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IMPROVING UK WASTE MANAGEMENT PRACTICES

Standardised reporting framework

Introduction

Accuracy, consistency and transparency are the most important factors for effective reporting. The BBP Managing Agents Partnership's recent publication, Waste Not Want Not: A Managing Agent's Perspective on the challenges and opportunities of reporting waste management data, highlighted numerous shortcomings in the industry's approach to collecting and reporting waste management data.

A major challenge identified was a lack of standardisation and sophistication of industry benchmarking and reporting frameworks. This has resulted in the quality and integrity of waste data being comparatively poor in relation to other sustainability criteria, such as energy and carbon.

This lack of a standardised approach has resulted in waste management service providers typically using their own reporting templates with differing KPIs and reporting frequencies; as well as differing assumptions used to convert waste volumes into weight. These assumptions can vary significantly, and evidence is rarely provided to Managing Agents to explain how figures have been calculated.

Such factors challenge Managing Agent's abilities to report accurate, consistent and transparent waste performance to their clients. This is amplified when using multiple service providers, across multiple buildings, for multiple waste streams.

Consequently, improving the way in which waste data is collected and reported is not necessarily straightforward, and the attitude taken by the real estate industry is reflective of this. The issues are not new. In fact, many are long standing. But it has all too often been easier, for the industry as a whole, to blindly accept questionable data, over the more challenging option of improving data quality.

To tackle these issues head-on, the Managing Agents Partnership, together with the support of leading waste management service providers, has created the following suite of guidance notes to bring greater clarity and consistency to the commercial real estate industry:

1. **Reporting template:** encouraging standardisation in the way waste data is collected and reported by waste management service providers, and in turn how Managing Agents report to property owners.

2. **Volume to weight conversions:** providing a set of average weights for typical waste streams and waste receptacles, based on more than 500,000 collections of actual weights over the past five years. Allowing Managing Agents to specify the use of common factors to convert volumes to weights; as well as support the identification of irregularities in reporting.[1]

3. **Procurement specifications:** as a complimentary document, the Managing Agents Partnership have also published Improving Waste Management Practices: Procurement Specifications, providing guidance on the service provisions that can be incorporated into waste management contracts, which support improved management processes, reporting and performance.

These outputs have been developed by the industry for the industry to drive change in an area that has historically failed to receive the same level of attention as other environmental factors. They are fully endorsed and will be used by all members of the Managing Agents Partnership to support client reporting and their on-going waste management practices. Other organisations are strongly recommended to follow suit, providing a level of industry standardisation which is so clearly needed.

Reporting Template

The following template should be used when requesting reporting requirements of waste management service providers. It has been designed to capture the individual data points required per lift / visit, which can then be aggregated to produce detailed monthly or quarterly waste performance reporting. It should also be noted, that whilst the template allows for the use of estimated weights, strong preference should be given to the provision of actual measured weights, whether this is via on-site or on-board weighing equipment, or weighbridge data.

Category	KPI	Example response	Rationale
Property Details	Property Name / Reference	Property A	Allows for analysis by individual property or reference number.
	Property Address	123 Example Road	
	Property Type	Office Shopping Centre Retail / Leisure Park Industrial Park	Allows for analysis by individual property type within a portfolio.
Service Provider and Route	Property Owner	Property Owner Ltd.	Allows for end client reporting.
	Waste Broker Name	Waste Broker Ltd.	Allows for analysis by individual broker.
	Waste Carrier Name	Waste Carrier Ltd.	Allows for analysis by individual carrier.
	Waste Transfer Note Number		Allows for easy monitoring of legal compliance.
	First Line Destination Site (Primary Sorting Facility)	MRF Ltd.	Allows for analysis by primary sorting facility.
	First Line Destination Permit Number	AA1234AA/A001	Allows easy monitoring of legal compliance.
	End Destination Site	Paper Mill Ltd.	Allows for analysis by individual end destination site.
	End Destination Permit Number	AA1234AA/A001	Allows easy monitoring of legal compliance.
Waste Description	Waste data start date (i.e. the date that the data being provided starts at)	Day/Month/Year	This would ideally relate to a single lift / site visit, however, may also relate to a month or quarter.
	Waste data end date (i.e. the date that the data provided ends at)	Day/Month/Year	This would ideally relate to a single lift / site visit, however, may also relate to a month or quarter.
	Waste Stream	Residual waste Dry Mixed Recycling Recycling: Glass Recycling: Cardboard Recycling: Paper Recycling: Cans & Plastics Recycling: Electrical Recycling: Metals Re-use Oil Textiles Green waste Food waste Hazardous waste (solid) Hazardous waste (liquid) Other: please specify	Allows for analysis by individual waste stream across a portfolio.

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Category	KPI	Example response	Rationale
Waste Description	Waste Destination	Sent to dedicated recycling facility Sent to Off-site MRF Sent to anaerobic digester Sent for composting Sent for Incineration with energy recovery Sent for Incineration Sent to Landfill	Allows for analysis by the type of first line destination / primary sorting facility.
	Container Type	Wheelie bin Skip Compactor Baler	An understanding of the equipment present on site aids the identification of improvement opportunities.
	Container Size	120 litre wheelie bin 240 litre wheelie bin 660 litre wheelie bin 1,100 litre wheelie bin	Used in calculating estimated weights if actual weights are not measured by the waste management service provider.
	Average Weight Per Lift	(tonnes or kg)	To be used as a reference guide to either converting volume to weights or for comparison against actual weights. Internal assumptions could be used or the Volume to Weights Conversions (p6) as a starting point.
Waste Generation	No. of Lifts	Insert number	
	Estimated Weight	(tonnes or kg)	If actual weights are not being measured then multiply Average Weight Per Lift by No. of Lifts).
	Actual Measured Weight	(tonnes or kg)	This is the preferred method to collect and analyse waste performance.
Primary Sorting Facility Performance (if applicable)	% MRF Recycling	%	Based on the reported recycling rate of the primary sorting facility e.g. MRF (if applicable). This should ideally be monthly performance.
	% MRF to ERF	%	Based on the reported waste sent to energy recover rates of the primary sorting facility e.g. MRF (if applicable). This should ideally be monthly performance.
	% MRF to Landfill	%	Based on the reported waste sent to Landfill rates of the primary sorting facility e.g. MRF (if applicable). This should ideally be monthly performance.

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Category	KPI	Example response	Rationale
Final Waste Performance After Processing	Waste Recycled	(tonnes or kg)	Using the reported Primary Sorting Facility Performance Rates waste performance after processing can be calculated by multiplying performance rates by Actual or Estimated weights.
	Waste to ERF	(tonnes or kg)	Using the reported Primary Sorting Facility Performance Rates, waste performance after processing can be calculated by multiplying performance rates by Actual or Estimated weights.
	Waste to Landfill	(tonnes or kg)	Using the reported Primary Sorting Facility Performance Rates waste performance after processing can be calculated by multiplying performance rates by Actual or Estimated weights.
Performance as a %	Waste Recycled (%)	%	Overall performance of each waste stream can be presented by calculating 'Final Waste after Processing' as a proportion of total waste.
	Waste to ERF (%)	%	Overall performance of each waste stream can be presented by calculating 'Final Waste after Processing' as a proportion of total waste.
	Waste to Landfill (%)	%	Overall performance of each waste stream can be presented by calculating 'Final Waste after Processing' as a proportion of total waste.
Cost	Lift Cost	Cost of the collection (£)	Provides opportunities to breakdown performance by cost and identify improvement opportunities.
Data Quality	Estimated / Actual Flag	Estimate / Actual	Provides opportunities to breakdown performance by cost and identify improvement opportunities. By flagging each lift as either 'Estimated' or 'Actual' allows for the analysis of the proportion of waste across a portfolio and/or over time which is either known to be based on actual weights or estimated, providing a level of certainty of data accuracy.
	Ratio of Actual vs Average	%	A useful data quality indicator to identify potential waste management issues is to present the actual measured weight as a percentage of estimated weight for that waste stream and receptacle size.
	Contaminated load flag	Yes / No	By flagging each lift as either contaminated or not i.e. 'Yes' or 'No', it allows for the analysis of the proportion of waste which is contaminated at a property and portfolio level.
Comments	Notes	A note relating to a contaminated load.	Any additional notes the service provider may wish the Managing Agent to be aware of.

Volume to weight conversions

Volumes	Cardboard		Glass		Paper		Food		DMR		Residual Waste	
	Office	Shopping Centre & Retail Park	Office	Shopping Centre & Retail Park	Office	Shopping Centre & Retail Park	Office	Shopping Centre & Retail Park	Office	Shopping Centre & Retail Park	Office	Shopping Centre & Retail Park
Receptacle Size	**Weights**											
1,100 litre bins	40kg		NA[2]		110kg (+40)[2]		NA[2]		45kg (±5)		65kg (±5)	70kg
660 litre bins	25kg		180kg		100kg	75kg	-		30kg	35kg	40kg	45kg
240 litres wheelie bins	NA[1]		80kg (±10) 100kg (crushed glass)		40kg (±10)	30kg (±10)	100kg (±20)	90kg (±10)	12kg (±3)	15kg (±10)	18kg	25kg (+10)
120 litres wheelie bins	NA[1]		40kg (±10)		18kg (±7)	13kg (±3)	55kg (±15)	48kg (±2)	8kg (±2)[4]		9kg (±1)	
Waste bag	4kg (±1)		NA[2]		7kg (±3)	9kg (±1)	9kg (±1)[3]		4kg (±1)		5kg	
Portable Compactors[5]	**Weights**											
14 yards	2 tonnes		-		-	-	5 tonnes[6]		2.5 tonnes		4.5 tonnes	
35 yards	4.5 tonnes		-		-	-	12 tonnes[6]		5 tonnes		11 tonnes	
Balers	**Weights**											
Small	20kg											
Medium	120kg											
Large	350kg											

Please Note:
1 Not considered efficient as cardboard boxes are larger than the aperture of the bin.
2 Receptacle size not recommended due to health & safety risks and exceeding Safe Working Load.
3 Commonly used within the industry; however, susceptible to breakage and leakage.
4 Receptacle size not considered cost-effective for DMR due to the small capacity and therefore not recommended.
5 Weights provided are for portable compactors. Static compactors may result in an approximate 10% increase in weights due to their greater power output.
6 Portable compactors are recommended over static machines for food waste due to the later having increased risk of liquid leakage.

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Caveats

Whilst the table above provides a useful reference guide for expected weights for differing waste streams and property types, in practice, weights may vary for various reasons. To support Managing Agents in their understanding, some of these issues are listed below.

CARDBOARD

- The weights quoted above are based on flat packed cardboard. Weights can be significantly less if cardboard is not flat packed.
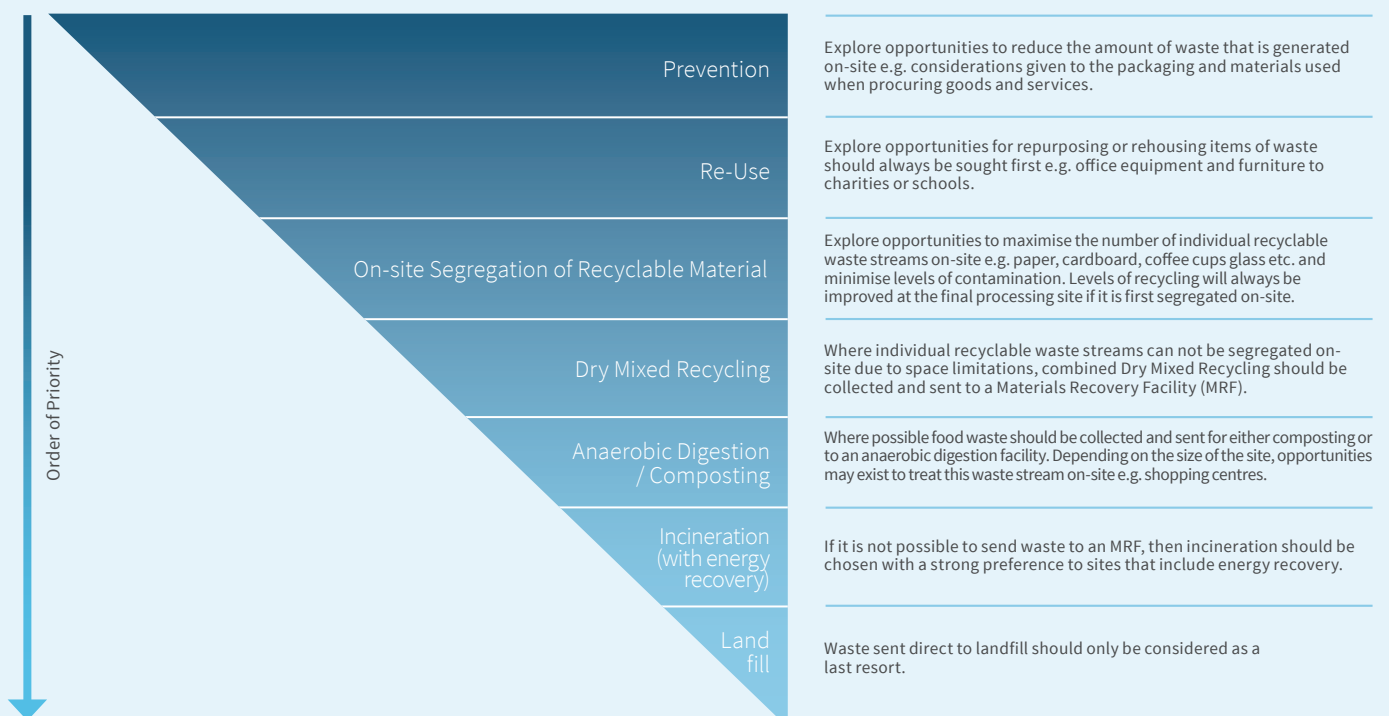
GLASS

- Weights associated with glass will vary significantly depending on whether the glass is crushed or not.

Weight vs volume

Whilst this document provides assumptions to convert waste volumes to weight based on industry averages, it is stressed that the use of actual weights should always be preferable. Dynamic weighing is a service provided by most reputable service providers, in particular, for residual waste and Dry Mixed Recycling. Managing Agents and property owners are encouraged to request for this as part of their procurement specifications. See Improving UK Waste Management Practices: Procurement Specifications for more information.

- There are significant manual handling risks with crushed glass and it is very easy to end up with bins over their Safe Working Load. It is therefore recommended that crushed glass is only collected in a 120l bin or smaller.

WASTE MANAGEMENT ORDER OF PRIORITY

Order of Priority

Prevention	Explore opportunities to reduce the amount of waste that is generated on-site e.g. considerations given to the packaging and materials used when procuring goods and services.
Re-Use	Explore opportunities for repurposing or rehousing items of waste should always be sought first e.g. office equipment and furniture to charities or schools.
On-site Segregation of Recyclable Material	Explore opportunities to maximise the number of individual recyclable waste streams on-site e.g. paper, cardboard, coffee cups glass etc. and minimise levels of contamination. Levels of recycling will always be improved at the final processing site if it is first segregated on-site.
Dry Mixed Recycling	Where individual recyclable waste streams can not be segregated on-site due to space limitations, combined Dry Mixed Recycling should be collected and sent to a Materials Recovery Facility (MRF).
Anaerobic Digestion / Composting	Where possible food waste should be collected and sent for either composting or to an anaerobic digestion facility. Depending on the size of the site, opportunities may exist to treat this waste stream on-site e.g. shopping centres.
Incineration (with energy recovery)	If it is not possible to send waste to an MRF, then incineration should be chosen with a strong preference to sites that include energy recovery.
Land fill	Waste sent direct to landfill should only be considered as a last resort.

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PAPER

- Weight is dependent on the type, quality and how it is bound. e.g. magazines and office paper are heavier in comparison to newspapers.

- Shredded paper will typically be light in nature. However, sites shredding to a very high security standard can end up with dense material leading to higher weights by volume.

FOOD

- Weights of food bins will vary depending on whether the food is packaged. Packaged food is much lighter than unpackaged. This can make disposing of food waste more expensive if disposal costs are not directly linked to weight.

- It should be noted that compostable packaging can often not be sorted at end treatment facilities, and therefore does not end up being composted. This is due to the difficulty in distinguishing between compostable and non-compostable packaging.

DRY MIXED RECYCLING (DMR)

- Weights can alter significantly depending on material and composition of the mix. DMR should only include paper, cardboard, cans and plastic bottles. Anything in addition to the listed items may result in the waste being rejected. It is to be noted that glass should be excluded from this mix as best practice. This is to improve the recycling rates of both glass and paper at down-stream recycling facilities.

- Overweight DMR bins can often indicate contamination, normally by wet food. Organisations are encouraged to closely track this to avoid waste being rejected and costing more for disposal by being sent to landfill.

RESIDUAL WASTE

- Weights can alter significantly depending on material and composition of the mix. Heavy bins normally indicate that food and glass are present and missed recycling opportunities exist.

Validating your waste data

In addition to using the volume to weight conversions, the following rules of thumb can be used as a simple sense check to identify potential irregularities.

- Cardboard would typically be lighter than DMR

- Paper would typically be heavier than DMR (approx. 2-3 times)

- DMR would typically be significantly lighter than residual waste

- Food waste would typically be heavier than general waste

- Food waste and glass would typically be the heaviest waste streams.

If site performance does not follow these rules of thumb, and there is no clear explanation why this may be the case, a site audit is recommended to ascertain the reasoning.

COMPACTOR

- Compactor weights are heavily reliant on a number of issues such as the upkeep and age of the machines (i.e. newer and well-maintained equipment will perform better than old ones) and the waste composition (i.e. if food is free of packaging or packaged). However, the waste service provider and treatment facility are most often able to provide accurate weight information.

- Portable compactors are recommended over static machines for food waste due to the latter having a separate bin, which can increase the instances of food waste liquid leakage at sites or during transport.

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1 It should be noted that as these assumptions are based on 'real-life' data, the figures are typically lower in comparison to theoretical maximums, which are publicly available via other industry sources. For example, in comparison to EDOC, which is an online waste records management system administrated by DEFRA that provides a set of volume to weight assumptions based on theoretical optimum weights for various container types.

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