight hours, units should be located in well-lit areas.

### 4.2 Hospitals (e.g. restaurants, waiting areas and car parks)

Healthcare facilities have the challenging task of having to manage multiple waste streams and users, including patients, staff and visitors. RotG units can be located in consumer-facing (non-clinical) areas such as on-site food outlets, entrance areas, shopping areas, site grounds, public transport interfaces and visitor waiting facilities.

When considering site location and unit type, it is important to liaise with a wide range of stakeholders including the hospital’s infection control team, facilities management team, providers of cleaning and maintenance services and H&S/fire safety officer(s). Issues you need to discuss include:

- If RotG units are installed, will an additional cost for emptying be incurred for on-site collection, and will a change to service level agreements be required?
- Are there any locations where units cannot be installed due to fire safety requirements?
- Will units installed within waiting areas need to be of a specific design or type to meet local infection control requirements?
- What additional signage may be required? Remember, healthcare facilities contain large amounts of information/posters/signage, so consider how additional signage for RotG units can be made clear and eye catching.
- What size units are required? This may differ according to location and emptying frequencies.

Hospitals have been a target sector for the provision of RotG facilities in Recycle Zones (see case study below). Figures 11 and 12 provide examples of hospital-based RotG facilities.

The Recycle Zone (RZ) initiative was a three-year project that looked to establish recycling schemes in ‘on-the-go’ environments where a recycling scheme hadn’t previously existed. Led and principally funded by Coca-Cola Enterprises Limited, with additional investment from WRAP, the primary focus of the scheme in terms of materials collected was to gather soft drinks packaging, namely plastic bottles and beverage cans. In a number of implementations, the scheme was widened to incorporate the collection of paper and cardboard. Focusing on four key locations including shopping centres, transport hubs, leisure attractions and hospitals, the intention for the project was to develop at least 80 ‘zones’ over the three-year lifespan of the programme. As the project developed and gathered momentum, further locations were explored including academic establishments, universities and colleges and also stand-alone events. By the end of the project, a total of 130 zones were operational, collecting over 320 tonnes of soft drinks plastic bottles and cans.

A more detailed version of this case study is available at [www.wrap.org.uk/rotgenland](http://www.wrap.org.uk/rotgenland)
4.3 Leisure attractions and venues (e.g. sporting arenas, theme parks, academic establishments etc.)

These types of attractions and venues are often very busy for short periods of time. Any RotG units need to be of sufficient capacity to balance peak footfall with emptying frequency. Often, the emptying of units is not possible during peak periods due to access issues or potential noise disturbance. In these cases, units will need to cope with fluctuations in the levels of material deposited.

When providing RotG facilities at a leisure attraction or venue, you must consider both the materials arising from the on-site catering facilities, as well as items visitors typically consume on-site that will generate waste for disposal. (See Figures 13 to 15 for examples of RotG units at leisure facilities.)
Figure 14: Legoland ROTG unit Windsor

Source: WRAP RotG photo competition 2011

Figure 15: Alton Towers Theme Park, RotG unit

Source: Recycle Zone report
4.4 On-street (e.g. city centres, market towns etc.)

In addition to those items listed in Table 4, the following points should be considered for on-street RotG facilities to ensure that:

- units are located in areas of high footfall;
- street-scene requirements are noted (design of unit, distance from other utilities etc.) to ensure units fit in with the local area;
- security issues are noted – bomb-proof units may be required if units are located close to high-profile buildings or transport hubs; and
- the design and branding of the units should be recognisable to all users and not just local residents.

Using the national Recycle for Wales branding, which incorporates the UK-wide Recycle Now brand, would overcome this issue.

See Figure 16 for examples of on-street RotG facilities.
4.5 Shopping centres

In addition to those items listed in Table 4, the following points should be considered for shopping centres installing RotG facilities:

- **Security issues**: are bomb-proof units required, or transparent units, so that any unwanted materials can be easily identified?

- **Location**: could units be located close to catering facilities, near entrance and exit points or within car park areas? Many shopping centres have larger units located within car park areas so visitors can drop off their recycling when they go shopping. These are often referred to as ‘bring sites’, with units provided by the local authority or shopping centre.

- **Branding**: RotG units and litter bins within shopping centres are often used for advertising. Will RotG signage be prominent? If advertising or corporate branding is to be used, it is important it does not obscure signage which indicates what materials are accepted and where they should be placed. If clear instructions aren’t visible, it may lead to contamination of recyclable materials.

- **Materials**: what materials will be collected? There may be scope to increase the numbers of materials collected on-site. Textiles, printer cartridges and batteries are some of the other items you could consider (see particularly the left hand image in the case study for Crossgates Shopping Centre, Leeds).

Crossgates Shopping Centre in Leeds provides a number of different RotG units. Commingled recycling and residual waste RotG units are placed next to seating areas. A selection of units collecting mixed recyclables, printer cartridges and batteries have been placed next to a car park pay station to capture materials as visitors leave. Crossgates maintains the branded RotG units, which also have the shopping centre’s logo displayed on them. The cartridge unit is provided by a local store (Cartridge World), and the battery unit by a producer compliance scheme (Battery Back).

RotG units used in Crossgates shopping centre in Leeds.

See Figures 17 and 18 for examples of RotG shopping centre units and the Every Can counts shopping centre case study.
The Every Can Counts programme is a partnership between drink can manufacturers/fillers and the metal packaging recycling industry. It aims to help people recycle drinks cans when they are at work, university or out shopping, at the beach, or attending festivals and events. The programme, managed by Alupro, provides organisations with containers for can collection and is designed to sit alone or alongside existing RotG schemes. In addition, the campaign provides an all-encompassing communications programme, with materials to set up and promote Every Can Counts.

Willow Place & Corby Town Shopping Centre, in Northamptonshire and which receives around 7 million visitors each year, was the first UK shopping centre to introduce Every Can Counts. All 174 stores and restaurants within the Land Securities-owned site have Every Can Counts recycling boxes and promotional materials for staff and shoppers. In addition, four branded can crushers are positioned in high footfall areas around the town.

A more detailed version of this case study is available at www.wrap.org.uk/rotgengland

Figure 17: Examples of RotG units at shopping centres

[A] Trafford Centre, Manchester Source: Recycle Zone report; [B] Ankerside Shopping Centre, Tamworth. Source: Britvic, used with permission


Figure 18: RotG units at the Festival Shopping Centre, Basingstoke

Source: WRAP RotG photo competition 2011
4.6 Transport hubs (e.g. airports, railway stations, motorway services, ports and ferries etc.)

In addition to those items listed in Table 4, the following points should be considered for transport hubs installing RotG facilities:

- Security issues: are bomb-proof units required, or transparent units, so that any unwanted materials can be easily identified? See Section 3.11 for more information.
- Location: could units be located close to catering facilities, near entrance and exit points or within car park areas?
- Material choice: what sorts of materials arise at a transport hub (either from on-site catering facilities or visitors)? Many train stations, for example, install dedicated paper units for newspapers.

See Figures 19 and 20 for examples of RotG at transport hubs.
Birmingham Airport is the UK’s third largest airport outside London, and the UK’s seventh largest overall, handling some nine million passengers a year. The RotG scheme at Birmingham Airport has been operating since August 2010 and collects aerosols, cans, paper and plastic bottles/containers for recycling from check-in areas and departure lounges, and near eating, drinking and shopping areas.

Twenty-one RotG units are located within the ‘landside’ areas of the airport. Nineteen of the units are three-part containers, i.e. a split unit with one side for paper, the other side for plastic and cans and the middle section for general waste (see the image on the left). Two RotG units are located by security/passport control (see the image on the right) with compartments for sharp items such as scissors, knives, razor blades etc., plastic bottles, general waste and aerosols.

The RotG units are emptied every 30 minutes to prevent any overflow issues but also as a security check. All materials are taken to the airport waste compound and examined by staff. Misplaced recyclable items are manually re-sorted correctly and any obvious contamination is removed. The lids are removed from bottles and liquid poured out. Finally recyclable material is placed into 1100 litre wheeled bins and general waste is placed into one of six compactors for collection by the waste management contractor.
### 4.7 What capacity does your RotG scheme need?

Understanding your required capacity is key to assessing RotG scheme options. So identify the amount of waste you currently collect in the relevant area. This information may be available from your waste management contractor.

Alternatively, you could use the volume of material collected to estimate the weight of material using standard conversion factors. For example, if you have 20 x 80 litre residual waste units in the area, which are all full on collection, the total volume of waste collected would be 1600 litres (20 x 80 litres x 100% fill rate). The standard conversion factor for mixed domestic type waste (EWC code 20 03 01), is 0.21 kg/m³, hence the estimated weight of residual waste would be 336kg (1600 x 0.21)\(^2\).

Table 6 provides the proportion of materials deposited within RotG units as opposed to litter bins, for a range of sites and scheme types. The table also identifies whether the material collected includes glass and paper for comparative purposes, due to the weight of these materials. For example, if you were looking at implementing a commingled scheme collecting both glass and paper at an on-street site, the RotG units would need to have capacity for 45-65% of the current amount of residual waste collected. This example would equate to 151-218kg.

#### Table 6: Suggested capacity requirements for a range of RotG scheme types

<table>
<thead>
<tr>
<th>Site type</th>
<th>Collection type</th>
<th>Glass</th>
<th>Paper</th>
<th>Estimated % material collected with RotG</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-street</td>
<td>Commingled</td>
<td>Y</td>
<td>Y</td>
<td>45-65</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>Y</td>
<td></td>
<td>35-65</td>
</tr>
<tr>
<td>Dual stream</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td>93 (large unit)</td>
</tr>
<tr>
<td>Leisure</td>
<td>Commingled</td>
<td>Y</td>
<td>N</td>
<td>40-65</td>
</tr>
<tr>
<td>Dual stream</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td>87 (large unit)</td>
</tr>
<tr>
<td>Source-segregated</td>
<td>Y</td>
<td>N</td>
<td></td>
<td>40-65</td>
</tr>
<tr>
<td>Dual stream</td>
<td>N</td>
<td>Y</td>
<td></td>
<td>86 (large unit)</td>
</tr>
<tr>
<td>Transport</td>
<td>Dual stream</td>
<td>N</td>
<td>Y</td>
<td>63</td>
</tr>
<tr>
<td>Source-segregated</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td>94-97 (large unit)</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>Y</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>Other (e.g. event, leisure, hospital)</td>
<td>Commingled</td>
<td>Y</td>
<td>Y</td>
<td>35</td>
</tr>
<tr>
<td>Source-segregated</td>
<td>Y</td>
<td>N</td>
<td></td>
<td>60</td>
</tr>
</tbody>
</table>

---

As a rule of thumb, if you are introducing a RotG scheme with standard size units of between approximately 120 and 240 litres, you should provide capacity for around 60% of the material you are currently collecting within your residual waste (litter) per site.

The table shows that the large units (typically over 240 litres) perform particularly well. This is because they are often used as bring sites for people making dedicated trips to deposit their materials for recycling. A small amount of residual waste capacity is provided at these types of sites.

If you are introducing RotG to a site, you must also consider the reduced demand for residual waste units. As users are provided with access to recycling facilities, the amount of residual waste collected should drop. However, this may take some time, so you may want to consider a staged approach to removing residual waste units. A reduction in the size of the residual bins alongside recycling units may be more appropriate.

Key messages:
- Consider any specific restrictions for your site during planning; these could include location, frequency of collection, materials collected and signage etc.
- Work with operational staff to understand the current system and what impacts any proposed changes will have.
- Calculate what capacity of RotG you need to provide for your site and be flexible at first about what residual waste capacity you provide.
CHAPTER 5

System options for different sites

Overview
This chapter outlines good practice in the procurement of measures to service, clean and maintain RotG facilities. It provides an overview of what you need to consider once you have decided on scheme type, unit numbers and locations.

5.1 Collection
5.2 Service contracts – things to consider
5.3 Developing your specification
5.1 Collection

It is important to understand and analyse your current contractual arrangements before planning a RotG collection service. If you are planning to expand an existing service, for example by adding more RotG units or expanding the service to a new area, it’s worth considering if your current collection method can be adapted to incorporate additional units, or if new collection contracts are needed. It might not be a contractual issue but a resource one – in which case, do you have the staff/collection crews/vehicles to include RotG and to deal with potentially variable collection frequencies?

Similarly, if you’re setting up a new system, will your current contractual arrangements be suitable and easily adapted, or will you need to find a different solution? If your organisation will be providing the service in-house (using your own staff), you will need to consider:

- Resource requirements – will additional staff be required?
- Costs – how much will it cost to provide the service, and will any income be available from the material collected? (See Chapter 7 for details)
- Will you require any changes to internal contracts such as maintenance and cleansing? (Local authorities might consider contracts between waste management services and street scene services).
- Is there capacity for the new system to be incorporated into an existing service, for example can the current cleaning service cope with additional tasks and capacity requirements? (Local authorities should consider whether the service could be delivered by street cleansing teams, collection rounds for flats above shops, bring-centre or trade recycling rounds.)
- How frequently will units require emptying and will this need a change in shift pattern?

The first step in the process is to review any current contracts for:

- Waste and recycling collections
- Facilities management:
  - Site maintenance;
  - Site cleansing; and
  - Facilities management services including emptying RotG units and residual waste bins.
- Site infrastructure:
  - Storage; and
  - Restrictions placed on changes to current infrastructure, for example, fittings and fixtures.
- Employee contracts:
  - Changes to job description; and
  - Training.

5.2 Service contracts – things to consider

5.2.1 Varying an existing contract or service level agreement

You may be able to change the service requirements agreed in writing at the start of a contract to incorporate servicing of new or expanding RotG facilities.

Be sure to build in annual reviews to make the re-negotiation process easier and the contract more flexible. Variations to service can be a costly addition to an existing contract, so consider what compromises can be made. If you’re introducing new RotG units, can you remove or replace some existing residual waste bins?
5.2.2 Procuring a new service
The best type of contract will be one that provides a value-for-money service which ensures you meet legal requirements and maximises environmental performance. We would recommend that you discuss procurement requirements with your in-house team to understand what your organisation’s procedures are.

Table 7: Key points to consider when procuring a new service or renegotiating and existing service

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>What objectives do you have for the service?</td>
<td>What will give you value for money, in the context of legal requirements on handling and management of waste and recycling?</td>
</tr>
<tr>
<td>How will bidders demonstrate they can meet these objectives? (Think about your evaluation criteria for the contract.)</td>
<td>The number of RotG sites may increase or decrease over the contract term. You might decide to close poorly-performing sites. You may also decide to remove some existing residual waste bins and replace them with RotG units. The cost of collecting from additional sites will be expected to reflect the costs of sites of a similar geographical location and waste arisings. If sites are removed, will the costs be reduced according to the contract rates on a per site basis?</td>
</tr>
<tr>
<td>Do you want your contractor to continually improve the efficiency and environmental performance of your premises? Be aware that enhanced performance may incur additional costs.</td>
<td>Will you be looking for a ‘pay-by-weight of material collected’ arrangement, or a pay-by-lift approach? If your site has large units (a shopping centre car park, for example) you may be able to gain better value for your recyclables due to the volume of material collected.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scope</th>
<th>Length of contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>What’s the scope of the service you want to procure, and what services do you have available in-house?</td>
<td>How long does the contract need to be in place?</td>
</tr>
<tr>
<td>Recycling collection only?</td>
<td>Will you need an extension?</td>
</tr>
<tr>
<td>Waste and recycling collection?</td>
<td>What flexibility will be incorporated? Will there be regular review points?</td>
</tr>
<tr>
<td>Service (emptying), maintenance and cleansing of units?</td>
<td></td>
</tr>
<tr>
<td>Provision of the units and any bags to line them?</td>
<td></td>
</tr>
<tr>
<td>Provision of signage and associated communications material?</td>
<td></td>
</tr>
<tr>
<td>You may be able to make things easier by procuring services together. This, however, may not provide you with the value for money that you need. Speak to contractors about what they could provide.</td>
<td></td>
</tr>
<tr>
<td>Depending on arrangements with contractors, baling and bulking material on site or at a transfer station may attract a better price and help generate revenue. But remember that some contractors prefer to receive loose material so that it can be sorted and baled to market standards.</td>
<td></td>
</tr>
<tr>
<td>Are there any additional requirements that need to be included in terms of security, for example, access to the site and units?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Monitoring</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>How will your objectives be measured and performance monitored? Consider how you want the contractor to provide information regarding the operation of the service to help you monitor performance.</td>
<td></td>
</tr>
<tr>
<td>How will they provide a system for data collection – by recording and monitoring of weight, or volume of material collected from RotG units?</td>
<td></td>
</tr>
</tbody>
</table>
5.2.3 Liaising with a landlord and other tenants (e.g. shopping centres)
Working in partnership with other organisations to procure services can improve economies of scale. Some landlords have central waste management agreements in place with tenants paying a small fee to use shared facilities. This is usually more prevalent in airports or shopping centres where retail units are clustered together with access to a central waste bulking area. By contrast, high street shops and retail outlets will liaise directly with waste disposal companies to procure individual waste disposal and recycling contracts.

5.3 Developing your specification

Once you have decided that you need to procure a service for RotG, you need to develop a specification. A specification is a detailed guide that explains exactly what you require, how the service should be delivered, and what you will provide as part of that service. Consider who will perform the following services and how frequently they should be undertaken:

- Cleansing;
- Emptying;
- Maintenance;
- Promotion;
- Purchase; and
- Storage.

5.3.1 Unit emptying frequency

Location, footfall, and how the units are used will affect how frequently units require emptying. Some may be emptied on a daily basis (or more frequently for events), and others less frequently. For example, Westminster City Council empties its RotG units throughout the day as its sites are very busy. Most airports and railway stations also empty their units very frequently as a security measure.

Simple calculations can be done to assess unit capacity and potential use by utilising footfall data and/or sales data. Knowing how many drinks are sold in plastic bottles or cans at your site will help you understand the potential for capturing material for recycling.

RotG facilities that are located in eating areas where high volumes of single-use beverages are consumed may require emptying more than once per day. Some units are also designed to send alerts remotely when they are full and require emptying. This can be particularly useful if RotG units are far away from ‘usual’ collection rounds.

You can find out more about calculating unit capacity in Section 4.7.

5.3.2 Responsibility for unit emptying

The responsibility for emptying the unit will depend on your site locations. In a shopping centre, for example, agreements would need to be made with cleaners or caretakers, employed directly or contracted by the centre management, to empty general waste and recycling units. For RotG units on the high street or in community areas, the local authority will be responsible for emptying and maintenance. For an event, you may need a separate contractor to perform this service. For airports and other transport hubs and hospitals, there may be specific requirements regarding who can empty the RotG units and enter storage areas.

5.3.3 Obtaining data from each unit

To measure the success of your scheme, it will be important to keep track of the weight of material collected. Sometimes, contractors make collections as part of a standard collection round. This can mean that the weight of waste and recycling collected at each location cannot be separated.

Make sure you stipulate contractually that staff weigh material collected and keep a regular record of weights. This may cost you more but will provide valuable performance data. Even just a simple sheet that records the number and fullness of bags collected from each location can help you identify if changes need to be made. This will enable you to identify patterns and seasonal trends. For example, Glasgow City Council collection crews complete a log sheet estimating fullness for each unit they empty. They have a rough and ready method for estimating tonnage based on the size of the container. This system allows them to monitor performance and make changes to underperforming sites.
### Key messages:

- Make sure you analyse your contractual arrangements before planning a service.
- What objectives do you have for the RotG service?
- How can your existing service be adapted to incorporate RotG?
- Carry out annual contract reviews to enable greater contract flexibility.
- What is the associated cost?
- Consider how best to get value for money in the context of legal requirements.
- Consider what you would like to provide and who should deliver the individual elements.
- Talk to the key contractors and see what is potentially available.
CHAPTER 6

Breaking down barriers and promoting RotG

Overview
This chapter provides guidance on how to break down barriers to public recycling ‘on the go’. It also considers how communications can be used to encourage public use of RotG units in Wales.

In November 2011, WRAP commissioned two studies on RotG – one to look at public attitudes and behaviours and the other to analyse waste composition – i.e. what is/isn’t being recycled. This chapter outlines the results and insights gained from the research. It also discusses new bilingual communications templates created specifically for RotG in Wales and shows you how to communicate well so that the public understand and use RotG facilities.

6.1 Recent WRAP research results
6.2 Barriers to RotG
6.3 The factors that enable an effective RotG scheme
6.4 Communications
6.1 Recent WRAP research results

WRAP’s research results showed that some demographic groups were less likely than others to recycle when away from home. Typically, respondents between the ages of 16 and 34, and those in the ACORN13 Urban Prosperity category, were less likely to claim to recycle away from home. The findings suggest that those between 16 and 34 were less likely to recycle if it required more effort, while some older people said that they would be prepared to carry waste to a recycling container or carry it home if needed.

There was some evidence to suggest that the presence of children can positively impact RotG behaviours, i.e. encourage parents to recycle, and that women are more likely than men to sort their recyclable waste correctly. The ACORN Urban Prosperity category also recorded a lower-than-average score in terms of correctly sorting their waste. Those visiting sites on a weekly basis were more likely to have sorted their waste correctly, compared to monthly or first-time visitors.

These findings emphasise the importance of ensuring your RotG scheme is easy to use, particularly for first-timer users, and thinking about how to encourage those groups that are more reluctant to recycle (16-34). The study also suggests that respondents were more likely to accurately recognise the target materials where the following were all accepted: paper, card, plastic bottles, cans and glass. This means you might want to consider providing facilities for all these materials where possible, in addition to clear information on the RotG unit about the target materials.

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13 ACORN is a geodemographic segmentation of the UK’s population which segments small neighbourhoods, postcodes, or consumer households into 5 categories, 17 groups and 56 types. The 5 categories are: Wealthy Achievers, Urban Prosperity, Comfortably Off, Moderate Means, and Hard Pressed.

The Urban Prosperity category refers to well educated and mostly prosperous people living in major towns and cities; it also includes well educated but slightly less affluent individuals, such as students and graduates in their first jobs. They have a cosmopolitan outlook and enjoy their urban lifestyle.
6.2 Barriers to RotG

The research identified several key barriers to RotG. These are summarised in Table 8 below.

Table 8: Summary of barriers at different sites

<table>
<thead>
<tr>
<th>Site type</th>
<th>Barriers</th>
</tr>
</thead>
</table>
| General                 | - Perceived lack of facilities away from home; the assumption that inadequate provisions means people do not go looking for recycling facilities.  
                          | - Absence of clear signage.                                                                                                                                                           |
|                         | - Even when there are recycling facilities available, the public is not always aware of them [this is particularly true at transport hubs and events, compared to on-street environments]. |
|                         | - The perceived inconvenience of RotG, with users unprepared (or unable, due to time pressures) to go out of their way to recycle their waste. |
|                         | - Users are likely to dispose of material in the closest bin/unit rather than specifically seeking out recycling facilities [but this can be mitigated by co-locating RotG units with waste bins]. |
| Events                  | - Volume of people attending large events means that users believe that they do not have time to sort their waste, fight against the crowd or leave their position during an event to look for a recycling container. |
|                         | - Event attendees may assume that staff are employed to collect waste, therefore they do not have to dispose of items themselves. |
|                         | - More relaxed mind-set at events, particularly where alcohol is consumed – less likely to worry about recycling. |
|                         | - Inadequate training and information for stallholders and staff leads to incorrect usage of RotG units and bags being used and less items being recycled. |
| Hospitals               | - As for general                                                                                                                                                                                  |
| Leisure/venues/academic | - As for general                                                                                                                                                                                  |
|                         | - Aesthetics and the need to comply with corporate style or organisational focus                                                                                                                     |
| On-street / public parks| - As for general                                                                                                                                                                                  |
|                         | - Absence of clear signage.                                                                                                                                                                          |
|                         | - Inconsistent signage and colour.                                                                                                                                                                  |
| Shopping centres        | - As for general                                                                                                                                                                                  |
|                         | - Aesthetics and compliance with corporate style                                                                                                                                                    |
| Transport hubs          | - As for general                                                                                                                                                                                  |
|                         | - Time pressures of users when passing through the site catching buses, planes, trains, etc.                                                                                                      |
|                         | - People seem to assume that recycling facilities will not be provided due to security concerns and so don’t look out for them.                                                               |

Introduction:

Aim, scope and overview

6.2 Barriers to RotG

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|                         | - Inadequate training and information for stallholders and staff leads to incorrect usage of RotG units and bags being used and less items being recycled. |
| Hospitals               | - As for general                                                                                                                                                                                  |
| Leisure/venues/academic | - As for general                                                                                                                                                                                  |
|                         | - Aesthetics and the need to comply with corporate style or organisational focus                                                                                                                     |
| On-street / public parks| - As for general                                                                                                                                                                                  |
|                         | - Absence of clear signage.                                                                                                                                                                          |
|                         | - Inconsistent signage and colour.                                                                                                                                                                  |
| Shopping centres        | - As for general                                                                                                                                                                                  |
|                         | - Aesthetics and compliance with corporate style                                                                                                                                                    |
| Transport hubs          | - As for general                                                                                                                                                                                  |
|                         | - Time pressures of users when passing through the site catching buses, planes, trains, etc.                                                                                                      |
|                         | - People seem to assume that recycling facilities will not be provided due to security concerns and so don’t look out for them.                                                               |
6.3 The factors that enable an effective RotG scheme

In order to maximise uptake of RotG, you need to think about how you can break down these barriers to engagement. Such efforts might include ensuring you provide clear and consistent signage, and making recycling ‘on the go’ as easy as possible to tackle the ‘inconvenience’ factor.

Key points to consider include:

- Where and how far apart to position your RotG units.
- Where you position your waste bins in relation to your RotG units.
- The type and size of RotG unit to use.
- How you make your collections.
- Which materials you collect.
- What type of aperture your units will have.
- What colour your units are.
- The size and positioning of your signage – ‘upon approach’ and ‘at unit’, for example, can help to maximise visibility (see Section 6.4.8).
- How you brand your signage and other communications (use the Recycle for Wales branding).
- Whether or not you will pursue corporate sponsorship for your units; if so, think about how you place your sponsor’s logo in relation to the RotG branding. If it’s too big, it may eclipse your unit branding – also, is it relevant to the waste streams you’re trying to capture?

6.3.1 Positioning your RotG units

A units location will influence how much it gets used. Three key things to consider are:

- Assess the ‘natural journey’ through the site and decide where users will best be able to see the units. For example, what is the most direct route visitors are likely to make through a site and where do the units need to be to capture their attention?
- Locate units in areas of highest footfall, where most waste is likely to occur - people are often not prepared to walk far to recycle.
- Use high-profile areas – locating units near information points or transport facilities (such as train stations, bus stops and tube stations) adjacent to your site can work well.

You might think about consulting with potential service users (e.g. local residents, site users, local communities) when identifying suitable locations for RotG units. You should also bear in mind that people are often not prepared to walk far to recycle.
6.3.2 Residual waste provision
Research shows that the public are more likely to use a recycling unit correctly when it is located next to a residual waste bin. This also reduces the likelihood of contamination as the public are less likely to put non-recyclable material into the recycling units. This could be two separate units for residual waste and recyclables located together, or units with an integral residual waste compartment. Remember, ease of use is essential, and providing waste and recycling facilities in the same location is a key part of this. Some examples of co-located and integral facilities, and stand-alone facilities, are shown in Figures 21 and 22 below.

Figure 21: Examples of integral / co-located units
A. Recycling unit with integral litter bin used at Stratford upon Avon  Source: AEA, used with permission
B. RotG facilities co-located with a residual waste / litter bin at Barry Island, Vale of Glamorgan

Figure 22: Example of stand-alone RotG unit
Single compartment unit used by Islington Council with no residual waste bin in the immediate vicinity. Source: AEA, used with permission

6.3.3 Collection systems
When it comes to collecting materials, simplicity is key. There are different ways in which you can collect your waste (source-segregated, dual stream or commingled), and according to the research WRAP conducted no one system emerges as more preferable or effective than the others. Which system you choose depends upon the waste that is generated at your sites, and whether or not your local reprocessors can handle the material that you collect.

When selecting your collection system type, you should consider whether users are likely to have the time and inclination to sort their waste into more than one category. This may be more of an issue at events where there can be heavy flows of people. It will also be an issue at transport hubs where users may be moving rapidly through the site.

6.3.4 Types of materials collected
When units at the same site collect different materials or use different colour-coding systems, users become confused. So, be as consistent as possible. Ideally the same containers should be used for the same materials across a whole area. If users of your site are likely to be local, tying in RotG facilities with what they recycle in their household collections makes sense (e.g. if paper is collected in a blue box at the households locally, try and make that consistent with RotG unit colours and signage). However, this will have no relevance for visitors to the area and it will be important to follow the signage guidance provided within this document to ensure consistency. If you have a high level of visitors, then you need to take their requirements into account when designing your scheme. In terms of signage it is advisable to follow the Recycle Now colour streams, as they are widely used on a national level allowing consistency and easy recognition.

From the research, it is clear that users expect core materials – namely cans, glass, paper and plastic bottles – to be collected. If you do not provide facilities for these materials, users are likely to place them in the recycling units anyway – which can lead to contamination. So, you need to meet site user expectations by collecting...
at least all four materials. Over time this may change, as it becomes the norm to recycle more materials – e.g. food – at household level; but initially at least, including the four core materials is essential.

The type of material collected also depends on the site. Many events, for example, do not allow glass on site for health and safety reasons and so glass recycling bins would be redundant.

6.3.5 Aperture size and type
Where possible, use larger apertures on your units, as users prefer not to come into contact with the unit itself when disposing of material. For the same reason, you should avoid using lids.

There are a number of different shaped aperture options depending on which materials you collect, as shown in the images in Figure 23 below. You should think about preference for cleanliness when considering aperture and unit design.

**Figure 23: Range of aperture types available for RotG units**

- City of London RotG unit aperture for bottles, cans and paper
  Source: City of London council, used with permission

- The Trafford Centre RotG unit aperture for plastic bottles and cans
  Source: Recycle Zone report

- Birmingham Airport Ltd RotG units – three apertures used for paper, residual waste, and plastic bottles and cans
  Source: AEA, used with permission

- Elmbridge Borough Council RotG unit in Walton on Thames, aperture for paper, cans and bottles
  Source: Elmbridge BC, used with permission
6.3.6 Colour of units
To increase visibility, use colour across the whole of a unit (rather than just a coloured aperture) – as this will help to distinguish recycling facilities from residual waste bins and waste streams from one another. For consistency in England it is recommended to utilise the colour scheme used by the national Recycle Now brand, i.e. red for plastics, blue for paper is used. You should also consider transparent units, with coloured lids, as people like to see what materials to deposit, although they can be put off if transparent material becomes dirty or starts to look unattractive (the use of liners can solve this problem).

6.3.7 Unit type and size
In general the public prefer bigger units. Their larger size enables clearer information to be displayed. Users are also confused about what to recycle when small units are used in locations where lots of materials are collected for recycling.

So, where possible and appropriate, you should consider using larger units to help encourage public uptake. Please see Chapter 3 for further guidance on unit type and size, and/or refer to the WRAP Container Guide in Appendix 2.

6.4 Communications
Good communications can enhance the success of your RotG scheme. So provide concise and helpful information. Here are some core guidelines and templates to help get you started.

6.4.1 Target audience
When developing your RotG communications, there are four main audience groups to consider:

- Consumers/the public – the main focus of your communications.
- External groups – such as the media, community groups, other local authorities.
- Specific subgroups – community groups, religious and cultural groups, potential organisations to help communicate your messages, such as caretakers, landlords and housing associations.
- Staff – your own staff operating the RotG service, senior officers, elected members, other staff who need to know about your communications plan and may be able to help. Consider your staff as an audience as they will be ‘front-line’ in delivering this for your organisation. Procedure and messages need to be clear and easily understood by all so that they can be followed.

Be clear about the target audience for your communications and keep them as the focus of your effort at all stages. This is important, because your target audiences must be at the heart of your thinking about your messaging, overall strategy, communication methods and activities. You may wish to draw on your organisation’s own communications plan for this information to tailor your messaging and approach.

For guidance on understanding your audience, download Improving Recycling Through Effective Communications.
6.4.2 Developing strategies and methods
In order to ensure your communications are effective, you must select the most appropriate methods to raise awareness of where people can recycle on your site.

The key to a successful RotG scheme is choosing which communication methods to use and where to use them. Consider any existing communications strategy and whether there are any existing methods that could be modified to include RotG templates for England. Examine your budget and consider which mix of existing and new materials will be the most effective. The main objective of the activity is to overcome the barriers to RotG and encouraging consumers to recycle more materials, more often when away from home.

For guidance on developing a comprehensive communications campaign, download Improving Recycling Through Effective Communications

6.4.3 Choosing effective communication methods (channels)
No single activity will be as effective in isolation as a combination of channels. However, budget and time will dictate the scale of your scheme. Your individual promotional activities will also be dictated by the location and number of the RotG units you have, the service you offer and how people interact with your organisation.

Some communication methods are better for reaching people across a wide area (broad-brush methods), while others are more effective if used in small, discreet areas (targeted methods).

Some examples of effective communication methods:
- TV screens are good for targeting people in large spaces and for displaying several messages in a loop;
- Radio is better for targeting large numbers of people in local areas and local weekly newspaper advertising targets people in a large area;
- Signage near the RotG units is useful, but will only target people who pass those units; and
- Consider your ‘internal’ audience as well e.g.; intranet, websites, email, internal posters in staff rooms and incorporating into training packs to staff, etc.

You should consider all population types to ensure access and use for all, i.e. think about mobility and literacy barriers. This may include consideration of the placement height of units, as well as message size, font size and colour advert placement on or around unit communications. You can find more information on these issues on the Direct Gov website.
Here are some top-level suggestions of potential channels for raising awareness of RotG in specific sectors.

**Table 9: Awareness-raising communication methods by sector**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Potential barriers</th>
<th>Additional outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ALL</strong></td>
<td>Know your audience and users of the facilities e.g. disabled consumers, eye line messages, etc.</td>
<td>Staff training and messaging e.g. email, websites, intranet systems, staff briefings etc.</td>
</tr>
<tr>
<td></td>
<td>Consider high traffic areas and prime locations such as entrances/exits and waiting areas, car parking</td>
<td>Incorporation of RotG messages on existing communication materials – consider information screens, ticketing details, announcements, maps etc.</td>
</tr>
<tr>
<td><strong>EVENTS</strong></td>
<td>Consider eyeline– additional signage may be more visible placed higher up or on the floor (in addition to on the actual units themselves) so that consumers can find their way to recycling points more easily.</td>
<td>Consider which recycling area you will guide consumers to (there may be more than one such area).</td>
</tr>
<tr>
<td><strong>HOSPITAL</strong></td>
<td>Focus on point of material use such as restaurants and waiting areas.</td>
<td>Consider the use of canteen trays and other non-traditional advertising space such as car park tickets.</td>
</tr>
<tr>
<td><strong>LEISURE</strong></td>
<td>Use of any communication materials which exist both ahead of consumers travelling to the venue and whilst at the site.</td>
<td>Use of noticeboards to promote RotG at entry/exit from the site.</td>
</tr>
<tr>
<td><strong>LEISURE</strong></td>
<td>Use of programme ad space to promote RotG ahead of entry to/exit from venue.</td>
<td>Use of noticeboards to promote RotG at entry/exit from the site.</td>
</tr>
<tr>
<td><strong>LEISURE</strong></td>
<td>Use of noticeboards to promote RotG at entry/exit from the site.</td>
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</tr>
<tr>
<td><strong>LEISURE</strong></td>
<td>Video screens to promote RotG messages during events.</td>
<td>Video screens to promote RotG messages during events.</td>
</tr>
<tr>
<td><strong>LEISURE</strong></td>
<td>Floor vinyls as wayfinding.</td>
<td>Floor vinyls as wayfinding.</td>
</tr>
</tbody>
</table>

**EVENTS (Cont.)**

- Consider placement of messages on units for example both ‘on top’ of the units and also ‘on the side’ so consumers can see what to put in which unit at various point.
- Provide Information for stall holders, traders, exhibitors and caterers e.g. clear guidance on recycling system and process and which bags to use for recycling / residual and where to leave them for collection after the event.
- Consider limiting the use of freebies and give-aways at events as this could result in littering items that are not wanted or desirable. If such items are to be given away at events, ensure they are made from recycled and recyclable material.
- Consider messaging about recycling before the event (or your website) letting the consumer know what to expect as far as recycling their waste, and also what they can and can’t bring to event to avoid potential waste in the first place e.g. glass and metal cans at concerts. Finding opportunities to get involved ahead of events so that they know what to expect is a good idea, an example of this might be to ask consumers ahead of the event to ‘make a pledge’ on the event website to recycle when they attend the event. This could ensure that consumers have read the information on recycling and, potentially engage with it, ahead of attending the event.
- Addition of RotG message to staff uniforms.
- RotG branded cups, food containers and other consumables at events.
Introduction: aims, scope and overview

Breaking down barriers and promoting

Managing costs

Monitoring and evaluation

Appendices

Sector | Potential barriers | Additional outputs
--- | --- | ---
**ON STREET / PUBLIC PARKS** | Absence of clear signage. | - Permanent RotG signposting in city centres – consider banners (i.e. lampposts) and posters, BUT avoid any options such as leafleting which may cause littering.
- Window vinyls in businesses close to RotG units.
- Inclusion of RotG points on city maps – consider maps which may appear in high traffic areas such as train stations/shopping areas etc., also consider if RotG can be included in any existing mobile navigation applications.
- Litter pickers and street cleansing staff – training and messages on new system.

**SHOPPING CENTRES** | Advertising space on units is a premium. | - Consider existing communication platforms, i.e. plasma information screens, poster space, announcements, maps etc.
- Given there may be a number of recycling areas, consider which area is most appropriate to guide consumers to – also consider exit points and car parks.
- Work with commercial organisations to sponsor RotG unit signage.
- Work with commercial organisations to communicate RotG messages into advertising messages.

**TRANSPORT HUBS** | Time pressure on users when passing through the site catching buses, planes, trains etc. | - Focus on prime locations such as exits/entrances, proximity to restaurants and car parks – what is the main route through the site?
- Consider use of advertising space such as platform posters, bus/train/tram interior panels and seat back panels.
- Addition of RotG messages on ticket websites and tickets.

### Table 9: Awareness-raising communication methods by sector (continued)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Potential barriers</th>
<th>Additional outputs</th>
</tr>
</thead>
</table>
| **ON STREET / PUBLIC PARKS** | Absence of clear signage. | - Permanent RotG signposting in city centres – consider banners (i.e. lampposts) and posters, BUT avoid any options such as leafleting which may cause littering.
- Window vinyls in businesses close to RotG units.
- Inclusion of RotG points on city maps – consider maps which may appear in high traffic areas such as train stations/shopping areas etc., also consider if RotG can be included in any existing mobile navigation applications.
- Litter pickers and street cleansing staff – training and messages on new system.

**SHOPPING CENTRES** | Advertising space on units is a premium. | - Consider existing communication platforms, i.e. plasma information screens, poster space, announcements, maps etc.
- Given there may be a number of recycling areas, consider which area is most appropriate to guide consumers to – also consider exit points and car parks.
- Work with commercial organisations to sponsor RotG unit signage.
- Work with commercial organisations to communicate RotG messages into advertising messages.

**TRANSPORT HUBS** | Time pressure on users when passing through the site catching buses, planes, trains etc. | - Focus on prime locations such as exits/entrances, proximity to restaurants and car parks – what is the main route through the site?
- Consider use of advertising space such as platform posters, bus/train/tram interior panels and seat back panels.
- Addition of RotG messages on ticket websites and tickets.

For guidance on selecting the most effective channels for your sector download [Improving Recycling Through Effective Communications](#).

### 6.4.4 Linking with the national brand

The templates featured in the RotG Communications Guidance use the look and feel developed for the national Recycle Now brand. Industry research shows that local communications benefit from association with national campaigns and messages. Here are some of the benefits of the Recycle Now brand:

- The brand and its activities are extensively tested on the public and evaluated.
- In March 2011, 57% of people in England recognised the Recycle Now brand.
- The Recycle Now logo and iconography is in widespread use by some of the UK’s biggest retailers, and is being used by an ever-increasing range of other organisations to communicate recycling messages.
- The Recycle Now brand has an extensive range of free, evidenced-based, consumer-tested resources which can be tailored to support your recycling on the go scheme.

These are examples of material stream iconography provided for on-pack labelling.

![Material stream iconography](#)

For on-pack recycling label, more information can be found at [www.onpackrecyclinglabel.org.uk](http://www.onpackrecyclinglabel.org.uk)
6.4.5 The templates

The templates take two forms: templates to promote the recycling service and point-of-recycling templates (i.e. at the unit).

The templates have been created to help you signpost facilities, reinforce recycling behaviour and ensure the public know what materials to recycle and where.

Promotional templates – these have been developed to help organisations promote RotG in a variety of settings in England.

The templates include:

1. Half page press ad
2. A3 Poster
3. A4 Poster
4. Web banner

You can change the messages according to:

- the materials you are collecting;
- the needs of your own corporate or localised messaging; and
- the stage you are at with your RotG scheme.

The main strapline “You can recycle more on the go” on the promotional template and “Recycle” on the in-situ template is fixed but the rest of the template can be modified to fit your local requirements.

Here are some examples:

**New scheme** – consider a generic message on the availability of a new scheme within your premises or location.

e.g. You can now recycle your drinks cans, bottles and paper with us!

**Existing scheme with new recycling facilities** – consider directional messaging to ensure consumers are aware of new facilities, and to encourage continued use of the service.

e.g. Recycle your drinks cans, bottles and paper at our in-store recycling points.

**Established scheme** – consider additional motivational messaging, such as facts on how recycled materials are transformed to new products, to inform consumers of the benefits of recycling.

e.g. Our old drinks cans become new ones in just six weeks!
6.4.6 Template images
A set of images are available for specific materials (cans, bottles etc.). These can be applied to the templates to reflect the materials you are collecting.

The templates also feature the national material stream iconography, which should correspond to those displayed on RotG units.

You can access the full range of iconography and other resources via the Recycle on the Go pages of the Recycle Now partners website.

Point-of-recycling templates – this standardised signage uses the material stream iconography from the Recycle for Wales campaign to bring consistency across the RotG units in all nations and settings, making RotG easy by ensuring consumers know what to recycle and where.

The templates cover four core material streams:
- Drinks cans
- Glass
- Paper
- Plastics

These are supplied as individual icons for you to select and include on the units or on signage at the point of recycling. Consider including the material stream icons on all promotional materials to ensure there is a link for consumers between photographic images used by English local authorities and the icons on the RotG units.

While all templates use English national branding and offer space for localised elements, they are not definitive. Organisations are encouraged to consider the best communication channels for their organisation or event, and to use the guidance below and additional resources to build on what is available.

6.4.7 Using the templates
To develop these materials for your customers, you will need the help of a graphic designer – either in-house or external. This will help to extend the look and feel to other communications, and to incorporate your own branding within the rules of the Recycle Now brand guidelines.

Remember to obtain approval for initial designs from senior managers and/or elected members as required before proceeding too far. And finally, once selected, your messages must be applied consistently across all your communication activities.

For guidance in applying or modifying the RotG templates, download the England RotG Communications Guidance Document.

6.4.8 Signage on approach and at the units
Signage on the units is critical so people know what to put in them for recycling. Don’t use ambiguous terms like ‘mixed recyclables’, as the public don’t understand them. Generic terms such as ‘cans’ or ‘bottles’ can also be unhelpful, as users sometimes do not know what these refer to – i.e. steel or aluminium cans or both? Plastic or glass bottles? Be very clear and specific about what materials you accept in the recycling containers.

You also need to be careful if using signage on smaller units, where space is limited and the unit may be low (i.e. below waste height), as this can make reading and comprehending messages difficult. For small units, place signage on the aperture or on the top of the unit.
Similarly, give thought to the layout of text on RotG units. The example below shows the type of text layout to avoid. Users were not clear whether this text meant that plastic bottles and glass bottles were expected, or mixed plastics and glass bottles.

### PLASTIC & GLASS BOTTLES CANS

It may be of benefit to test your proposed signage with potential users. This process can provide valuable feedback on whether aspects of the signage could be misinterpreted.

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**6.4.9 Material stream guide**

A series of material stream icons have been developed to support your communications. The icons have been consumer-tested and their application represents an effective way to show people what to recycle and where.

Additional icons are available on the [Recycle Now Partner’s website](#).

Each material stream is available in each format. More layouts are available on the [Recycle Now Partner’s website](#), with various permutations of icon, wording and logo.
The icon templates should be included on your RotG units to reflect the materials which can be recycled.

Unit design will be an important factor in how the icons can be used currently, and you may need to consider altering the icons themselves to deliver the RotG scheme effectively in your environment. For more information on unit design, please refer to the RotG Container Document in Appendix 2.

Key points to consider from an attitudinal/behavioural aspect are:

- Carefully consider unit type and target materials in conjunction with the available space for signage. It is vital that users can readily identify the target material. If required, you should consider reducing the number of accepted materials to avoid confusing users.
- Test signage with potential users to ensure that it provides clear information on acceptable materials and cannot be misinterpreted. Terms such as ‘mixed recyclables’ and ‘bottles’ should be avoided.
- Ensure that container locations are identifiable to those familiar with the area, as the natural flow of people is a key factor in establishing appropriate RotG locations.
- Residual waste facilities should be co-located or be integral to recycling facilities, with the recycling unit differentiated from the residual waste bin through the use of colour; and
- If possible, provide recycling facilities for all the core group of materials: cans, glass, paper and plastic bottles, as users typically perceive that these materials can be recycled and expect schemes to accept them. Select apertures that provide further clues to the materials accepted by the units.

From a communications perspective, you need to:

- Ensure your target audience are at the heart of all your efforts;
- Make good use of the available templates;
- Choose communications channels likely to give you greatest exposure;
- Ensure clarity of signage on units, and avoid ambiguous words;
- Take care over the size of messages and placement of message on units – especially when/if combined with sponsorship logo on units;
- Test your signage designs and messages with local users to minimise the risk of misinterpretation;
- Train your staff and inform stalls, caterers or other relevant people who might be responsible for recycling and waste; and
- Inform consumers pre-attendance at events or venues if possible.
CHAPTER 7

Managing Costs

Overview
This chapter gives an overview of the financial aspects of implementing RotG. It provides guidance to enable you to calculate both the capital and operational costs associated with running a scheme.
The key aspects to consider in establishing the cost of RotG are:

- capital costs for infrastructure
- operational costs, including:
  - treatment and disposal;
  - collection—i.e. staff time to service the RotG units;
  - maintenance costs—cleaning, repairs etc.; and
  - promotional materials/communication campaigns.

In addition, you may derive financial benefits from the introduction of a RotG scheme. For example, reduced costs associated with landfill disposal, or avoidance of penalties related to potential breaches in legislation. Local authorities have a limit on the amount of biodegradable waste they can landfill, and the collection of paper and/or cardboard by RotG schemes may help as part of a wider approach to meet these targets. For other types of organisation, segregating high-value materials can generate income or offset the cost of collection by waste management and recycling contractors. Modelling work commissioned by WRAP\(^{15}\) predicted that avoided disposal costs (i.e. the reduction in residual waste requiring disposal) would lead to a reduction in overall costs compared to continuing with the current systems. This may be the case in the long term as RotG displaces litter bins but initially at least there will be an increased cost. To generate income from RotG does require though that contamination is minimised and a high quality recyclate is collected.

Evaluating these options is critical to making an informed financial decision as to whether you are able to provide a cost-effective RotG scheme.

The cost of RotG units varies significantly depending on the design, style and number of units required. So, the careful selection of appropriate units is absolutely vital. Review the guidance provided in Chapters 3, 4 and 5 to identify the type of units that are likely to perform effectively in your selected locations, and look at the WRAP container guidance in Appendix 2. You also need to consider the impact on servicing costs. For example, having a dense network of units will cost more compared to centralised units. Larger units also have greater capacity and require less frequent servicing, but cost more to install than smaller units.

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\(^{15}\) Economic Assessment of the Welsh Government’s Collections, Infrastructure and Markets Sector Plan. WRAP (2011)

Table 10 below shows a range of costs for RotG units. However, the actual cost may vary depending on your individual specifications.

**Table 10: Approximate prices for RotG units (various sources)**

<table>
<thead>
<tr>
<th>Unit type</th>
<th>Unit specifications</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>External</td>
<td>Single compartment unit 120 litre</td>
<td>£250</td>
</tr>
<tr>
<td></td>
<td>Single compartment unit 240 litre</td>
<td>£200-£740</td>
</tr>
<tr>
<td></td>
<td>Twin compartment unit 80 litres</td>
<td>£350-£625</td>
</tr>
<tr>
<td></td>
<td>Triple compartment unit 60 litre</td>
<td>£750</td>
</tr>
<tr>
<td></td>
<td>Quadruple compartment unit 240 litres</td>
<td>£990</td>
</tr>
<tr>
<td>Internal</td>
<td>Single compartment unit 50 litre</td>
<td>£15-£85</td>
</tr>
<tr>
<td></td>
<td>Single compartment unit 100 litre</td>
<td>£115-£160</td>
</tr>
</tbody>
</table>

In organisations such as shopping centres, hospitals, tourist attractions or transport hubs, the collection of material from public-facing waste facilities may be managed by in-house or external cleaning staff. The addition of RotG facilities is likely to generate extra demand in terms of time and effort from cleaning staff, hence there is likely to be an increase in costs. The segregation of new materials may also require supplementary waste facilities to be provided by an existing or new waste management contractor. For example, containers may need to be added at existing bulking point(s) for materials collected by the scheme. And there are maintenance costs to consider too, such as keeping units clean and presentable and carrying out repairs.

When implementing any RotG scheme, promotional material will be required to raise awareness of the programme (for more information, see Chapter 6).

You should also liaise with container manufacturers who can provide guidance on units that have been installed elsewhere (see WRAP’s container guidance in Appendix 2 for contact information). Some manufacturers may support a pilot scheme by allowing you to borrow RotG units for a trial period. This approach, coupled with a monitoring programme (see Chapter 8), will enable you to evaluate the potential for the scheme and trial different types of unit before rolling out a full scheme.
You may not have to meet all of these costs unaided. You could explore funding opportunities for the implementation and delivery of RotG schemes to reduce the cost to your organisation, at least in the short term. For example, you may be able to apply for funding to cover the capital costs of the RotG units and any initial communications (branding, iconography, wider communications etc.) – contact WRAP for more information on 0808 100 2040 or visit the WRAP website.

What’s more, RotG also provides income-generating potential. The diversion of material away from landfill, for example, can carry significant financial benefits. These can be quantified by looking at the relative costs of landfill disposal versus processing. The costs saved will increase year on year, not only as landfill gate fees increase but also in terms of landfill tax, which is currently £64 per tonne (2012/13), and is set to increase by £8 per tonne each year until 2014.

**Key messages:**

- Evaluate each scheme option to assess their relative costs and the cost-effectiveness for your organisation.
- Consider the type of unit required based on the characteristics and needs of the location, in conjunction with servicing the unit, i.e. vehicle and staff required to empty each unit and emptying frequency.
- Consider the options for the management of the material once collected. Can this be easily managed under an existing contract, or is a contract variation and hence negotiation on costs needed?
- Take into account the costs for maintenance requirements as well as promotional material.
- Explore any potential benefits from introducing RotG schemes, such as avoided costs from the diversion of material from landfill.
- Liaise with container manufacturers, as they may be able to provide guidance and support for running pilot schemes using different unit types before rolling out a full service.
CHAPTER 8
Monitoring and evaluation

Overview
Monitoring and evaluating the performance of a RotG service is key to ensuring that it is operating effectively. You need to regularly measure how the scheme is performing, using monitoring data and key performance indicators (KPIs), to determine whether changes need to be made to improve its overall effectiveness. Data collected can also help you to decide whether you should expand your scheme and how best to do this.

This chapter contains some suggestions for monitoring and evaluation activities suitable for RotG services. Some of the monitoring methods discussed are contained in WRAP’s extensive guidance on the subject: ‘Improving the Performance of Waste Diversion Schemes: A Good Practice Guide to Monitoring and Evaluation’ (2010). This guidance provides useful background information, as well as advice on approaches which could be adopted for RotG.

8.1 What to monitor
8.2 When to monitor
8.3 Tonnage data
8.4 Quality of collected material
8.5 Evaluation
8.6 Suggested areas for monitoring and evaluation of RotG services
8.1 What to monitor

The first stage in deciding what you should monitor is to look at the aims and objectives that have been set for the service, campaign or activity you are measuring. For RotG, the aim might be ‘To increase the recycling of material on the go’, and the related objective ‘To increase tonnage (weight) of recyclables collected on the go by X% by [XX date]’ or ‘To increase awareness of the RotG service by XX% by XX date.’ Remember, any objectives you set should be SMART:

- Specific;
- Measurable;
- Achievable;
- Relevant; and
- Time-Bound.

One of the most important performance measures is the extent and effectiveness with which RotG facilities are being used. This is important in terms of cost efficiency and service planning. Key performance indicators for you to consider include:

- the amount of the target material collected (tonnage) – see guidance below and Chapter 6 of WRAP’s monitoring and evaluation guidance;
- capture rate for each target material as a proportion of that which is generated (see Chapter 7 of the monitoring and evaluation guidance);
- the quality of the material collected (e.g. is contamination an issue, are the wrong materials being placed in the recycling unit?); and
- awareness of the service by potential users (see Chapter 4 of WRAP’s monitoring and evaluation guidance).

‘Capture’ refers to the quantity of a particular target material that is ‘captured’ by the RotG service designed to accept that material. ‘Capture rate’ therefore refers to the proportion (as a percentage) of a targeted material that has been collected relative to the total quantity of that material arising (i.e. including both the residual waste and material recycled). Understanding capture rate will highlight whether you need to focus on attracting a particular material.

8.2 When to monitor

You should carry out monitoring and evaluation after your scheme is established, for example after the launch and at various points afterwards, as well as after specific campaigns, such as new signage, local press campaign etc.

It is recommended that you collect periodic tonnage (estimated or actual) and contamination data from the start of the scheme and on an on-going basis thereafter. Also bear in mind that any new scheme will go through a ‘bedding in’ period, so when evaluating results, consider whether the collection frequency needs to change during the monitoring period. If your site has regular visitors, try looking at the results gained from three-to-six months onwards to see whether visitor numbers and unit usage are increasing.

If you are conducting any communications campaigns, you should monitor scheme performance before any activity is undertaken (to establish a baseline), and then one month after promotions end.

In the case of temporary events, monitoring of the RotG scheme will have to be done as the event takes place. It is important not to forget this part of the process during the busy and often demanding time while the event is happening. The process of how and what you are going to monitor must be agreed in the planning stages to ensure it is carried out. It is also recommended that there is an agreement with the waste contractor prior to the event that they will provide waste data post-event.
8.3 Tonnage data

You can obtain tonnage data from your waste management contractor via records such as weighbridge tickets. However, this is only possible if the material from your RotG units is collected separately from other collection rounds. In the case of local authorities, RotG material is often collected in conjunction with trade waste or kerbside recycling rounds and at other types of site. This means that RotG material from public-facing sites is often mixed with material collected from other areas, e.g. businesses and households. In such situations, use of weighbridge data may not be an option.

It may be possible to conduct periodic monitoring. You can do this by arranging a dedicated collection of material from RotG units during a trial period to capture and record weighbridge data. This would then provide information on the performance of the scheme within a given locality. The performance of the whole scheme could be measured and monitored over time in this way, and could even be adapted to measure performance of different sub-sets of units in different areas. Alternatively, where liners are used in RotG units, collection crews or facilities management staff could weigh the material collected during a trial period, using simple fishing/luggage scales. This would have the added advantage of providing data at the individual unit level, enabling the performance of various RotG locations to be monitored. Simple tick sheets could be used for recording this information.

If tonnage data are needed, it may be advisable to include this data requirement in contract conditions, service level agreements or memorandums of understandings, specifying the data that are required and how frequently they are needed.

8.4 Quality of collected material

The most effective way to assess the quality of RotG material collection is via a waste composition analysis. This will help to identify levels of the target materials and levels of contamination. A waste composition analysis of residual waste will also help you assess the additional proportion of material that has the potential to be captured by the RotG units (capture rate), but that is currently being disposed of within the residual waste bin. However, this approach can be time-consuming and costly.

An alternative is to visually check contamination in your RotG units and assess the type and nature of contaminants that are visible on the surface of the deposited material. Are the contaminants non-target materials? Or is food and drink residue reducing the quality of the collected materials to such an extent that they cannot be recycled?

These checks will enable you to estimate the proportion of contaminated RotG units. You may also be able to establish types of main contaminant and the proportion of overall contamination. This is particularly useful for identifying whether certain types of non-target materials are frequently being deposited in RotG units. For example, users may misinterpret the information and signage on units, and assume that glass bottles can be deposited for recycling when it is plastic bottles that are being targeted.

In addition, if various types of units are used in different locations, a unit-level visual analysis of contamination can inform future roll-outs of the RotG scheme, identifying comparative success of one unit over another. Further guidance is available from Chapter 8 of the WRAP Monitoring and Evaluation Guide.

Advice on conducting surveys is available in Chapter 4 of the Monitoring and Evaluation Guide guidance. See also the City of London case study for a monitoring example.
The City of London is currently trialling two different aperture types for its RotG units. Contamination is being monitored to assess the performance of the aperture types. Materials from each aperture type are being collected separately by collection crews. Waste composition analysis is being conducted on the collected materials to identify which materials are currently being recycled and the levels of contamination. The results will allow decisions to be made on which aperture to use for future units and will also highlight how effectively the units are being used.

Following analysis of the waste streams, the City of London decided that units with apertures for paper will be placed outside mainline stations to capture morning and evening free papers. It also decided that apertures for commingled material will be used on other locations where workers may be passing at lunch with mixed recycling. This approach will continue to be monitored and developed, as there is the option for apertures to be changed should the location require it.

A more detailed version of this case study is available at www.wrap.org.uk/rotgengland

8.5 Evaluation

Evaluating performance helps to identify those activities and campaigns that provide the biggest increase in recycling rates from a given financial investment. A continuous feedback loop should be used to document and action and respond to lessons learned from the roll-out of schemes, associated communication campaigns or other RotG activity. This can be used to inform and determine the success of changes to the existing service and any future expansion.

Points to consider:

- Ensure that when progress is evaluated, it is completed on all of the units with the scheme and not done in isolation.
- Calculating a cost per tonne or per resident/visitor spend for the service will facilitate a comparative analysis to be conducted.
- Benchmarking a service will identify where money is being spent, what impact it is having and where to target improvements.

8.6 Suggested areas for monitoring and evaluation of RotG services

Table 11 gives suggested areas that could be monitored and evaluated. Many of the examples could be used for more than one activity, so it is suggested that you review the whole table before deciding what is important for you to monitor.

Plan for monitoring at the outset of the scheme and not as an add-on. One of the best ways to determine whether positive change is being made is to establish benchmarks at the beginning of the roll-out, so you can measure such things as the proportion of residual waste reduced over time or the increased recycling increase you achieve. Conducting monitoring before and after broader communication activity will help you to determine not only the effectiveness of individual communication events, but also its cost-effectiveness.
## Table 11: Monitoring and evaluation options for scheme usage

<table>
<thead>
<tr>
<th>What could be monitored?</th>
<th>How could it be monitored?</th>
<th>Why is monitoring a good idea?</th>
<th>Are there any issues to consider?</th>
</tr>
</thead>
<tbody>
<tr>
<td>The quantity of target material collected (tonnage)</td>
<td>Tonnage data provided by your waste contractor or local authority service. Using an internal resource to weigh bags.</td>
<td>Collecting tonnage data will allow scheme performance to be monitored. It will allow you to monitor what weight of recycling is collected per event or per time period. It will allow you to calculate your recycling rate (weight of recycling collected divided by total weight of all waste collected).</td>
<td>Tonnage data for single RotG units may be difficult to obtain. If this is the case, consider undertaking short monitoring periods where this information can be collected either via arranging a dedicated collection (check with your contractor whether this would be possible operationally and at what cost), or weighing individual bagged material (using a set of balance scales for example).</td>
</tr>
<tr>
<td>The quantity and quality of target material collected</td>
<td>Waste composition analysis Visual Inspection.</td>
<td>Understanding the quantity, quality and type of recyclables collected will enable you to use this information to improve the performance of the scheme. For example, are incorrect materials regularly present in the collected materials? Are product residues an issue e.g. food and drink? This information could then be used to inform a targeted communication campaign, or to inform the design of new signage. Understanding the composition of items collected within the recycling and residual waste stream may also help to inform decisions on adding new materials to the scheme.</td>
<td>Waste composition analysis should be conducted by professionals due to the health and safety risks involved. There will be a cost involved if an external company is contracted to do the work. As an alternative, use a visual inspection of collected material. This will not provide the same detail as a full composition analysis but will highlight the main contamination issues.</td>
</tr>
<tr>
<td>Contamination issues</td>
<td>Reports from collection crew or contractors / partners. Visual inspection. Visual Inspection.</td>
<td>Provides a good insight into what unsuitable materials users may be placing in the RotG units. May help identify ‘hot spots’ and opportunities for changing unit locations or material streams accepted. It may also identify problems that users are having with the instructions on the units.</td>
<td>Information reported may be in isolation, for example, reported by collection crews working on different collection rounds and not help with the overall scheme performance or communications campaign.</td>
</tr>
<tr>
<td>Capture rates</td>
<td>Using tonnage of recyclables and residual waste and waste composition data.</td>
<td>Capture will indicate how successful a scheme is in diverting the target recyclables from the residual waste bin into RotG units. It will also help to identify common materials that are not being recycled.</td>
<td>The composition of the recyclable and residual waste stream is required for the service area to calculate capture rates of the target materials. The data may not be available.</td>
</tr>
</tbody>
</table>
### Table 11: Monitoring and evaluation options for scheme usage (continued)

<table>
<thead>
<tr>
<th>What could be monitored?</th>
<th>How could it be monitored?</th>
<th>Why is monitoring a good idea?</th>
<th>Are there any issues to consider?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring the equivalent market value of captured material</td>
<td>Using resources such as the WRAP Materials Pricing Report, prices paid for material bought and sold per tonne can be used to measure the financial value of material collected through RotG units.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Data collected from a waste composition exercise of residual waste will allow a market value to be assigned to the proportion of material that could be captured for recycling, but is being lost to other disposal routes e.g. landfill.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>For some users, the value (£) of what is recycled or reused is more of a driver than the associated environmental benefits. This provides an alternative measure of performance.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>All material values assigned will be approximate, based on current market data, and not reflect market fluctuations in price.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Potentially small quantities of material collected for recycling and so minimal cost benefit/ driver for change.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost per tonne or per resident/ visitor</td>
<td>If tonnage data and costs are available for the service, then a cost per tonne or per resident / visitor can be calculated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tonnage recycled or reused can also be calculated as waste diverted from landfill, and a cost for landfill avoidance assigned.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Many key performance indicators will be concerned with landfill diversion and value for money.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>This calculation allows both to be determined. It will also help evaluate which activities are providing the biggest impact.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tonnage data may not be available and cost data may be difficult to calculate.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Both direct and indirect [staff time] costs should be included.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleanliness and condition of the units</td>
<td>Routine inspection of the units to identify any damage to signage or whether the units are dirty making the signage illegible etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Monitoring levels of littering in and around the unit may also be an indication that the unit requires a higher level of servicing and maintenance.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>If the condition of the units is poor, contamination may be an increasing issue as users are not able to readily identify target materials and in some cases may be discouraged from using the RotG unit altogether.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>This information should be recorded, and an appropriate maintenance regime put in place to clean units regularly and to carry out essential maintenance.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cleaning and maintenance have an associated cost. Who will be providing this service? How frequently? How much will it cost?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 11: Monitoring and evaluation options for scheme usage (continued)
Table 11: Monitoring and evaluation options for scheme usage (continued)
Appendix 1: Glossary

A range of terminology is used by the different stakeholders involved in the collection and treatment of materials for recycling. The various terms used in this guide are defined in the table below.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contamination</td>
<td>Contamination is the term used to refer to an item of non-target material in a RotG container that accepts only specific types of material for recycling (e.g. food waste in a container provided for plastic bottles).</td>
</tr>
<tr>
<td>Landfill tax</td>
<td>This is a tax applied to waste materials going to landfill. It is a fiscal instrument used to make alternative forms of treatment such as recycling more economically appealing.</td>
</tr>
<tr>
<td>Materials recovery facility (MRF)</td>
<td>A sorting plant where mixed dry recyclables (typically paper, card, metals, mixed plastic bottles and sometimes glass) are separated into their individual material types and baled or loaded in bulk for further processing by specialist recyclers.</td>
</tr>
<tr>
<td>Recycling</td>
<td>Recycling is the collection or recovery of used materials from waste and their subsequent reprocessing into new products to prevent the discarding of potentially useful and valuable materials in order to reduce our reliance on the use of raw materials.</td>
</tr>
<tr>
<td>Reprocessors</td>
<td>Reprocessors convert the sorted materials that have been collected for recycling into a raw material that can be manufactured into a new product.</td>
</tr>
<tr>
<td>Residual waste</td>
<td>Residual waste is the component of the waste stream that is left when everything possible has been separated for recycling.</td>
</tr>
<tr>
<td>Reverse vending machine</td>
<td>A reverse vending machine is a device that accepts used (empty) packaging materials (usually drinks containers) and returns either money or points to the user (the reverse of the typical vending cycle where a machine sells items).</td>
</tr>
<tr>
<td>RotG unit and container</td>
<td>A RotG unit is the equivalent of an individual unit that may house more than one container within it. For example, there may be a container for paper, one for glass and one for cans.</td>
</tr>
<tr>
<td>RotG site</td>
<td>A site refers to a location where more than one recycling unit may be provided.</td>
</tr>
<tr>
<td>Transfer station</td>
<td>A transfer station is a location at which waste and recyclable material that has been collected from individual sites is deposited to be bulked and then transferred onwards for treatment such as reprocessing.</td>
</tr>
</tbody>
</table>

**ACORN**

In the UK the ACORN (A Classification of Residential Neighbourhoods) system has become the standard method for profiling the socio-economic characteristics of households. The system was designed by CACI to reflect purchasing patterns and uses census data to determine which of five categories (1 being the most affluent and 5 the least affluent) each household belongs to.

**Aperture**

An aperture is an opening, hole or gap through which material can be placed into a RotG unit. Apertures come in different shapes such as a long slit for paper or a round hole for cans and bottles.

**Baling material**

Baling is commonly used for recyclables. The baling of material involves compacting material into a bale using a mechanical device. A bale is a block of compressed material (similar to a straw bale) comprising plastic bottles or paper etc. for ease of transport.

**Bulking material**

Material is bulked for storage. For example, a site may have multiple RotG units, each unit is emptied and the sacks of material are stored together (bulked) in a large container. Bulking allows ease of transport over longer distances at lower cost.

**Collection service**

A collection service refers to the provision of the RotG units and the collection of material deposited (waste and/or recycling) for onward treatment.

**Collection system: commingled, dual stream or source-segregated**

A collection system refers to the way in which materials are collected for recycling in the RotG unit.

- **Commingled** – all materials for recycling are collected together as mixed recycling.
- **Dual stream** – materials are collected in two material streams, usually consisting of paper collected separately in one unit and glass, cans and plastics collected in another.
- **Source-segregated** – materials are segregated at the point of collection, so paper for example is collected separately to glass. A number of different RotG units may be provided for individual materials.

[16](http://www.caci.co.uk/acorn-classification.aspx)
<table>
<thead>
<tr>
<th>Waste composition analysis</th>
<th>The composition of waste refers to how much of each individual component material is included within the total waste stream.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste composition analysis</td>
<td>Waste composition analysis involves the sorting of waste material to understand their constituent parts (i.e. the individual material components or streams). It can involve the manual (hand) sorting of material from RotG units to identify the percentage mix of different materials and to understand the quantity of individual materials within the whole (e.g. plastic bottles account for X% of the waste stream by weight and cans account for X%).</td>
</tr>
<tr>
<td>Waste diversion</td>
<td>The act of moving materials up the value chain by diverting waste from landfill and into recovery, recycling or re-use.</td>
</tr>
</tbody>
</table>
Appendix 2: Containers Guide

There are a large number of considerations to take into account when planning the installation of RotG containers or the upgrade of existing facilities. The Containers Guide is a reference document to help you to identifying what these are for different RotG sectors and situations.

The container guide and database can be downloaded from [www.wrap.org.uk/rotgengland](http://www.wrap.org.uk/rotgengland).

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Bx45sp</th>
<th>Bx45scr</th>
<th>Bx45sep</th>
<th>Bx45sepss</th>
<th>Bx45sep2571</th>
<th>Bx45sep2572</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Synergy Recycling Unit - Bx45 200 RL</td>
<td>Bx45 SEPR6</td>
<td>Bx45 SEPR8-SS</td>
<td>Bx45 SEPR8 Recycling Centre</td>
<td>Bx45 2571 Recycling Unit</td>
<td>Bx45 2572 Derby Richmond Recycling UNITS</td>
</tr>
<tr>
<td>Main material type</td>
<td>MDPE</td>
<td>Metal</td>
<td>Stainless Steel</td>
<td>Steel</td>
<td>Metal</td>
<td>Metal</td>
</tr>
<tr>
<td>Containment method inside container</td>
<td>Galvanised liners</td>
<td>Galvanised or plastic liners</td>
<td>Galvanised or plastic liners</td>
<td>120, 140 or 240 wheelie bin</td>
<td>Galvanised liner</td>
<td>120, 240, 360, 660, 1100, 1280 wheelie bin</td>
</tr>
<tr>
<td>Colour</td>
<td>Black</td>
<td>Various</td>
<td>Various</td>
<td>Various</td>
<td>Various</td>
<td>Various</td>
</tr>
<tr>
<td>Colour of aperture/lid</td>
<td>WRAP compliant colour coded</td>
<td>WRAP compliant colour coded</td>
<td>WRAP compliant colour coded</td>
<td>WRAP compliant colour coded</td>
<td>WRAP compliant colour coded</td>
<td>WRAP compliant colour coded</td>
</tr>
<tr>
<td>Number of apertures</td>
<td>4</td>
<td>2.6</td>
<td>2.6</td>
<td>2.3 or 4</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Type of aperture</td>
<td>Lift lid</td>
<td>Lift lid</td>
<td>Lift lid</td>
<td>Lift lid</td>
<td>Lift lid</td>
<td>Slot</td>
</tr>
<tr>
<td>Slot</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small hole</td>
<td>Small hole</td>
<td></td>
<td></td>
<td></td>
<td>Small hole</td>
<td></td>
</tr>
<tr>
<td>Large hole</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Large hole</td>
<td></td>
</tr>
</tbody>
</table>
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