This publication updates the 2009 guide and pulls together the findings from more recent studies and pilots conducted by WRAP and others. Through the various sections, this guide is designed to support local authorities by detailing good practice and evidence which can help inform the design and delivery of high capture, cost-effective food waste collections.

Section 5: Food waste collection vehicles

The choice of collection vehicles and how they are operated by crews is critical in developing efficient and cost-effective food waste collection services. This section describes the types of vehicles used for the collection of household food waste and the most important operational factors associated with them. It is not the objective of this section to endorse a particular vehicle or manufacturer but to highlight some key thinking and feedback from operations to date.

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5.1 Key factors in choice of vehicles

Decisions on the choice of vehicle will depend on a number of factors including:

- whether food waste is to be collected separately or mixed with garden waste;
- nature of existing dry recyclables and refuse collection systems and vehicle fleet;
- vehicle options available at the time of procurement
- geography of area;
- demographic characteristics;
- property types;
- health and safety considerations; and
- cost.

5.1.1 Factors relevant to both separate food waste and mixed food and garden waste collections

- **Avoiding leakage.** To comply with the Animal By-Products Regulations (ABPR), collection vehicles need to be leak proof and have apertures that close when not being loaded. Leakage will be less of an issue if households use liners, as the food and liquids tend to be held securely.

- **Unloading.** Unloading must comply with ABPR requirements. Vehicudes must tip into a secure area either at the treatment facility or an intermediate bulking point. It is vital that the choice of vehicle is compatible with tipping/ bulking arrangements (e.g. tipping height if tipping into a bulking skip). Advice on the bulking and onward transfer of food waste is given in Section 7.

- **Vehicle cab requirements.** The vehicle should have sufficient space for seats for extra crew and cleaning materials. Somewhere to store liners and leaflets, and somewhere to clean hands is also needed.

Full details of the requirements of the ABPR in relation to the bulking and haulage of food waste are given in Appendix D.

Your local authority’s trading standards/ environmental health department may act as the local enforcement agency for ABPR and so is an important stakeholder to consult when planning your food waste collection scheme.

5.1.2 Factors relevant to the separate collection of food waste:

**Capacity**

The capacity of the vehicle needs to be appropriate to the tonnage and volume collected. The vehicle should have sufficient capacity to contain the amount of waste presented daily.

Ideally food waste should be collected in one load to minimise downtime depending on the shift patterns employed. As an indicative guide, a separate food waste collection vehicle with a typical payload of 2.5 tonnes is unlikely to require more than one tip per
day in an urban setting, with a driver plus one loader working a standard 7.5 hour shift (see Section 9). Vehicles may need extra capacity if they cover schools or businesses, and to allow for changes in household participation.

Weight should be monitored to avoid overloading. It is not necessary to worry about volume, as food waste is dense and has a high weight to volume ratio of 550–600kg/m³.

**Loading**

Multiple loading points are important to avoid concentrating weight over one axel or on one side of the vehicle and creating imbalance. An even distribution of weight over the body of the vehicle can be attained by careful manual loading or by using rear-loading vehicles fitted with ‘sweeping plates’ which are designed to fully utilise the capacity of the vehicle body.

Loading times can be maximised if the vehicle can be loaded simultaneously with a bin lift for wheeled bins and manually by crew members. For manual loading, it is necessary to ensure that the loading height is low enough to ensure safe manual handling.

Having a number of low level, easy access loading points enables crews to achieve a high pick rate, particularly as it avoids the need to queue to unload.

For co-collection, vehicle loading points for food waste adjacent to those for the core materials increases the loading rate. Where loading points for food waste and core materials are at opposite ends of the vehicle, especially when they need to be on the driver's offside, it takes more time to walk around vehicle for each empty.

**Compaction**

There are limited benefits to using compaction when food waste is collected separately. Food waste is dense and does not compact well. Compaction will also squeeze water from the food leading to the risk of leachate being produced. It is therefore important to ensure compaction can be turned off manually on any vehicle bought or leased.

### 5.2 Main types of vehicles used for collection of household food waste

A number of specialised collection vehicles are available which have been designed for the collection of food waste. These include vehicles for the collection of food waste only and vehicles which accommodate the collection of food waste alongside other materials or residual waste. For example, small collection vehicles with a gross vehicle weight (GVW) of 7.5 tonnes with a 2.5–3 tonne payload have proved highly effective in a UK setting for collecting food waste. In addition, ABPR compliant refuse collection vehicles (RCVs) can be used for the collection of mixed food and garden waste.
Vehicle choice will depend on local circumstances and the current fleet. Councils are recommended to:

- seek feedback from other councils with experience of using these different vehicles; and
- road test possible vehicles before decisions are made.

It is essential that vehicles, whether procured directly by the council or by its contractors, are seen in operation prior to purchase to ensure all parties are comfortable with the selection.

### 5.2.1 Food waste only collection vehicles

At the time of writing, these specialised, separate food waste collection vehicles cost in the region of £60,000 to purchase. They have lower running costs than traditional RCVs, which can help to reduce ongoing revenue costs.

Along with fuel costs, local authorities need to consider the potential costs associated with increasing vehicle fleet sizes and the associated overheads, insurance, tax, maintenance and other related charges. See Section 9 for details of the operational aspects affecting food waste collection costs and approaches to reducing these costs.

Vehicles have varying running costs according to their size, complexity and how they are utilised within the collection rounds. Smaller 7.5 tonne GVW collection vehicles have better fuel economies (12–15 miles per gallon, mpg) than larger 24–26 tonne RCVs (3–6mpg).

The vehicles illustrated in Figure 5.1 are fitted with tipping bodies which enable them to discharge food waste either direct at a food waste treatment facility or into a bulking skip. Section 7 provides details of the specific requirements for food waste bulking and haulage.

**Figure 5.1 Examples of 7.5 tonne dedicated food waste collection vehicles**
5.2.2 Co-collection vehicles

Food waste can be co-collected alongside multi-stream dry recyclables on the new generation of resource recovery vehicles (Figure 5.2), reducing the number of vehicles required for collections and improving efficiency. Depending on the make and model, the capital cost of these vehicles varies from between £85,000 and £115,000.

Figure 5.2 Examples of resource recovery vehicles for the co-collection of food waste and dry recyclables

Resource recovery vehicles use stillages for the storage of food waste and require the use of a forklift to discharge the food waste collected (see Figure 5.3). Typically, these stillages have a capacity of 2.3–2.8m³, enabling them to store about 1 tonne of food waste prior to emptying.
Food waste can also be co-collected alongside refuse, single-stream mixed dry recyclables or garden waste using either ABPR compliant split-bodied RCVs or in specially designed food waste ‘pods’ fitted to RCVs (see Figure 5.4). Co-collecting food waste with other materials using split-body vehicles or pods can be another way of reducing the number of vehicles required for collections. However, the associated reductions in vehicle capacity or payload and the relative locations of tipping and bulking sites for the materials collected are important factors to consider. The capital cost of these RCVs will depend on their size and specification. As an indication, a 26-tonne RCV fitted with a pod can cost in the region of £180,000.
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