Appendix A: Pros and Cons of Co-mingled and Source Separated Recyclables.

There are three potential systems for collecting dry recyclables, outlined below, and the factors that need to be considered are quality, cost, suitability and public acceptability.

1. **Kerbside sort** – involves the sorting of materials at kerbside into different compartments of a specialist collection vehicle, often uses separate containers (boxes) for the residents to sort materials into.

2. **Single stream co-mingled** – involves the collection of materials in a single compartment vehicle with the sorting of these materials occurring at a MRF (Materials Recovery Facility), often uses a single container such as a wheelie bin or sack.

3. **Two stream co-mingled** – residents are provided with two recycling containers and are asked to place different materials in each container, typically paper/card (fibre) in one and plastics, glass and cans (containers) in the other. These materials are kept separate but can be collected on one vehicle which has two chambers.

We currently operate a mixture between the first and third method, although we only collect plastic bottles from a small number of properties as part of a pilot and ask them to use separate boxes for glass and plastic/cans.

Table 1 below outlines the various pros and cons of each of the three potential collection systems. It is worth noting that the report '*Cost and Perfomance Comparison – Comingled Versus Kerbside Sort Collection Systems*' carried out by Eunomia consultancy on behalf of the Buckinghamshire Waste Partnership recommended source separated recycling as potentially the best option in terms of cost and performance.

Table 1. Kerbside Collection Systems Pros and Cons

	Pro's	Con's
Source Separated	• Lower sorting costs • Higher quality material • Higher income for material • Lower overall net cost • Lower reject rates • Containers more flexible to suite housing type	• Higher collection costs • Lower amount of materials collected per household • More sorting required by householder • More recycling receptacles
Co-mingled / Single Stream	• Lower collection costs • Less sorting for householders • Higher amount of recycling collected per household	• Higher sorting costs • Higher reject rates • Lower quality materials • Lower income for materials • Higher overall net cost • Materials often exported from UK • Additional communication costs • Alternative containers to wheelie bins required depending on housing type
Two Stream Co-mingled	• Higher quality of fibres (paper/card) • Higher income for materials • Less sorting for householders compared to kerbside sort	• More sorting compared to co-mingled • Additional communications • More recycling receptacles

	• Reduces sorting costs from co-mingled • Reduces collection costs from kerbside sort • Lower overall net cost than co-mingled	

The following factors should be considered when deciding on which collection system to use:

- **Quality of material**. Recycling reduces the use of energy and virgin materials in production. The greatest benefit is achieved through 'closed loop' recycling where the materials are put back into the same or equivalent application as a substitute for virgin materials i.e. paper to paper, plastic bottles to plastic bottles, glass jars to glass jars. Sorting materials at kerbside reduces contamination and keeps quality high.

  Lower quality materials are used for lower value 'open loop' applications for example glass bottles and jars to aggregate or water filtration. These can have very little environment, resource or financial benefit. Co-mingled materials face quality issues from householder contamination and from compaction binding materials together.

  The higher the quality the higher the value of the material and price per tonne that can be achieved.

- **Cost efficiency and effectiveness.** Collection options should be compared on the full cost of the service, including gate fees and sorting costs as well as collection costs.

  Co-mingled collections can increase the amount of materials collected per household, however there is often higher reject rates from co-mingled collections.

  Keeping fibres separate through two-stream comingled ensures the quality of the material, ensuring higher income can be earned.

  The size of the container can influence how much material is collected, co-mingled often offer larger containers (240L bins) than kerbside sort (44L boxes).

- **Public acceptability**. It is essential for householders to be engaged with their recycling scheme, some level of separation is always required so schemes should be properly communicated. As kerbside sort can remove contamination a higher level communication campaign may be required to reduce contamination in co-mingled collections.

  Householders like to know where the recycling goes as an assurance that recycling is happening, contracts for sorting co-mingled collections can give the MRF authority on what happens to the materials so it is important to keep updated on the current markets used for materials. Due to the low quality of comingle materials these are often exported out of the UK.

- **Suitability.** Collection systems should fit the needs of the local population demographic and housing type as these can create potential barriers to the scheme in terms off communication, container type, collection points etc.