Cheshire East Council

Municipal Waste Management Strategy 2030

Draft

AMEC Environment & Infrastructure UK Limited

September 2014

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Report for

Andrew Dunstone
Cheshire East Council
Pym's Lane Depot
Crewe
Cheshire

Main Contributors

Phil Scott,
Paul Morgan,
Kathy Stevenson
Daniel Pawson

Issued by

.....
Daniel Pawson

Approved by

.....
Phil Scott

AMEC Environment & Infrastructure UK Limited

Windsor House, Gadbrook Business Centre, Northwich, Cheshire, United Kingdom. CW9 7TN
Tel +44 (0) 1606 354800
Fax +44 (0) 1606 354810

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Executive Summary

Purpose of this Report

This document sets out the draft Municipal Waste Management Strategy for Cheshire East Council (the Council). It establishes key aims and objectives for the future management of municipal waste within East Cheshire and identifies important steps that will be undertaken to deliver these aims and objectives. These actions will be targeted to improve the sustainability of waste management practices, make increased use of waste as a resource and ensure legislative compliance moving forward.

Overview

In 2013/14 the Council managed 179,646 tonnes of municipal waste – just over half of this (53%) was recycled, composted or re-used; 6% was used to generate electricity and the remaining 41% was landfilled. The Council is one of the highest performing recycling authorities in North West England.

However the Council recognise that there are strong drivers to change and increasing pressure to minimise the overall amount of waste produced and to be more responsible in the way that the waste that is produced is then managed. For England, waste management targets and requirements are passed down from the European Union and these are transposed in to national law, policies and strategies which impact on the Council's management of waste moving forward. This draft Municipal Waste Management Strategy identifies these key drivers and examines the options through which the Council can not only comply with their requirements, but can also increase the use of waste as a resource to benefit the residents and economy of Cheshire East.

The future collection, treatment and disposal of waste in Cheshire East will be underpinned by a number of high level strategic objectives that have been established by the Council. These were agreed by Cabinet in the spring of 2014 and residents, businesses and other interested parties have had the opportunity to comment upon them as part of a consultation exercise (the results of this which are summarised within this draft Municipal Waste Management Strategy).

These 19 Objectives fall into five themed categories:

- Service delivery;
- Waste reduction and re-use;
- Recycling;
- Residual waste management; and
- Working together.

Long and short listed options for waste management service change and improvement have been systematically appraised to develop options that the Council will seek to develop and deliver during the implementation of the draft Municipal Waste Management Strategy. These options cover a variety of service areas ranging from bring bank provision through to the treatment of the residual waste that remains after recycling. These options collectively contribute to:

- Waste prevention and reduction;
- Increased reuse and recycling;
- The recovery of energy from residual waste (and its potential use locally in Cheshire East);
- Substantially reduced dependence on increasingly expensive and unsustainable landfill;
- The support of local third sector organisations in Cheshire East;
- Protection of the environment; and
- The improved efficiency of waste services delivered by the Council and its wholly owned company Ansa.

The options analysis has also facilitated the development of a reference project that shows that the aspirations and aims encompassed within the Council's waste management objectives can be attained and approximate costs associated with key elements of delivery.

Reference project

The reference project comprises the waste management options that have been assessed as having the most potential for delivering the Council's high level strategy objectives, and which are likely to be successful in the unique setting of Cheshire East. The purposes of developing a reference project can be two-fold:

To show that the Council's objectives can be delivered by a particular solution and the estimated cost of doing so (demonstrating that the objectives are attainable and so that the affordability of their delivery can be assessed), without constraining any future procurement options (i.e. the Council can go to the market on a technology neutral basis). Most commonly the lowest cost option that meets the Council's objectives is selected for this purpose.

Alternatively, the reference project can be used to define the solution that best fits the Council's objectives and affordability criteria and set out clearly that this is what the Council intends to deliver (i.e. that the Council will go to market for a specific technology/solution). This may not be the lowest cost option and can include specific criteria with particular local significance (e.g. political commitment, site constraints).

The reference project developed as part of this draft Municipal Waste Management Strategy is a hybrid of these two alternatives and identifies some options that the Council intends to pursue subject to more detailed work (e.g.

the delivery of a Dry anaerobic digestion facility) and elements where it will remain neutral prior to engagement with the market (e.g. the delivery of an energy from waste residual solution).

In summary the reference project comprises the following:

- Prevent and Reduce — Undertake waste education and awareness programmes and support activities that prevent waste being produced;
- Reuse — Support and engage third sector organisations in reusing waste that would otherwise be disposed of or treated as residual waste;
- Organic waste — Dry AD – supported by the collection of mixed garden and food waste;
- Bring sites — Alignment of materials collected with kerbside collection system supported by rationalisation of bring bank provision and reduction in number of bring sites – estimated cost saving;
- Commercial waste — Introduce charged collections for co-mingled recyclable waste and residual waste from the commercial sector – potential income;
- Litter bin waste — Provide separate bins for recyclables & litter (recycling on the go), and integrate bin management with existing collection system – low cost;
- Residual waste — Build waste transfer stations and send residual waste to a merchant EfW facility; and
- Mechanical St. sweepings — Promote re-use and recycling – low cost.

Key Recommendations and Actions

- That the Council undertake a review of bring bank usage and costs prior to renewal of service contract/s;
- The management of bulky waste (collection and re-use / recycling) should be subject to dialogue and optioneering with potential Third Sector partners;
- That the Council undertake an efficiency review of the HWRC network;
- That a market study/ potential customer survey is undertaken prior to introducing a collection service for commercial waste;
- Preparation of a business case for the treatment of co-mingled organic waste using Dry AD to support future procurement of treatment solution;
- Recommend use of Competitive Dialogue procurement process for securing the Dry AD facility to enable detailed dialogue on risk and time for site related work;

- Undertaking an optioneering study prior to commencing replacement of existing Litter Bins with recycling bins, and the integration of bin emptying with the recyclable collection system;

- Prior to replacing the service contract for the recycling of Mechanical Street Sweepings, to undertake an appropriate due diligence for the contract;

- That service contracts for the recycling of Mechanical Street Sweepings are relatively short term with the provision for extension (to reduce risk exposure); and

- Preparation of a business case for residual waste treatment options and the provision of waste transfer capacity prior to procurement of a solution for residual waste management.

Contents

1. Cheshire East's Current Waste Management Arrangements

1.1 Introduction

This document sets out the draft Municipal Waste Management Strategy for Cheshire East Council (the Council). It establishes key aims and objectives for the future management of municipal waste within East Cheshire and identifies important steps that will be undertaken to deliver these aims and objectives. These actions will be targeted to improve the sustainability of waste management practices, make increased use of waste as a resource and ensure legislative compliance moving forward.

As a unitary Authority the Council is the statutory Waste Collection Authority (WCA), Waste Disposal Authority (WDA) and Principal Litter Authority for Cheshire East. The Council provides a range of services for the collection of municipal waste and litter. These include;

- Kerbside collections – non-recyclable waste, recycling, garden waste and bulky waste (including electrical items);
- Household waste recycling centres (HWRCs);
- Bring banks;
- Litter and dog waste bins;
- Litter picking;
- Street and road sweeping; and
- Clearing of fly tipped waste.

The Council also generates waste from some of its other activities such as maintaining parks and open spaces.

This section outlines how the Council currently manages the municipal waste it collects providing an overview of performance since the Council's creation in 2009.

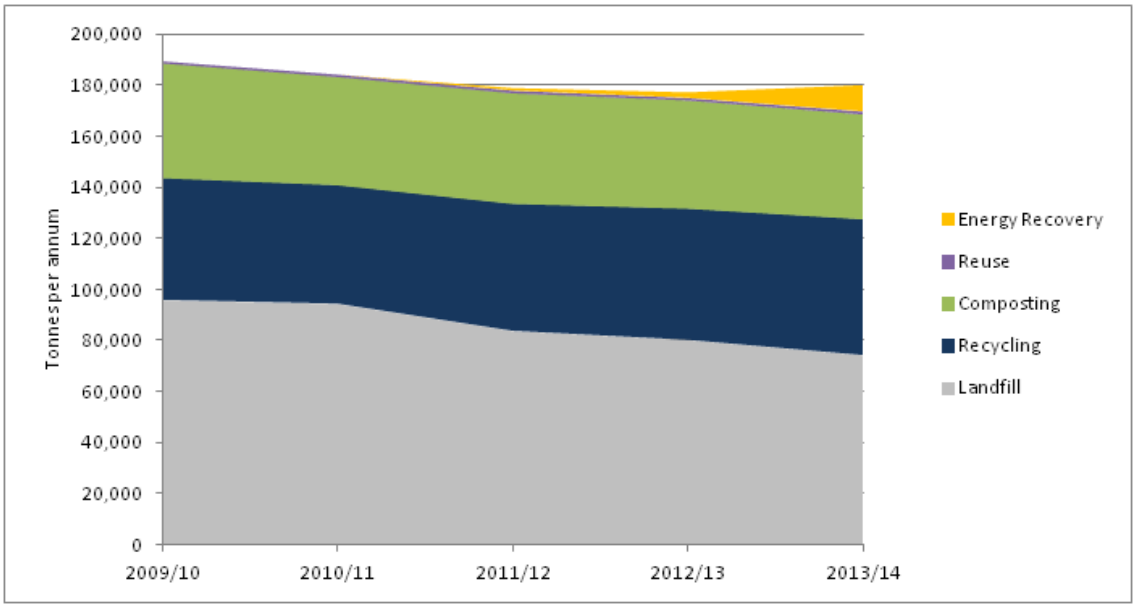
During the life of this Municipal Waste Management Strategy arrangements are likely to change – for example, contracts for management of recyclable materials or treatment of residual waste will be re-tendered. In some cases the Council may consider it appropriate to manage some elements of service delivery (e.g. waste transfer) directly through its arms length company, Ansa Environmental Services Ltd, (Ansa) which was established in 2014.

1.2 How much waste does Cheshire East Council manage?

In 2013/14 the Council was responsible for the management of 179,646 tonnes of municipal waste – just over half of this (53%) was recycled, composted or re-used; 6% was used to generate electricity and the remaining 41% was landfilled. The Council is one of the highest performing recycling authorities in North West England.

Figure 1.1 below shows how the quantities of waste managed by the Council has changed since 2009.

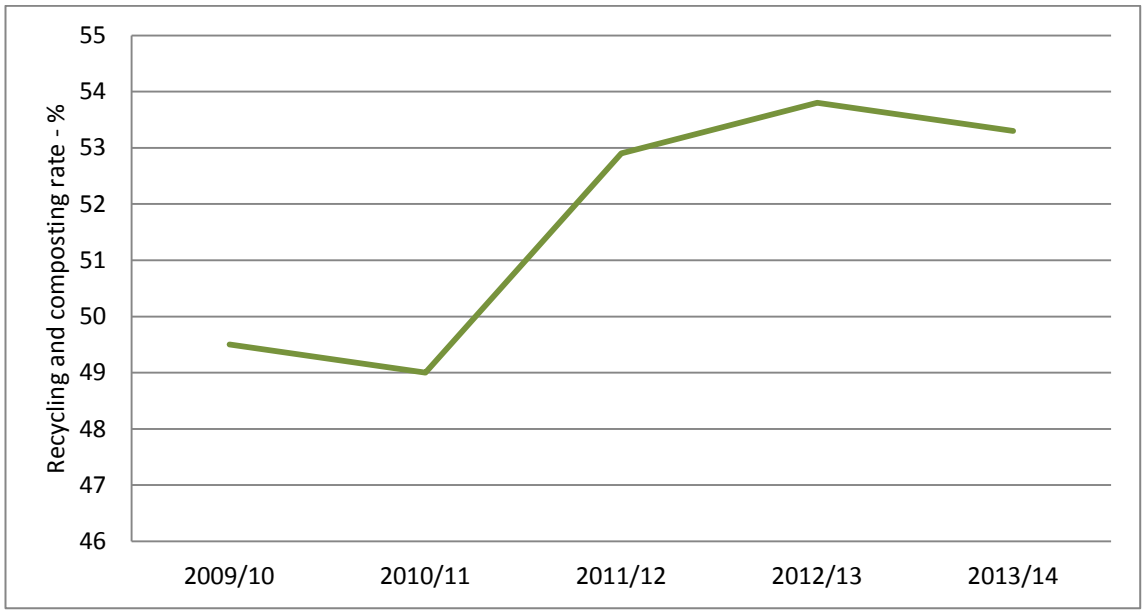
Figure 1.1 Management of waste by Cheshire East Council 2009 to 2014



The amount of waste the Council manages has reduced by 5% since 2009/10. During this period the amount of waste landfilled has gone down by 12.5% while recycling, composting and re-use has increased 4% (from a high baseline). Since 2013 a portion of the residual waste collected by the Council has been sent to an energy from waste plant in Stoke and used to generate electricity – in 2013/14 this quantity exceeded 10,000 tonnes.

Figure 1.2 below shows how the proportion of household waste that is recycled and composted has grown since the formation of Cheshire East Council.

Figure 1.2 Cheshire East's recycling and composting performance since 2009/10



1.2.1 Summary of current services

Collections of household waste from the kerbside

Figure 1.3 summarises how the majority of properties in Cheshire East have their household waste collected. This system was introduced in 2011 and replaced three different collection methods formerly used within East Cheshire prior to the formation of the Council.

Figure 1.3 Collection of kerbside household waste in Cheshire East

This service collects over three quarters of the household waste generated by the Borough's residents. It is an "easy-to-use system" that provides householders with the facilities to recycle and compost a wide range of materials.

Household Waste Recycling Centres (HWRCs)

The Council provides a number of HWRCs across Cheshire East at which the residents of Cheshire East can deposit household waste free of charge. Details of where these HWRC's are located can be found on the Council website. These sites are for household waste only so cannot accept any waste from commercial or industrial activities.

The HWRCs provide points for the collection of a wide range of wastes including:

- Readily recyclable materials such paper, glass, textiles/clothing/shoes, cans, plastic bottles, scrap metal;
- Less commonly recyclable wastes such as engine oil and vegetable/cooking oil, batteries - both car and household batteries, wood,
- Electrical items and domestic appliance which can be re-used or recycled;
- Garden waste for composting;
- Rubble from small DIY projects;

- Fluorescent tubes and energy saving bulbs that require specialist treatment; and
- Bric-a-brac (general reusable items).

Just under 20% of the Borough's household waste is taken to these sites and the vast majority of that is recycled or composted.

Bring sites

Before the introduction of comprehensive kerbside recycling, bring banks were the main way residents could recycle, often located at supermarkets and public houses and on car parks. However, as kerbside recycling has increased bring bank usage has dropped significantly. As a result, the Council has rationalised the number of sites and the range of materials collected so as not to duplicate the kerbside service.

Bring banks are still used but for a different range of materials. For example there are now banks for other types of waste such as small WEEE, books, bric-a-brac and textiles.

Street cleansing

Maintaining the quality of Cheshire East's local environment through litter picking, sweeping streets and roads, emptying litter bins etc. is a high profile and vital service. Around 10,000 tonnes of waste is generated by this work and is often contaminated and therefore difficult to recycle easily.

A significant proportion of street cleansing waste is silt from sweeping roads (made up of small stones and gravels, smaller items of litter, debris from accidents etc.). The Council is recycling the silt to make materials for land restoration and aggregate. Such approaches reduce the cost of landfill disposal and create beneficial products and reduce waste management costs.

1.2.2 Where does the waste go?

Cheshire East's waste is sent to a number of destinations for re-use, recycling, composting, treatment and disposal. As the market changes, destinations will change but currently some of our waste is managed in the Borough (such as landfilling and composting) or in neighbouring areas (for example in Stoke or North Wales). Cheshire East Council will send waste where it is the most environmentally, and economically most appropriate to do so.

1.2.3 How does the Council deliver its waste services?

In 2014 CEC created a new, wholly owned, arms length company to provide its waste management and environmental services. Ansa Environmental Services Ltd, (Ansa) provides all the Council's household waste collection, street cleansing, grounds maintenance and fleet management services as well as managing related contracts such as for the bulking, transportation and sorting of mixed recycling, the composting of garden waste and disposal of residual waste.

Ansa operates from two main depots (with a small number of satellite sites) – one in the northern operational area in Macclesfield and the other in Crewe in the south. The Macclesfield depot is used for the parking of refuse collection vehicles, whereas the southern site is also used for bulking up the recyclables collected from the silver bin scheme as well as providing a base for street cleaning and grounds maintenance.

During the life of this Municipal Waste Management Strategy 2030 the depot arrangements may change to fit the needs of the Council, the service and residents.

2. Waste management drivers

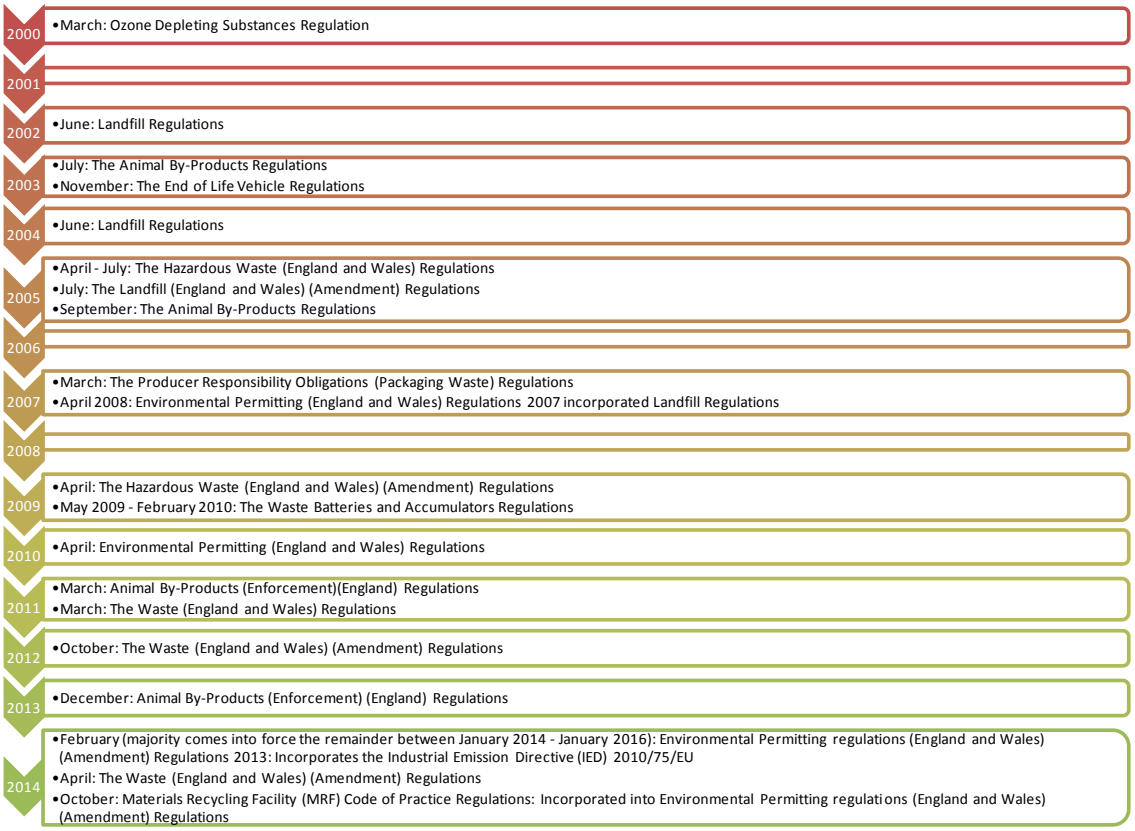
2.1 Legislation and policy

2.1.1 National context

There is increasing pressure to minimise the overall amount of waste produced and to be more responsible in the way that the waste that is produced is then managed. For England, targets and requirements are passed down from the European Union and these are transposed in to national law, policies and strategies.

These laws and policies shape waste management in England and define what the Council needs to consider as part of the Draft Municipal Waste Management Strategy and what to address when procuring any new waste management contract. There is an array of waste management policies, legislation and guidance that must be adhered to by the Council, Ansa and its contractors. It is not appropriate to address all of the UK's waste management policies, legislation and guidance in this document, but the particular instruments that help shape the Municipal Waste Management strategy are summarised in Appendix A, with the most recent summarised below. Figure 2.1 shows the timeline of some of the key legislation that contribute to the development of the waste strategy.

Figure 2.1 Key Legislation to consider in the development of the waste strategy

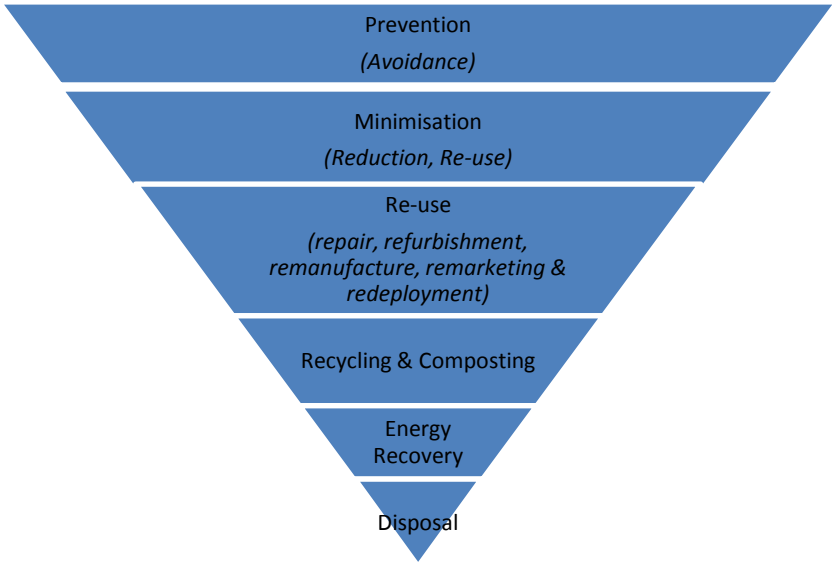


The Waste (England and Wales) Regulations 2011 and The Waste (England and Wales) (Amendment) Regulations 2012

The revised Waste Framework Directive 2008 (rWFD) is the key directive affecting waste management to come out of Europe in recent years. Originally passed in 2006 and revised in 2008 it provides an overarching legislative framework for the management of waste across Europe. At a national level this has been transposed as the Waste (England and Wales) Regulations 2011 and includes the following key drivers for local authorities:

1. An emphasis on following the waste hierarchy (Figure 2.2) for all decisions on waste policy, infrastructure and management. This is a key waste management principle to encourage sustainable waste management. Under the regulations, departures from the hierarchy are allowed *'so as to achieve the best overall environmental outcome where this is justified by life-cycle thinking on the overall impacts of the generation and management of waste'.*

Figure 2.2 The Waste Hierarchy, as defined by the revised Waste Framework Directive



2. A target for reusing and recycling 50% of Household waste by 2020.

3. A target for recovering 70% of construction and demolition waste (excluding hazardous and soils and stones) by 2020.

4. The need for Waste Collection Authorities to provide separate collections of paper, metal, plastic and glass by 1st January 2015, for household collections and also, where they are provided, commercial collections.

5. The separate collection of bio-waste[1], in accordance with the waste hierarchy, with a view to composting or digesting it and recovering energy.

The target for 50% is measured at a Member State level. In 2012/13 England recycled 43.2% of its waste, the Department of Environment, Food and Rural Affairs (DEFRA) has reported that the rate of increase in the recycling rate seen in recent years is insufficient to meet the 50% target by 2020[2]. Additionally at the time of writing a review being undertaken by the European Commission is expected to result in increased targets for recycling and landfill diversion post 2020, and require more focus on waste prevention and the circular economy.

Materials Recovery Facility (MRF) Code of Practice Regulations

The requirements of these regulations will apply from October 2014 and are incorporated in to the Environmental Permitting (England and Wales) (Amendment) Regulations 2013. They require that every

[1] 'bio-waste' means biodegradable garden and park waste, food and kitchen waste from households, restaurants, caterers and retail premises and comparable waste from food processing plants. (Revised Waste Framework Directive 2008).

[2] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/255610/Statistics_Notice1.pdf

MRF that accepts in excess of 1,000 tonnes of mixed recyclables a year to report on the quality of the input, output and residual waste every three months. The regulations intend to provide confidence to the reprocessing market of materials coming out of MRFs. CEC's current contractor UPM will need to ensure they meet these requirements.

End of Waste Criteria

The rWFD called for 'End of Waste Criteria' to be developed to establish when specified wastes cease to be waste and are no longer governed by waste legislation, and aims to encourage recycling in the European Union by providing a level playing field for the acceptable quality of recyclates. The criteria will apply after waste has undergone a recovery operation (including recycling) and complies with specific criteria. There are currently EU end of waste criteria for glass, iron, steel and aluminium scrap metals and more are expected. Where EU end of waste criteria have not been developed, member states can adopt their own criteria for this purpose (for example, in the UK PAS100 has been adopted for compost derived from waste).

It is worth noting that the development of criteria may mean that some uses of waste will no longer be classed as recycling, but recovery instead. One example is any glass that is used in aggregate instead of going to remelt into new glass products; this activity is expected to not be counted as 'recycling', and may impact on the ability to meet higher recycling rates.

The Government Review of Waste Policy in England 2011

The coalition Government came to power in 2010 and published a review of national waste policy in June 2011[3]. This detailed a number of commitments and actions that the Government would seek to address over the coming years and considered the rWFD. Key actions are detailed below:

- The Landfill Allowance Trading Scheme (LATS) was revoked from April 2014; landfill tax has become the key financial driver to reducing waste from landfill. However EU diversion targets for biodegradable waste are still in place for Member States and so there is a need to use alternative waste management techniques to landfill.[4];
- There is a commitment to prioritise efforts to managing waste in line with the 'waste hierarchy' and support resource efficiency;
- Reduce the Carbon impact of managing waste;

[3] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69401/pb13540-waste-policy-review110614.pdf

[4] After the introduction of the Landfill Directive in 1999, each member state was set targets for the reduction of biodegradable waste sent to landfill. In England and Wales this was transposed into the Landfill Regulations (England and Wales) 2002 and the LATS was introduced under the Waste and Emissions Trading Act 2003. The LATS gave each Local Authority a set tonnage ('allowance') of biodegradable waste that could be sent to landfill each year, the allowances reduced each year. If this tonnage was exceeded a charge of £150/ tonne of biodegradable waste sent to landfill was to be paid by the Local Authority. The allowances could be traded between Authorities, sometimes with a charge attached.

- Consideration of higher targets for key materials such as packaging;
- Support energy from waste and overcome barriers to using Anaerobic Digestion;
- Consideration of restricting certain wastes from being sent to landfill;
- Improve waste services for householders and businesses;
- Support Councils in collecting waste and recycling from small businesses; and
- Ensure that waste is recovered and meets specific criteria to ensure that it is no longer classed as a waste and so can be used and marketed as quality products.

Waste Management Plan for England

In December 2013 the Waste Management Plan for England was released[5]. It meets the requirements of the revised Waste Framework Directive by bringing together existing plans and policies to ensure waste is treated in line with the waste hierarchy. It supersedes the National Waste Strategy 2007 and its targets, so there are no longer targets for the reduction of residual waste per person and the recovery of municipal waste. The Waste Management Plan for England does not set new targets but uses those set out in the rWFD.

Recycling Rate

In April 2014 a new calculation was introduced to report the recycling rate achieved by Local Authorities. Importantly and in line with the rest of Europe this includes the ability to include recyclables extracted from residual waste treatment in the calculation, this would therefore include metals extracted from the bottom ash from Energy from Waste Facilities.

Financial drivers

Landfill Tax is currently (financial year 2014/2015) levied at £80 on every tonne of waste sent to landfill. The government announced in the 2014 budget, that from April 2015 the standard and lower rates of landfill tax will increase in line with the Retail Price Index (RPI), rounded to the nearest 5 pence[6]. The government intends to provide further longer term certainty about the future level of landfill tax rates following a consultation on trommel fines in 2014.

[5] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/265810/pb14100-waste-management-plan-20131213.pdf

[6] HM Treasury (2014), Budget 2014. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/293759/37630_Budget_2014_Web_Accessible.pdf

2.2 Cheshire East Council local policies and plans

The Council has several Policies and plans in place that impact on this Municipal Waste Management Strategy and its implementation.

Some of these have been developed by Cheshire East Council whereas others (notably, the Waste Local Plan) are legacies of Cheshire County Council.

Cheshire's Waste Local Plan

Land use planning for the location of waste management facilities covered in the Cheshire Waste Local Plan[7]. This Plan was adopted in July 2007 prior to the formation of Cheshire East Council. However, until a replacement is developed its policies still apply.

The overarching policies of the Plan are to:

- Balance the need for new waste management facilities with the protection and enhancement of the environment and quality of life;
- Enable an increase in the number of facilities which recycle and re-use waste;
- Encourage the use of the most up to date waste management technologies; and
- Reduce the need for landfill.

Cheshire East Local Plan Strategy

In May 2014 CEC submitted its Local Plan Strategy to the Secretary of State in preparation for independent examination. The Plan covers a range of matters including:

- The requirement for new homes and their locations;
- The allocation of employment land;
- The protection and improvement of open spaces;
- The provision of infrastructure; and
- Improvement of town centres and community facilities.

As the Plan is implemented it will impact upon the quantity of waste being generated in the Borough putting pressure on existing facilities and providing opportunities for increasing recycling further.

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https://www.cheshireeast.gov.uk/planning/spatial_planning/saved_and_other_policies/cheshire_waste_local_plan.aspx

3. Strategy objectives

The future collection, treatment and disposal of waste in Cheshire East will be underpinned by a number of high level strategic objectives which have been established by the Council. These were agreed by Cabinet in the spring of 2014 and residents, businesses and other interested parties have had the opportunity to comment upon them as part of a consultation exercise.

These 19 Objectives fall into five themed categories:

- Service delivery;
- Waste reduction and re-use;
- Recycling;
- Residual waste management; and
- Working together.

To fulfil these objectives CEC will implement a number of actions and initiatives: Table 3.1 below sets out the objectives and the overall results of the consultation exercise.

Table 3.1: Strategic Waste Management Objectives

Theme	**High level Objectives**
Service Delivery	**To deliver a quality and value for money waste management service that achieves consistently high levels of customer satisfaction of 80% or more.** 84% of consultees agreed or strongly agreed with this objective. *The collection, treatment and disposal of household waste are amongst the highest profile services that councils provide. Cheshire East Council understands the importance its residents place on having reliable collection services that meet their needs and aspirations whilst managing costs effectively.* *In a recent public satisfaction survey Cheshire East residents scored elements of the waste collection service very highly and we will build on this and strive to achieve a minimum of 80% satisfaction with the service.* *To achieve a minimum of 80% satisfaction we will:* • *Provide simple and easy to use waste services;* • *Collect waste efficiently, professionally and reliably; and*

Theme	High level Objectives
	• *Develop services that meet the needs of our residents and businesses.*
	To deliver services in a cost effective way through a wholly owned company.
	54% of consultees agreed or strongly agreed with this objective.
	This Objective has been delivered as from April 2014 'environmental services' functions (transferred to Ansa Environmental Services Ltd – a company wholly owned by Cheshire East Council. *Ansa is responsible for:* • *Collecting household waste from the kerbside;* • *Managing the recyclable materials collected (either directly or using third party bulking sites);* • *Mechanically and manually cleansing public areas such as streets, town centres, parks and open spaces;* • *Removing fly tipping;* • *Managing waste disposal and treatment contracts (such as for the landfilling and energy from waste, the composting of garden waste and household waste recycling centres;* • *Delivering grounds maintenance services such as grass cutting (excluding highways verges currently), managing parks etc.; and* • *Managing the fleet of plant, equipment and vehicles the company uses.* *The company also has a remit to develop commercial trading opportunities such as collecting waste generated by businesses, providing training on fleet matters and cleansing privately owned estates such as retail parks.*
	Investigate the opportunities for efficiencies through working with other waste collection and disposal authorities.
	71% of consultees agreed or strongly agreed with this objective.
	Whether in tough economic times or not, working with partners can reduce costs through, for example, economies of scale or sharing procurement costs. Where this can be done to the benefit of Cheshire East Council it will be. *Ansa Environmental Services Ltd can also work in partnership with other councils and public sector bodies to deliver services. Ansa can provide high quality services as a partner rather than a contractor and this has significant advantages for the partner organisation and Cheshire East Council.*

Theme	High level Objectives
Waste Reduction and Re-Use	**To make waste prevention, reduction and reuse a priority over recycling and disposal, promoting sustainability and reducing costs.**
	85% of consultees supported waste minimisation
	Not producing it in the first place is by far the best environmental and economic solution to tackling waste. Investing in this (through promotion campaigns, encouraging the composting of organic waste at home, supporting re-use activities) saves money and has positive environmental and social benefits. The response by the focus groups to this objective was equally strong. All attendees spoke of the challenge to take personal responsibility to prevent and reduce when the prevailing culture is to mass produce and then throw away.
	Work to reduce the total amount of household waste produced per annum in Cheshire East.
	79% of consultees agreed or strongly agreed with this objective.
	The management of waste is funded through council tax. Reducing the amount of waste produced in Cheshire East reduces its burden on Council budgets and the tax payer.
	Work to reduce the amount of household waste produced per person in Cheshire East.
	69% of consultees agreed or strongly agreed with this objective.
	At the most local level – at home – reducing what is put in the bin (perhaps by making decisions in the supermarket not to accept over-packaging or using food waste to make compost) all contributes to the Objective of reducing the amount of waste produced across Cheshire East.
	Work to increase waste re-use activity amongst residents in partnership with the charitable and furniture reuse sector.
	89% of consultees agreed or strongly agreed with this objective.
	The Council provides a collection service for bulky waste such as items of furniture. In many cases these items can be re-used either almost immediately or after some repair and refurbishment. This provides many opportunities to use the waste to the benefit of less advantaged members of our community. *We already, and will continue to do so, work with the voluntary sector to collect and re-distribute our re-usable bulky waste. This provides*

Theme	High level Objectives
	employment and training in collection, repair and refurbishment. It also builds a stock of furniture that can help furnish the properties of struggling families. Focus group attendees were in strong support of this objective and encouraged the Council to keep this as a priority. *We will continue this work and seek to build on it in partnership with the voluntary sector to increase waste re-use.*
Recycling	**To continue to exceed national targets for recycling (currently 50% by 2020).**
	89% of consultees agreed or strongly agreed with this objective.
	Cheshire East already recycles and composts over 50% of its household waste and is one of the best performing councils in North West England. *With our plans to landfill no waste and treat it through other methods and expanding the range of wastes collected at the kerbside, our performance will grow further. We are seeking innovative methods to recycle other waste streams. For example we have let contracts to recycle street sweepings - this can be costly to dispose of and recycling creates a material that is beneficial to other industries.* *We will:* • *Continue to provide comprehensive kerbside services enabling residents to maximise recycling;* • *Maintain the role of HWRCs in collecting bulkier wastes and maximising the recycling and re-use of these;* • *Seek innovation in recycling waste streams we have not recycled previously; and* • *Promote the use of services and advise residents on how to make the most of them.*
	To provide all households with a simple, easy to use, kerbside recycling collection service for glass, metals, plastics, paper and cardboard and work to increase the types of recyclable materials collected.
	93% of consultees agreed or strongly agreed with this objective.
	To reach and exceed 50% recycling and composting we must have a collection system that is easy to use and understand. We provide a straightforward three bin collection system – the silver bin for mixed recycling (including paper, cardboard, cans, glass, plastics etc);

Theme	**High level Objectives**
	green bin for compostable garden waste and the black bin for the waste that cannot be put into the silver or green bins. *If service changes are demanded by any changes in law or more favourable environmental and economic conditions we will ensure the service is always simple and easy to use.* *The benefits of the current system were acknowledged by the focus group attendees and all expressed a concern that more recycling did not mean more bins/boxes/bags*
	We know from analysing what is left in the black wheelie bin that there is still waste left to recycle. To capture this lost material will require investment if we are to reduce the costs and impacts of our waste further.
	To maximise public participation in recycling schemes through waste education and communication with residents *Cheshire East Council will continue to engage with residents through waste education to ensure that the recycling schemes are used to their full potential and that contamination levels are reduced.*
	To reduce organic waste arising by giving priority to promoting home composting solutions for garden and food waste. 90% of consultees agreed or strongly agreed with this objective.
	The compost made from our garden waste is high quality and used to help improve soil fertility on farms in Cheshire East. Gardeners know the benefits of making their own compost - it reduces their own costs recycling important nutrients rather than applying chemicals. The same principles apply to the Council. *The Council will continue to encourage the composting of organics (both garden and food waste) at home. We already operate our Waste Reduction Programme whose volunteers promote home composting and the Love Food Hate Waste programme at local community events.*

Theme	High level Objectives
	To utilise energy generation to process 40,000 tonnes of kerbside collected organic waste by sustainable bio technologies such as anaerobic digestion, to generate heat and power.
	76% of consultees agreed or strongly agreed with this objective.
	The organic waste generated by residents and businesses can be used as a fuel for renewable energy generation providing electricity/gas to put back into the grid and heat that can be used to warm local buildings. As part of the work to develop this Strategy we investigated the options for such energy generation and in the process potentially expanding the range of waste we collect to provide improved services and increase recycling further. *To deliver this Objective we will continue to assess the feasibility of suitable treatment options such as 'dry' anaerobic digestion where food and garden waste can be collected and processed together to generate heat and power.* *The focus group attendees were in favour of capturing energy from the organic waste stream but had questions around the size of the plant, if odour issues would be a problem and whether the siting of one plant would lead to excess mileage travelled by collection vehicles. These will all be closely examined as the Council progresses this objective.*
Residual Waste Management	**Ensure that residual waste is managed to support waste prevention reuse and recycling, minimising waste produced.**
	88% of consultees agreed or strongly agreed with this objective.
	Cheshire East's priority is to maximise waste recycling, composting and reuse - this is environmentally, socially and economically more responsible than treating and disposing of non-recyclable waste through landfill and energy from waste. Not only were the majority of survey respondents in agreement with this objective, so were the focus group attendees. *The Council's objective is to exceed 50% recycling (which is already currently the case). We want to do better but we cannot improve if we do not have the freedom and flexibility to increase performance if we are tied to strict contracts for waste treatment and disposal.* *We will design contracts to be as flexible as possible so that we can*

Theme	High level Objectives
	decrease the quantities of waste we have treated and disposed through minimisation, recycling and composting without being penalised.
	To utilise waste that cannot be reused or recycled as a resource for energy generation helping to alleviate fuel poverty in the borough.
	84% of consultees agreed or strongly agreed with this objective.
	Our promotion of the use of renewable energy extends to the use of waste as fuel. We will be exploring using garden and food waste in anaerobic digestion to create energy and heat. Similarly we will also seek to use the non-recyclable element of our waste as a fuel to contribute to the generation of renewable energy in the County and UK.
	To reduce disposal to landfill to 0 and achieve 100% disposal to waste to energy generation.
	79% of consultees agreed or strongly agreed with this objective.
	Landfilling waste is the least preferable option in the waste hierarchy. It does not maximise the value inherent in the waste and the methane generated by the decomposition of the organic fraction contributes to climate change. *Waste Strategy 2030 will eliminate the landfilling of waste as an option as we minimise, re-use, recycle and compost what we can and make fuel from the rest.* *Focus group attendees agreed with the objective however when asked how best to deal with the residual they were divided. Some favoured taking responsibility for our waste by treating it within Cheshire East but others felt that with sufficient capacity in the North West it would be more sensible to transport our waste to existing facilities.*
Working Together	**To work in partnership with the commercial and charitable sectors such as the waste industry, supermarkets, housing trusts and Cheshire Furniture Reuse forum, to promote waste reduction, re-use and recycling.**
	92% of consultees agreed or strongly agreed with this objective.
	Cheshire East is not the only body responsible for waste generated in the Borough. The commercial and industrial sectors generate

Theme	High level Objectives
	significantly more waste than households. We can help them manage this waste sustainably by offering recycling services or working with them to find outlets for waste and providing advice. *Through business networks the Council will promote better waste management standards identifying opportunities to increase re-use and recycling.*
	To continue to build and utilise a waste prevention volunteer network to promote waste education and awareness across Cheshire East.
	76% of consultees agreed or strongly agreed with this objective.
	We already have a large team of Waste Reduction and Recycling Champion volunteers. The team is a key link between the Council and the community and promotes sustainability messages and provides advice. *To help meet our Objectives we need to grow our volunteer team to help reduce the costs and environmental and social impacts of waste.*
	To work with schools and higher education establishments in Cheshire East to promote waste prevention to the next generation.
	88% of consultees agreed or strongly agreed with this objective.
	We will continue to work with children and young people through Cheshire East's primary, secondary and special schools to promote waste prevention, reuse and recycling. Our current schemes tie into the national curriculum and we provide resources for students and teachers. We presently run our Junior Recycling Officer Scheme in primary schools and recycling challenge green team change projects in secondary schools.
	Provide waste management services that comply with legislative standards for environmental protection.
	92% of consultees agreed or strongly agreed with this objective.
	Cheshire East Council is ambitious and strives to find innovative service delivery solutions. This does not mean we will take risks so we will deliver this Strategy using technologies and methods that meet environmental and legal standards.

4. Appraisal of Strategy Options

4.1 Waste Strategy Options: Workshops and Scenario Modelling

The performance of a range of waste management options for key areas of service delivery were assessed in relation to their capacity to contribute to the delivery of the Council's high level strategy objectives. A total of 28 options for the nine service areas were assessed in a two stage appraisal process. The assessment took the form of two stakeholder workshops comprising a number of Cheshire East Council members and officers supported by scenario modelling.

At the first stakeholder workshop Council members and officers subjectively assessed the efficacy and acceptability to the Council of a long list of waste management options and technologies. The outcomes from this workshop included, the selection of a number of short listed options for detailed performance modelling and assessment and cost estimation. The selection of options for the more detailed comparative assessment was made on their ability to deliver against the strategy objectives. Some options were deselected due to their incompatibility with the Council's high level strategic objectives. The details of the first stage of the options appraisal process and associated stakeholder workshop are provided in Appendix B.

Six waste management options for the treatment of residual waste and organic biowaste (green) and food (WAF) wastes were selected for detailed modelling. Details of this modelling exercise are provided in Appendix C.

The outcomes from the modelling exercise were then presented to Council members and officers in a second workshop as part of the second stage of the options appraisal process. In this exercise the assessment of the strategy options under consideration was refined based on the information made available through scenario modelling and delivery risks identified as part of the workshop.

A summary of these assessments is provided in section 4.2 below.

4.2 Options Assessment

The assessment of the 28 waste management options and their probable contribution to the Council's high level strategic objectives is set out below.

Bring sites

Reducing the number of bring sites

The Council has carried out a rationalisation of bring sites in the area, and currently provide 47 bring sites which are serviced by Third Parties without costs being incurred directly. Any reduction in the number of

bring site containers provided by the Council would represent a simplification in the recycling service provided, and a reduction in indirect costs (such as managing complaints and cleansing bring bank sites). Reduction in the number of bring sites (option 1) ranked nineteenth in the initial assessment and the Council will continue to periodically review bring bank provision to ensure that it remains a streamlined and efficient element of the waste management services it provides.

Aligning materials collected at bring banks with the kerbside collection system

The principle of aligning materials collected at bring banks with the kerbside collection system (option 2) ranked fourth in the initial assessment. Cheshire East Council have already commenced with rationalisation of their bring site network as the tonnage collected has declined (following the introduction of the silver bin kerbside recycling system provided to residents). Rationalisation has taken the form of a review of inefficient recycling banks across Cheshire East and has resulted in the removal of banks collecting items that can be recycled at home in the silver bin, and retention of banks collecting items that cannot be recycled at home e.g. clothing, shoes and books. Due to the success of these changes the continuation of this approach will be adopted to allow further optimisation of the bring site network.

Bulky waste including WEEE (Waste Electrical and Electronic Equipment)

Promotion of partnership with Third Sector organisations for bulky waste collections, certification and re-use outlets

National policy generally favours the increasing use of waste as a catalyst to promote not only service and environmental improvements but also social cohesion and progression. The England Review of Waste Policy 2011 established the Government's commitment towards a zero waste economy. The main aspects relating to the management of bulky waste included:

- The prioritisation of efforts to manage waste in line with the waste hierarchy and reduce the carbon impact of waste;
- Support for initiatives that reward and recognise people who do the right thing to reduce, reuse and recycle their waste by introducing a fund to support local schemes; and
- Encouragement for councils to sign the new Recycling & Waste Services Commitment, setting out the principles they will follow in delivering local waste services.

The review also put an emphasis on localism and the Big Society using as an example "the role charity sector organisations often play in ensuring clothing or bulky items like furniture are reused."

The promotion of partnership with Third Sector organisations for bulky waste collections, certification and re-use outlets (option 3) was ranked seventh in the initial assessment and offers a number of potential waste management and social benefits moving forward. These include;

- Increased reuse of materials that are otherwise disposed of as waste;

- Diversion of waste from landfill;
- Enhancement of the local economy;
- Strengthening of the third sector;
- Job and volunteer post creation;
- Opportunities for social inclusion; and
- Local closed loop reuse/recycling delivering low cost goods back in to the local market.

Different organisations may be used as preferred suppliers for different types of bulky waste collections, such as furniture and WEEE. Partnership may be achieved through the Council providing details of partner organisations when contacted by householders enquiring about bulky waste collections, Ansa sub contracting bulky waste services to local third sector organisations and joint awareness or publicity initiatives. In addition the Council will examine the use of Third Sector organisations as potential off takers for the reuse bulky waste and WEEE collected at HWRCs.

Promotion of Re-use and Recycling of Bulky Waste and WEEE through recycling credits

Reuse and recycling credits can be paid by WDA's for the auditable diversion of household waste that would normally have been sent for residual waste disposal. Traditionally this had included recycled materials such as paper, glass, cans, cardboard, textiles, plastics, wood and organic wastes and in 2006 legislation was established that this discretionary payment by WDA's could extend to reused items of waste.

In theory where a WDA chooses to pay reuse and recycling credits, any not for profit, voluntary or community group can claim reuse and recycling credits if they collect items from households that are then either reused or recycled. This includes community groups, Scout groups, church groups, charities and schools. However a charity shop cannot claim credit for items which are donated and going to be sold in the shop, however they could claim for unsold materials that are then sent recycling elsewhere.

Cheshire East Council has traditionally paid reuse and recycling credits but ceased to pay recycling credits two years ago. However this option was considered as part of the options appraisal. The option (option 4) ranked twenty first in the initial assessment, primarily due to the cost element, and the relatively small volume of material involved. However, because this type of initiative will support the other Third Sector partnership promotion initiatives, and support the Council's wider social programmes it will be periodically reviewed in tandem with other reuse initiatives with the third sector.

Commercial waste

Three principal commercial waste options were considered as part of the options appraisal process. These were;

- The collection of residual waste for disposal from commercial premises;

- The collection of co-mingled dry recyclables from commercial premises; and
- The collection of segregated, high value recyclables from commercial premises.

Collection of C&I residual waste

The principle of commercial residual waste collections/ Schedule 2 waste collections (option 5) ranked sixth in the initial assessment. This option fits well with the high level strategy objectives.

Commercial residual waste collections/ Schedule 2 waste collections were modelled for sensitivity on the residual waste treatment options considered (options 22, 23, 25 & 26 - modelled as household residual waste plus 10% which is the maximum permissible for an authority owned company). High level modelling was based on known parameters for existing residual waste treatment facilities to estimate capital costs, operating costs, landfill diversion, recycling potential, as well as green house gas comparisons, and a lifecycle impact score (provided in Appendix D).

With an increase in the amount of waste processed (10%), the modelling showed commensurate increases in the amounts of recycling and saleable energy generated from alternative residual treatment to landfill, as well as reductions in capital and operating costs achieved with economies of scale, all of which contribute towards the Council's high level waste strategy objectives.

A cost model was developed to estimate the level of additional costs incurred by collections and the potential income achieved by charging for collections. Based on non-adjusted 2014 market information, this cost model indicates a modest income through the provision of this type of service. It is therefore recommended that this option is considered further, subject to market testing and more detailed financial and operational modelling to assess the opportunity in greater detail.

Collection of C&I recyclable waste

The targeting of commercial collections to improve overall co-mingled recycling (option 6) ranked third in the initial assessment. This option is closely aligned to the high level strategy objectives and offers the potential to use existing assets deployed by Ansa (such as vehicles and man power) at marginal cost (increased shifts) to increase recycling and recyclate income.

Commercial waste collections will increase the amount of co-mingled dry recyclables collected and this was modelled on the basis of the maximum amount of permissible commercial waste being collected by Ansa (equivalent to10% of household residual waste), and a similar compositional mix as the kerbside household recyclables. An estimate of the potential recyclate revenue based on the modelled performance indicated a significant financial benefit to the Council from this strategic option, averaging out at approximately £1M p.a. (2014 non adjusted prices). This does not include a potentially modest level of profit that could also be achieved by charging for commercial waste collections whilst primarily using these charges to off set the marginal cost of the service (which would include the cost of containers). This commercial waste option will be considered by the Council subject to the development of the business case and further preparatory work.

Collection of segregated C&I recyclable waste

Using commercial waste collection to specifically target the collection of segregated high value recyclables (option 7) ranked eleventh in the initial assessment and has a good fit with the high level strategy objectives. The strategy option was modelled in a similar manner to the collection of co-mingled recyclables to estimate the income for the Council if adopted. Collection of office quality paper for recycling was used as an example, at 2.5 times the value of recovered newspaper and was used to produce an estimate of potential revenues.

The performance modelling undertaken indicates that this option is less likely to achieve the enhanced recycling rate offered by the collection of co-mingled commercial recyclables (option 6 – see above). This is primarily due to the reduced quantities of such targeted materials available for collection. Furthermore, it may also be difficult to identify and source such commercial waste streams in practice and to encourage commercial organisations to effectively segregate them from other wastes and recyclates (which would still require some other means of collection). In addition, the lower quantities of recyclate reduce the overall financial benefit available to the Council and this was estimated to be of marginal value. As a consequence, this option is considered to be a considerably less attractive strategic option to the collection of co-mingled dry recyclables (option 6).

Garden/ bio-waste treatment

Open Windrow composting of garden waste only

The treatment of separately collected garden waste in an open windrow composting system (option 8) was ranked joint 25th in the initial assessment, and on this basis is highly questionable as a strategic option for the Council moving forward. The option was awarded a zero score for the amount of heat and power generated and provides little opportunity for further service enhancement.

However, the open windrow composting of green waste was also considered as a complementary process that would need to be maintained, for the option to separately collect food waste and treat this in a Wet Anaerobic Digestion facility (option 10). For this reason open windrow composting was further modelled in conjunction with a Wet AD to facilitate a comparative analysis of alternative garden/ bio-waste solutions.

In Vessel Composting of mixed garden and food waste

In Vessel Composting of mixed garden and food waste (option 9) ranked joint 25th in the initial analysis, having been awarded a zero score for the amount of heat and power generated by the process. This option although enabling the expansion of the kerbside collection systems to encompass food waste (increasing the recycling rate) does not provide wider performance and economic opportunities associated with anaerobic digestion options. In conclusion the option is fundamentally incompatible with several of the Council's high level waste strategy objectives to exploit waste as a resource through energy recovery.

Wet AD to treat separately collected food waste

The treatment of separately collected food waste in a Wet AD process (option 10) was ranked ninth in the initial assessment. However, as noted above, in order to provide a complete biowaste solution this needs to be married with the continued composting of separately collected green/garden waste. To facilitate comparison of both Dry and Wet AD solutions for biowaste arisings the Wet AD option was modelled in combination with open windrow composting for garden waste (option 8) and the separate collection of food/ garden waste that would be required.

Wet AD to treat separately collected food waste & Open Windrow composting of separately collected garden waste

The Wet AD option for the treatment of food waste needs to be combined with windrow composting for garden waste and an additional separate collection service for food waste to provide a full biowaste solution. The modelling of the Wet AD option is based on known parameters for existing waste treatment facilities to estimate: capital costs; operating costs; landfill diversion; recycling potential, as well as green house gas comparisons, and a lifecycle impact score. When the cost of windrow composting of green waste is added to the costs of Wet AD the overall costs are comparable to the Dry AD option, with the difference between the two options less than 15% of the Dry AD costs. (Details of this modelling are provided in Appendix D). However the requirement to adjust the existing collection arrangements and introduce the separate collection of food and green/garden waste results in a considerable increase in the overall whole life cost of this option when compared with the collection of a co-mingled stream and treatment through Dry AD.

Dry AD to treat mixed garden and food waste

The treatment of mixed garden and food waste in a Dry AD process (option 11) ranked second in the initial assessment, having an excellent fit with the high level strategy objectives and existing collection arrangements. This option was modelled in the same manner as the Wet AD solution noted above. The option showed higher capital costs, but considerably lower operating costs compared with the Wet AD solution. In the initial stakeholder workshop the Dry AD option ranked second (and the pre-requisite co-mingled collections ranked fifth) while Wet AD ranked ninth, which indicates that Dry AD should be the preferred option for biowaste treatment.

Co-mingled collection of garden waste with food waste

The co-mingled collection of garden waste with food waste (option 12) ranked fifth in the initial assessment, and is perceived to have a good fit with the high level waste strategy objectives and existing collection arrangements. The option is a pre-requisite and integral part of the comparative modelling and delivery of the Dry AD solution.

Charged collections for garden waste

Charged collections for garden waste (option 13) ranked 24th in the initial assessment and has limited capacity to help the Council achieve some high level waste strategy objectives at the expense of other objectives. An additional consideration is that a pre-requisite for charged collections for garden waste is that garden and food waste are collected separately. This may be the case if a Wet AD for food & Windrow Composting for garden waste system were adopted. However, a co-mingled collection would be required for the success of a Dry AD solution which is assessed as being most suitable for biowaste treatment. Charged collections for garden waste as a stand-alone option was not considered viable moving forward if a Dry AD solution was pursued.

HWRCs

Waste strategy options related to Household Waste Recycling Centres (HWRCs) were not modelled in the same manner as the residual waste treatment options, because of the much lower tonnage of waste managed through these facilities. Each of the options has merits that will be examined more closely through optioneering and feasibility studies prior to adoption.

Reduce the number of HWRCs

Across Cheshire East there are nine HWRCs operated by the Council which appears to be an over provision when compared with neighbouring authorities. Any reduction in the number of HWRCs provided by the Council will represent a direct cost saving to the authority, and may release land for diversified waste service provision, or an alternative use such as a dedicated Commercial Waste Recycling Centre (option 15). A review of the costs associated with the HWRC network indicate that any cost saving from the closure of a single HWRC would in all probability be relatively modest. This is because the majority of the costs associated with HWRCs arise from the disposal of the waste that passes through them. It is assumed that the same amount of waste would continue to pass through an HWRC network operating with fewer sites and that cost savings would be from reduced administration and management fees.

Reduction in the number of HWRCs (option 14) ranked eighteenth in the initial assessment as it is likely to have a modest benefit in achieving the high level waste strategy objectives. Although the benefit will be modest, this option will be considered through further optioneering and feasibility work prior to the re-procurement of the HWRC management contract.

Provide a dedicated Commercial Waste Recycling Centre

Provision of a dedicated Commercial Waste Recycling Centre (option 15) ranked twelfth in the initial assessment and was perceived as having a moderate benefit toward the high level waste objectives.

The Council does not currently provide a trade, business or commercial waste collection service and directs enquiries to local business listings and regional landfill sites. The provision of a dedicated Commercial Waste Recycling Centre would enhance the Council's waste management service, and has the potential to provide a revenue stream (from paying customers and the sale of recovered materials). Under the current

regulations the Councils recycling/recovery/diversion figures are calculated from the waste under the Council's control and does not include commercial and industrial (C&I) waste. Should this option be implemented, all waste managed through such a site would contribute to the Council's waste performance figures. The impact on performance figures would be dependent on the nature of the waste delivered to a dedicated Commercial Waste Recycling Centre; how that waste was managed at the CWRC and the overall tonnage of material delivered.

With the alignment of waste reporting across Europe, it is likely that C&I waste originating within Cheshire East will become part of the reporting requirements. The provision of a dedicated CWRC would be a pro-active step in managing C&I waste, and would provide an opportunity for the Council to promote the management of this material further up the waste hierarchy. This option would serve several of CEC's aspirations by providing an enhanced service to businesses in Cheshire, and by improving the overall waste management profile. This option will be considered through further optioneering and feasibility work prior to the re-procurement of the HWRC management contract.

Incentivise re-use in preference to recycling

The option of incentivising re-use in preference to recycling (option 16) ranked joint twenty first in the initial assessment. This option may be executed through different mechanisms ranging from advertising campaigns through to the use of financial and contractual incentives. This option is broadly aligned with the high level waste strategy objectives and will be considered in preparatory work leading to the re-procurement of the HWRC management contract.

Promote partnership with Third Sector for re-use

The principle of promoting partnership with the Third Sector for re-use of materials (option 17) ranked first in the initial assessment and is clearly well aligned with the high level waste strategy objectives, and closely linked to the promotion of partnership with the Third Sector for bulky waste collections. As noted above for option 3 this has the potential for wider benefits to the Council in addition to those of achieving the waste strategy objectives.

Facilitate Commercial Waste acceptance at HWRCs

The acceptance of commercial waste at existing HWRCs (option 18) ranked thirteenth in the initial assessment and is perceived as having a similar benefit towards the strategy objectives as option 15 (provision of a dedicated Commercial Waste Recycling Centre). However, this approach would require a dual role for the existing HWRC network, potentially with householders delivering material without charge as they do at present, and businesses delivering material for a charge which would require administration. This would require a significant change in the management of the HWRC network. Acceptance of Commercial Waste at HWRCs at the same time as accepting household waste is likely to pose significant issues to the successful operation of either system. It is likely that Commercial Waste will be delivered in larger volumes, and by larger vehicles, compared with the delivery of household waste by householders. This will result in reduced turnaround times, safety issues and longer queues at the sites. HWRCs are also

designed for smaller domestic vehicles, rather than larger commercial vehicles, so there is a potential requirement for re-development of sites for this option to be successful. There would also be a requirement for some level of paperwork and payment for the acceptance of commercial waste, while this would not be required for the delivery of household waste. The operation of dual waste acceptance in this manner is likely to cause issues as proof of the origin of both types of waste would be required, and this is a current problem at a large number of HWRCs which should not be accepting commercial waste. On balance this option is seen as less favourable, and that Commercial Waste would be better managed by the other options under consideration.

Litter bin waste

Provide separate bins for recyclables & litter (recycling on the go)

The provision of separate bins for recyclables & litter (option 19) ranked fifteenth in the initial assessment, as it has a reasonable fit with the high level objectives. Otherwise known as 'recycling on the go' this technique will help to divert material from residual waste into the recycling streams. In addition it has the potential to be a highly visible statement of the Council's commitment to the waste hierarchy where this type of system is introduced in public buildings, areas and public areas such as town centres. Adoption costs could be kept to a minimum with the lifecycle replacement of damaged or obsolete litter bins in strategic locations rather than a wholesale replacement initiative.

Improve integration of litter bin emptying with existing collection systems

This option (20) ranked tenth in the initial assessment and is clearly aligned with the high level waste strategy objectives, although it is unlikely to increase the amount of recycling and/ or diversion from landfill achieved by the Council. Introduction will require some re-design of the collection rounds operated by Ansa (for example litter bins may be emptied by RCV collection crews).

Mechanical street sweepings

Promote re-use & recycling (push up waste hierarchy)

This option promotes the re-use or recycling of this mechanical street sweeping waste, thereby pushing its management up the waste hierarchy in line with the high level waste strategy objectives. This option (21) ranked eighth in the initial assessment. Implementation of the option will need to consider the current legislative uncertainty as to what can count as re-use and recycling of this waste stream and over the short and medium term the Council will pursue this option whilst maintaining the flexibility to adapt without penalty to potential change.

Residual waste treatment/ disposal

Advanced thermal treatment (pyrolysis/gasification) with Combined Heat and Power (CHP)

Option 24 was ranked twenty third in the initial assessment. Such a low score was due to the fact that there are currently no merchant gasification facilities available in England to meet the needs of the Councils high level waste strategy objectives. .

MBT/MT to produce Compost Like Output CLO

Mechanical Biological Treatment (MBT) or Mechanical Treatment (MT) to produce a Compost Like Output (CLO) (option 27) was ranked joint 25th in the initial analysis.. This option was discounted as it is fundamentally inconsistent with the Council's high level waste strategy objectives.

Landfill

Landfill of collected residual waste (option 28) was ranked joint 25th in the initial analysis. This option is fundamentally inconsistent with the Council's high level waste strategy objectives. However, because Landfill represents the baseline case for residual waste and open windrow the baseline case for garden wastes, these two processes were modelled to provide a baseline to compare the other waste strategy options under consideration.

Assessment of residual waste treatment/disposal options using modelling and a further stakeholder workshop

Detailed models were constructed to facilitate an understanding of how four residual waste treatment options were likely to perform if adopted by CEC. These options were:

- Conventional energy from waste (electricity only) - option 22;
- Conventional energy from waste with CHP - option 23;
- Advanced thermal treatment (pyrolysis/gasification) with CHP - option 25; and
- MBT/MT to produce SRF/RDF - option 26.

Options modelling used waste growth models and compositions to predict tonnage waste flows through to 2030. Financial information (capital expenditure and operating costs/ revenues), and process efficiency information, based on recent similar technology projects, was used to model overall financial performance. Environmental performance was assessed using the WRATE waste management options assessment tool. The current scenario of disposing of all residual waste to Landfill was also modelled to provide a baseline to compare against.

The results of this modelling exercise were used to inform a second stakeholder workshop that provided the opportunity to review the performance of short listed options and help define the reference project (see Section 7).

The overall result of the appraisal exercise was that all of the short listed residual waste management options provided an improvement on current practice and all were capable of contributing to the achievement of the high level objectives set by the Council.

The cost estimation undertaken at the strategic level provides results with a 50% margin of error. This is because as it is not possible to fully account for site specific factors or risks that would be associated with the implementation of each option in practice. To develop a particular option further these should be the subject of further investigation and study and in some cases the development of a business case, alternatively some options may be comparatively assessed through procurement and market testing.

- The selection of options for the reference project has been made with the full awareness of several factors and analyses. These include, an assessment of financial and environmental implications (Appendix D);
- The identification of project risks (Section 6);
- The relative strengths, weaknesses, opportunities and threats of each option (Appendix E); and
- A qualitative scoring of each option against a number of criteria (Appendix E).

Table 4.1 Assessment of Residual Waste Treatment Options

	Conventional EfW (electricity only)	Conventional EfW with CHP	ATT with CHP	MBT/ MT to produce SRF (SRF treated in merchant facility)	Baseline Landfill
Option No.	22	23	25	26	28
Initial Workshop Score	57%	64%	55%	54%	0%
Climate Change	-133	-414	73.1	-364	1098
Acidification	-187	142	-328	160	33.8
Eutrophication	124	289	22.5	312	632
Freshwater Toxicity	-1814	-1843	-1914	-2264	88.1
Human Toxicity	-1367	-1366	-1482	-1761	-11.1
Resource Depletion	-5581	-6228	-5044	-5885	-1182
Recycling Rate	3%	3%	5%	5%	0%
Re-use Rate	22%	22%	10.5%	22%	0%
Landfill Diversion Rate	93%	93%	76.5%	93%	0%

	Conventional EfW (electricity only)	Conventional EfW with CHP	ATT with CHP	MBT/ MT to produce SRF (SRF treated in merchant facility)	Baseline Landfill
Capital Cost (£/tonne)*	£70	£900	£602	£172	
Operating Cost (£/tonne)*	£17	£43	£39	£17	
Indicative Cost*	£98M	£107M	£162M	£108M	£169M
Second Workshop Score	56%	67%	78%	44%	0%

* Costs based on local authority collected household waste only

The option of building a waste transfer station and sending residual waste to a Merchant EfW facility comes out as having the least cost to the Council whilst contributing substantially to the delivery of the Councils waste management objectives and this is the option that was adopted for the reference project. However, it is not the Council's desire to pursue this option to the exclusion of the other short listed residual waste management options considered. At the present time the Council will keep these options open and maximise flexibility by remaining 'technology neutral". The residual waste treatment option selected for the reference project has a fairly conservative risk profile, but lacks some of the opportunity that could be delivered by the more expensive options that involve the delivery a dedicated Council residual waste solution (for example ATT with CHP).

5. Strategy implementation

5.1 Introduction

This section sets out some of the strategy implementation, contracting and procurement options available to Cheshire East Council (CEC) through which it could deliver the objectives of the waste management strategy and implement a waste management solution serving the requirements of Cheshire East . The principal advantages and disadvantages of these options are examined and some key practical considerations required to facilitate the delivery of the reference project are identified.

Cheshire East Council as the Waste Disposal Authority (WDA) has identified a need to secure future access to modern waste treatment capacity/services for the treatment of;

- Co-mingled food and garden waste; and
- Residual waste to produce and recover energy.

These will be required to augment the collection of municipal waste by the Council's wholly owned arms length company Ansa and through the Council's network of Household Waste Recycling Centres (HWRCs).

The required waste transfer and treatment capacity/services may be delivered by a number of routes. They may be potentially procured as various service packages or as an integrated package (of both works and services) or as a number of separate works (involving the construction of new facilities) and operating (service) contracts that supplement the work and activities of Ansa.

Defining the optimum delivery mechanism, mixture of works and services and an appropriate scope of services for inclusion in the contract packages to be procured will represent a significant aspect in optimising service efficiencies, attracting market competition and securing value for money.

The type, duration and extent of the Council's existing contracts will be a factor in determining the timing and scope of any future contractual arrangements that can be put in place to achieve the objectives set out in the waste management strategy. In some cases it may be necessary for the Council to put in place additional interim arrangements to enable the time for delivery of a long term solution. Such interim arrangements would be designed to provide the Council with flexibility to consider long term strategic options for waste treatment whilst maintaining service continuity.

5.2 Contracting Options

Table 5.1 outlines some of the principle contracting options available to the Council. The most appropriate of these for any particular service/works package will depend on several factors. These include:

1. The scope of the works/service

2. The availability of existing waste management capacity and infrastructure and its ownership;
3. The cost and affordability of the required services and infrastructure; and
4. The specified contractual requirements.

Table 5.1 Principal Contracting Options

Contracting Options	Type of Contract	Notes
1	**Service Contract/Agreements**	Projects procured in this way typically make use of existing waste management infrastructure to provide a service to the Local Authority. In return for the service the Authority will pay a monthly sum or a gate fee per tonne. The Council would set out in detail the specification for service to be delivered by the contractor. An example of this arrangement currently used by CEC is the mixed dry recyclate off take carried out under contract by UPM.
2	**Design and Build (DB)**	This option involves the construction of facilities as capital projects usually procured under Public Works Contracts. As such the Authority would finance the capital project from internal budgets/reserves or through prudential borrowing. The Council will define the specification for the required works and contract directly with a construction company or engineering, procurement and construction (EPC) contractor for the delivery of the works. The Council may then operate the facilities or source a separate operational contractor.
3	**Design Build Finance and Operate (DBFO)**	This option involves projects where the contractor is required by the Authority to finance the capital investment to facilitate all works needed to deliver the services. This may be done on balance sheet or through project finance and appropriate bank loans. The Authority will set out outline service requirements and the contractor (normally a waste management contractor) will design and build facilities required to deliver the service requirement. The contractor will then operate the facilities and provide the relevant services to the Authority, for which the Authority will pay a monthly sum or gate fee. Due to the period required for the payback of capital investment, DBFO contracts may typically have periods of between 15 and 30 years (depending on the scale of the capital investment.
4	**Public Private Partnering**	This option involves the selection of a contractor who will be required to deliver service requirements that are likely to change and evolve with time. The Authority, in selecting such an approach, primarily seeks to identify the contractor who it considers it can work with most effectively to deliver such changes without resorting to further procurement. Such contracts are often based on DBFO type contract documentation, augmented by appropriate controls over contract variations to ensure value for money is maintained (e.g. open book accounting, agreed profit levels, service benchmarking etc.).
5	**Hybrid/Refinanced**	Several recent waste management procurements have been agreed on a conventional DBFO approach but with planned refinancing (e.g. using prudential borrowing) of the capital element of the project at a planned point in time. This has typically planned for Service Commencement following the construction and commissioning of the relevant facilities. This approach offers the potential to provide overall cost efficiencies by reducing the cost of borrowing capital, improved allocation of risk and enhanced operational flexibility.

Note variants of these primary options have been employed elsewhere e.g. design build and operate (DBO).

CEC – Cheshire East Council

5.3 Funding Options

5.3.1 Public Private Partnership (PPP)

The drive for partnership working, which is central to the modernisation agenda is not just about securing participation and demonstrating the relevance of modern local government. It is as much about ensuring that the skills of public and private sectors are welded together to maximise quality and value. Where necessary, it is also about securing private capital to support public services that might not otherwise be funded. Partnership working may take many forms and can be represented by a number of different inputs and outputs. At its heart it must embrace a shared appreciation of the objectives of the Council and a commitment to work constructively together to deliver those requirements as they may change or be affected by change over time.

The effect of partnership will be to develop mutual trust between the parties built upon shared vision and this must be reflected in contractual documentation that clearly allocates responsibilities and performance requirements in a defined and enforceable manner. Best value partnership working, reflected in the underlying commercial documents, will aim to embrace:

- Clearly defined roles coupled with agreed goals;
- A commitment to address issues in a manner which promotes co-operation and minimises risk of conflict;
- Agreed measurable performance standards;
- Continuous performance and efficiency improvement over the life of the contract;
- Effective change control and change management mechanisms; and
- Clearly defined allocation of commercial risks and responsibilities.

The form of the partnership itself is secondary to some extent to the process of qualitative selection of suitable candidates whom the Council believes have the capability and shared interest to deliver its strategic objectives over the longer term. In a documentary sense, the partnership may be based solely on the underlying commercial contract or may be represented by direct participation as a shareholder in a joint venture company.

In a conventional PPP contract for modern waste management services, the contractor will be expected to develop and deliver the infrastructure required to enable the delivery of the services. In return, the Local Authority will pay a monthly fee, a proportion of which relates to the capital investment made by the contractor.

5.3.2 Prudential Borrowing

One area where options have opened for Local Authorities lies in the prudential borrowing. In applying prudential borrowing to finance a solution Local Authorities are required by regulation to apply the Prudential Code for Capital Finance in Local Authorities. The Treasury rules allow a Local Authority to borrow directly from the Public Works Loan Board, or from a private lender. This can be done without specific permission from Central Government so long as the Local Authority can prove that it has the capacity to make repayments. This might have particular attractions for some contracts, and provides an option for Local Authorities to act as the sponsor and owner to a project, and tender simply for a turnkey construction contract and then for an operator. Alternatively it has been used for hybrid/refinanced solutions.

A prudential borrowing option will require careful attention to detail from the Local Authority in negotiating the Works or Engineering, Procurement and Construction (EPC) contract as well as managing the interface between the EPC and operations and management contractors and would inevitably lead to the Authority taking on some risk. It would, however, remove the requirement to negotiate bank financing (saving significantly on contract dialogue/negotiations, and removing the need to fund a private sponsor's required return on equity).

Another issue to consider is that under the DBFO arrangements that exploits conventional project finance a Local Authority can take some comfort from the senior lender performing due diligence on the project and satisfying themselves of its bankability. This would not be the case under a structure featuring prudential borrowing, which would place greater importance on the role of the council's finance officers supported by an advisory team. Risk mitigation will depend heavily on the contracting structure selected to embrace the ownership, construction and operational functions essential to a successful project.

5.3.3 Co-funded projects

In some instances it is possible that a Local Authority will not be able to borrow sufficient funds to finance a waste project fully under the prudential borrowing framework, and will still require private sector capital for at least some of the up-front expenditure. In this scenario there are a number of ways in which a council could still make use of prudential borrowing, such as expenditure on purchasing a site, restoration, planning, related civil engineering and infrastructure works. In addition there is the option to be a partial shareholder or partner in a project. Such structures need to be arranged carefully, as complications often arise as a result of divergent objectives in cases of divided responsibility - and in joint ventures.

5.4 The Procurement Process

5.4.1 Legislation

The European procurement rules applying to the procurement of waste management services are set out in the EU Directive 2014/24/EU the Public Contracts Directive which came in to force in April 2014. The UK has two years to transpose the requirements of the new directive in the UK law.

Current UK law governing the procurement of public sector service, works and supply contracts is set out in the Public Contract Regulations 2006 (2006, No. 5) as amended by the Public Contract (Amendments) Regulations 2009 (2009 No. 2992).

5.5 Potential Delivery Reference Project Options

Table 5.2 examines various elements of the Reference Project with regard to their potential implementation and delivery.

Table 5.2 Reference Project Implementation SWOT assessment

Element	Delivery Option	Strength	Weakness	Opportunities	Threats	Comment/ Recommendation
Bring Bank Optimisation	Change service requirement/specification upon expiry/renewal of existing contract	Harmonises bring banks provision with kerbside service Does not require contract variation /re-negotiations	Decommissioning of redundant bring bank locations and disposal of redundant assets	Reduced number bring banks and service efficiency Reduced service cost Focus work with 3rd party sector on bring bank provision and servicing	Adverse political and public reaction Reduced recycling rate Increased fly tipping	Highly viable option That CEC undertake a review of bring bank usage and cost prior to contract renewal
	Change service requirement/specification upon expiry/renewal of existing contract	Harmonises bring banks provision with kerbside service Reduced bring bank service cost	Decommissioning of redundant bring bank locations and disposal of redundant assets Likely to require contract renegotiation or early termination Officer time to negotiate contract variation	Reduced number bring banks and service efficiency Reduced service short and long term cost Focus work with 3rd party sector on bring bank provision and servicing	Adverse political and public reaction Reduced recycling rate Increased fly tipping Potential cost associated contact variation or early termination costs	Option has significant drawbacks and could adversely increase costs Recommend that CEC undertake a review of bring bank usage and cost prior to contract renewal
Bulky Waste Partnership with 3rd sector	Ansa supply agreement to provide Bulky Waste for Reuse and Recycling	Simple supply agreement Strengthen relationship and support to 3rd party organisations Reduced residual waste disposal and associated costs	Increased interface issues (e.g. quality of Bulky Waste)	Increased employment in 3rd sector Increased Reuse and Recycling Increased 3rd sector turnover Increased Reusable materials to local market Positive public image	Reliance on third sector for duty of care Data management and recording Long term stability of 3rd sector organisations Exposure of 3rd sector to market volatility	Highly viable option Low cost option for CEC that should yield savings in terms of reduced disposal costs May require careful monitoring and audit Recommend that option is subject to prior optioneering with 3rd sector

Table 5.2 (continued) Reference Project Implementation SWOT assessment

Element & delivery option	Delivery Option	Strength	Weakness	Opportunities	Threats	Comment/ Recommendation
	Ansa service level agreement sub contracting bulky waste collection reuse and recycling	Enhanced support/turnover for 3rd party organisations (collection cost and reuse/recyclate value) Can encompass performance requirements Strengthen relationship and support to 3rd party organisations Reduced residual waste disposal and associated costs Reduced interface issues	Disposal of non reusable/recyclable waste Long term stability of 3rd sector organisations Internal redundancy with Ansa associated with existing service (vehicles manpower etc)	Increased employment in 3rd sector Increased Reuse and Recycling Increased 3rd sector turnover Increased Reusable materials to local market Positive public image	Reliance on third sector for duty of care Data management and recording Long term stability of 3rd sector organisations Exposure of 3rd sector to market volatility	A viable option that is working elsewhere Formal arrangement that places responsibilities on both Ansa and 3rd sector party Recommend that option is subject to prior optioneering and dialogue with 3rd sector
	Payment of Reuse and Recycling Credit	Minimal CEC involvement Provides financial support to 3rd part organisation Reduced residual waste disposal and associated costs Some reduced residual waste disposal and associated costs	Involves only financial support to 3rd sector Need for good auditable information from 3rd sector	Increased Reuse and Recycling Increased 3rd sector turnover Increased Reusable materials to local market Positive public image	Weak accounting by 3rd sector in applying for payment	A highly viable option used elsewhere can be combined withy other options Recommend prior discussion with 3rd sector concerning accounting requirements

Table 5.2 (continued) Reference Project Implementation SWOT assessment

Element & delivery option	Delivery Option	Strength	Weakness	Opportunities	Threats	Comment/ Recommendation
Optimisation of HWRC network (reduced number, change of function)	Change service requirement/specification upon expiry/renewal of existing contract. Commission decommissioning/alteration to change of use as a Public Works contract using Retracted Procedure	Does not require contract variation /re-negotiations Reduced HWRC service cost	Decommissioning of redundant HWRCs and disposal of redundant assets Decommissioning and or conversion costs Use of Restricted procedure will require a detailed specification	Conversion of redundant HWRC to commercial waste recycling centre Enhanced commercial waste recycling and payments	Adverse political and public reaction Reduced household waste recycling rate Increased household waste fly tipping Impacts on remaining HWRCs	Highly viable option being considered and introduced elsewhere. Recommend that a review of HWRC usage is undertaken and prepare business case 18 months prior to contract renewal Both new HWRC operation and any works contracts should be viable using Restricted Procedure
Commercial Waste Collection	Use of existing Ansa assets to collect co-mingled dry recyclables (additional shift/half shift)	Generates a commercial waste revenue stream Enhanced revenues from the sale of dry recyclates Enhanced recycling of commercial waste Does not require any additional resource (manpower and vehicles) Compliments household kerbside recycling service	Increased overtime payments to Ansa staff Additional wear and tear on vehicles Need to buy, supply and replace appropriate commercial waste containers	Compatibility with existing co-mingled recyclate off take contract Potential to grow service	Competition from commercial waste collection companies Adverse reaction from Ansa staff Contamination results in additional disposal costs	A viable option that could be introduced and grown organically with low risk. Recommend a potential customer/market study is undertaken prior to service commencement.

Table 5.2 (continued) Reference Project Implementation SWOT assessment

Element & delivery option	Delivery Option	Strength	Weakness	Opportunities	Threats	Comment/ Recommendation
Dry Anaerobic digestion of mixed organic waste (biowaste)	Design and Build Contract using Competitive Dialogue or Restricted Procedure Separate Operational Contract	Enhanced recycling rate Reduced residual waste disposal Production of renewable energy CEC would ultimately control design and build process. CEC would control biowaste treatment infrastructure. Treatment costs can be a simple gate fee payment structure (all revenue expenditure). Optimum term of operational contract (s) can be flexible.	Limited supplier market Requires CEC capital outlay for construction Requires appropriate sites Planning and permitting requirements Some design risk may lie with CEC although this can be transferred by good contracting structures. CEC will be responsible for lifecycle and maintenance costs	Employment opportunities associated with construction and operation of facilities Income from commercial waste inputs and power production available to CEC. Potential for localised benefits (e.g. heat off take, direct wire) Revenues from power export Use of Competitive Dialogue would allow complex series of risk to be dialogued to provide best value Potential Ansa involvement in operations	If CEC provide sites then full surveys will be required for tender process enhancing the risk of delay. Potential for delay risk associated planning and permitting and due diligence requirements. CEC will incur financial cost of planning and permitting failure. Public opposition to the construction of facilities. CEC exposed to change in law regarding the design and operational of bio waste transfer stations. Restricted Procedure could expose the Council to adverse unknown risks that impact on VfM. Long delivery timetable	A viable option that provides substantial opportunity but has a complex risk profile. Recommend preparation of a business case prior to procurement Recommend use of Competitive Dialogue to enable detailed dialogue on risk and time for site related work

Table 5.2 (continued) Reference Project Implementation SWOT assessment

Element & delivery option	Delivery Option	Strength	Weakness	Opportunities	Threats	Comment/ Recommendation
	DBFO/PPP `of a Dry Anaerobic digestion plant using Competitive Dialogue	Enhanced recycling rate Reduced residual waste disposal Production of renewable energy No CEC capital outlay/investment required. Option should facilitate design and build risk transfer.	Limited supplier market Suppliers may find it difficult to raise capital finance. Requirement for external capital funding will increase the overall cost to the Authority Length of contract will be influenced by period required to write down capital investment (probably 10-15 years). If CEC do not provide suitable sites then this add to the complexity and duration of the procurement.	Potential employment opportunities associated with construction and operation of facilities (not in CEC control). Some limited potential for gain share in respect of commercial waste inputs and power production Potential for localised benefits (e.g. heat off take, direct wire) Gate fee payments based on tonnage or a unitary charge.	If CEC provide sites then full surveys will be required for tender process enhancing the risk of delay. Potential for delay risk associated planning and permitting and due diligence requirements. CEC may be required to share the financial cost of planning and permitting failure. Public opposition to construction facilities. Political opposition to construction of facilities CEC exposed to change in law risk Long and complex delivery timetable	The viability of this option may be adversely impacted by both size of the supplier market and their ability to raise capital finance. This option is likely to have lower opportunity for CEC.

Table 5.2 (continued) Reference Project Implementation SWOT assessment

Element & delivery option	Delivery Option	Strength	Weakness	Opportunities	Threats	Comment/ Recommendation
Litter Bin Waste replacement of existing bins with recycling bins and integration with collection	Use of existing Ansa assets to collect Lifecycle replacement of existing litter bins	Enhanced revenues from the sale of dry recyclates Enhanced recycling rate	May impact on efficiency of existing collection systems Need to buy, store supply and replace appropriate litter bins to facilitate lifecycle replacement Incompatibility with existing co-mingled recyclate off take contract May require new recyclate off take to secure best price for recyclables	Compatibility with existing co-mingled recyclate off take contract	Impacts adversely on efficiency of household waste recycling Adverse reaction from Ansa staff Contamination results in additional disposal costs	A viable option that could be introduced and grown organically with low risk. Recommend an optioneering study is undertaken prior to commencement.
Recycling of Mechanical Street Sweeping	Replacement Service Contract on expiry of existing contract using Restricted Procedure	Enhanced recycling Reduced landfill disposal and avoid landfill tax	Limited market Feasibility of proven and sustained recycling	Reduced service cost	Exposure to change in legalisation	A viable option that has inherent risks over the medium to long term due to potential change in legislation Recommend that CEC undertake appropriate due diligence prior to contract Recommend that contracts are relatively short term with provision for extension to reduce risk exposure

Table 5.2 (continued) Reference Project Implementation SWOT assessment

Element & delivery option	Delivery Option	Strength	Weakness	Opportunities	Threats	Comment/ Recommendation
Transfer station(s) and 3rd party merchant Residual Waste Treatment in an Energy from Waste Facility	Design and Build of Transfer Stations using the Competitive Dialogue or Restricted Procedure. Separate procurement of Residual Waste Treatment using the Competitive Dialogue or Restricted Procedure.	Provision of Transfer Facilities within Cheshire East will facilitate accessibility to existing merchant treatment capacity outside Cheshire East. Transfer stations minimise adverse impacts on waste collection systems and HWRC haulage. CEC would ultimately control design and build process for Transfer Stations CEC would control waste transfer station infrastructure. Ansa could operate transfer stations Treatment costs can be a simple gate fee payment structure (all revenue expenditure). Optimum term of treatment contract (s) can be flexible. Reduced landfill disposal and landfill tax. Generation of renewable energy	Requires CEC capital outlay for construction of transfer stations. Requires appropriate sites for transfer facilities. Planning and permitting requirements Some design risk may lie with CEC although this can be transferred by good contracting structures. CEC will be responsible for lifecycle and maintenance costs for transfer stations No CEC capital outlay associated with Residual Waste Treatment	Will deliver employment opportunities associated with construction and operation of Transfer Facilities, Provision of Transfer Facilities will widen accessible market and enhance competition for treatment contracts (enhanced Value for Money - VfM). Optimisation of transfer station locations may reduce collection and haulage costs Potential to facilitate commercial collection and transfer, with an associated income opportunity. Transfer stations could be designed to accommodate RDF/SRF production at a later date Limited or no opportunity to share in energy revenues No opportunity for local CHP	Potential planning and permitting delays. Public opposition to construction of transfer stations. Political opposition to construction of transfer stations. Transfer facility cost movement. CEC may be exposed to a risk in the event of delay. CEC exposed to change in law regarding the design and operation of transfer stations. Residual Waste Treatment Bidders are likely to endeavour to pass some risks to the Authority (e.g. tonnage guarantees, change in law, contamination. Calorific value).	A highly viable option that could facilitate the delivery of relatively quick residual waste solution (subject to sites and planning issues). Application of either the Restricted Procedure of Competitive Dialogue would be determined by the balance of known and unknown risks prior to the initiation of the procurement. Recommend a business case is produced prior to procurement.

Table 5.2 (continued) Reference Project Implementation SWOT assessment

Element & delivery option	Delivery Option	Strength	Weakness	Opportunities	Threats	Comment/ Recommendation
Transfer station(s) and 3rd party merchant Residual Waste Treatment in an Energy from Waste Facility	DBFO/PPP Transfer station(s) and 3rd party residual waste Treatment using the Competitive Dialogue procedure	Provision of Transfer Facilities within Cheshire East will enhance the accessibility of existing merchant treatment capacity outside Cheshire East. Minimises adverse impacts on waste collection systems and HWRC haulage. No CEC capital outlay/investment required Option should facilitate design risk transfer. Treatment costs can be a simple gate fee payment structure (all revenue expenditure). Optimum term of treatment contract (s) can be flexible. Reduced landfill disposal and landfill tax. Generation of renewable energy No CEC capital outlay associated with Residual Waste Treatment	Relatively small DBFO (transfer stations only) may not attract major waste management companies or vigorous competition. Niche suppliers may find it difficult to raise capital finance. Requirement for external capital funding will increase the overall cost of transfer station provision to the Authority Length of contract will be influenced by period requiring to write down capital (probably 10-15 years). Likely to be more complex payment mechanism (unitary charge for transfer stations) Assets may be retained by supplier on expiry	Potential employment opportunities associated with construction and operation of Transfer Facilities (not in CEC control). Provision of Transfer Facilities will widen accessible market and enhance competition for treatment contracts (enhanced VfM.). Optimisation of transfer station locations may reduce collection and haulage costs Transfer stations provide opportunity to monitor and reduce potential contamination prior to delivery to treatment facilities). Limited or no opportunity to share in energy revenues No opportunity for local CHP	May have elongated delivery period necessitating extensive interim provisions If CEC provide sites then full surveys will be required for tender process enhancing the risk of delay. Potential for delay risk associated planning and permitting and due diligence requirements. CEC may be required to share the financial cost of planning and permitting failure. Public opposition to construction of transfer stations. Political opposition to construction of transfer stations. CEC exposed to change in law regarding the design and operational of transfer stations.	A potentially viable option that has very limited opportunity. The viability of this option may be adversely impacted by both size of the supplier market and their ability to raise capital finance. Competitive dialogue is likely to be the most appropriate procurement vehicle considering the balance of risks that will impact on pricing. Recommend a business case is produced prior to procurement.

Key
TLS Transfer Loading Station
AD Anaerobic Digestion
DB Design and Build facilities
CEC – Cheshire East Council
DFBO Design, Build, Finance and Operate facilities
HWRC Household Waste Recycling Centre
PPP – Public Private Partnership

5.6 Package of Services/Works to be Tendered

Table 5. shows several elements of the Reference Project including a potential range of works and services required by the Council to implement the waste strategy. These can be packaged and procured in a number of ways. These include:

- HWRC decommissioning and/or alteration;
- Anaerobic Digestion facility design and build;
- Anaerobic Digestion of collected food waste operations;
- Waste transfer station design and build;
- Waste transfer station operation and haulage; and
- Residual Waste Treatment.

These services can potentially be packaged for procurement in a number of ways. Significant factors in determining the most appropriate package for the Council will include:

- Delivering value for money;
- The procurement schedule in relation to service requirement deadlines;
- Market interest in the packages; and Effective risk management (through good competition and contractual risk transfer).

The range of service to be tendered and the treatment of assets is a fundamental step in determining the most appropriate tendering route and impact on the procurement timetable. A clear decision will be required from the Council prior to any issue of an OJEU notice (see below) concerning the services to be packaged and procured together or separately. This process could be informed through a soft market testing exercise.

In the absence of soft market testing data it is considered that:

- Packaging of several design and build contracts may offer value for money due to the enhanced scale of development and greater degree of works cohesion and co-ordination (e.g. HWRC decommissioning and alteration, multiple transfer stations);
- There may be advantages in packing the operation/service contracts for several transfer stations. This may offer greater service cohesion as well value for money due to the enhanced scale of the contracts and reduced management costs; and
- There appears to be little superficial advantage in packaging up operational/service contracts for local anaerobic digestion and residual waste treatment as these are very distinct treatment technologies.

5.7 Procurement Procedure

Several factors will dictate the most appropriate procedure to be used for the procurement exercise.

It is AMEC's view that the packages would be best procured through either:

1. The Restricted Procedure; or
2. A streamlined Competitive Dialogue procedure.

The Restricted Procedure should be used where a specification for the services/works can be established that enables clear and transparent pricing. This could apply to HWRC decommissioning/alterations or to residual waste treatment should the Council seek an off take/ merchant solution for residual waste or RDF/SRF. The Competitive Dialogue procedure would be suited to the procurement packages that involve more complex risks and also opportunities that may impact on the delivery of the solution and best value. These could include any works contracts and the operational contract for a Council/Ansa owned facility such as transfer stations or AD facility.

5.7.1 OJEU Notices

The OJEU notice is a key stone in the procurement process. These should only be issued once clear and unambiguous information can be supplied in the notice. Failure to get the correct information in the OJEU notice will result in the process being void (and the process being restarted) or the award of contract being challenged.

5.7.2 Length of Contract

The length of contract should be established with reference to the optimum period required for most efficient pay back of the capital investment associated with mobile and fixed assets. Where there is no significant associated capital investment then the optimum contract period should be defined by value for money and project specific risks (e.g. exposure to legislative change).

5.7.3 Invitation to Tender

In line with good practice any PQQ exercise should be designed to achieve a short list of:

Restricted Procedure – 6-5 companies

Competitive Dialogue Procedure – 5-4 companies

5.7.4 Tender Evaluation Criteria

Contracts to be awarded by the Council or Ansa should be based on the most "economically advantageous offer". This should be defined on a basis of price and quality. Quality will be made up from a series of sub-criteria (with an appropriate allocation marks), these as a minimum could include:

- Technical Solution;
- Service Delivery;
- Environmental Aspects;
- Customer Care;
- Quality Control and Assurance; and
- Resources and Management Systems.

A formal system for evaluating bids (both price and quality) must be developed prior to the receipt of tenders and preferably prior to issue of tender documents in accordance with best practice.

5.7.5 Variant Tenders

The Council should generally allow tenderers to submit a limited number of variant offers, provided these are justified on the basis of providing economically advantageous solutions. This will enable industry-based innovation to be encompassed within tenders facilitating the delivery of a Best Value.

The introduction of Variant tenders however, increases the work associated with tender evaluation and the complexity of this process. This can be limited to some extent by either limiting the number of Variants that can be considered or limiting the aspects of the tender documentation against which Variants can be submitted (e.g. length of contract, risk allocation).

5.8 Affordability and Risk

The affordability of any contracted solution will be a key parameter that will need to be determined by the Council. It is recommend that this issue is addressed by the development of an outline business case prior to each procurement exercise that develops an affordability envelope, project governance, contracting approach and procurement strategy prior to the issue of any invitation to tender.

The selected funding route must be considered as part of the overall affordability of the project. Prudential borrowing offers an alternative to local authorities in relation to funding of capital development projects. This may appear attractive and pragmatic in terms of value for money; however risk transfer may be more complex in such approaches.

Risk transfer and the pricing of key risks will be significant issues in assessing the overall affordability of solutions. E-procurement projects should be accompanied by a risk register that is actively monitored and managed during the execution of the tender process.

6. Reference Project

The reference project developed as part of this draft waste management strategy comprises the waste management options that have been assessed as having the most potential for delivering the Council's high level strategy objectives, and which are likely to be successful in the unique setting of Cheshire East.

The purposes of developing a reference project are two-fold:

To show that the Council's strategic objectives can be delivered by a particular solution (mix of the options considered) and the estimated cost of doing so (demonstrating that the objectives are attainable and affordability of their delivery assessed) without constraining any future procurement options (i.e. the Council can go to the market on a technology neutral basis). Most commonly the lowest cost option that meets the Council's objectives is selected as the reference project for this purpose.

In addition the reference project may be used to define the solution that best fits the Council's objectives and affordability criteria and sets out that this is what the Council intends to deliver (i.e. that the Council will go to market for specific technologies/solutions). This may not be the lowest cost options and can include specific criteria with particular local significance (e.g. political commitment, site constraints, compatibility with existing services).

The assessment of waste management options considered as part of the preparation of this draft waste strategy is set out in sections 4 and 5. The reference project is discussed further below.

Residual waste

From the options appraisal work it is clear that the four residual waste management options considered are all capable of assisting the Council in achieving its waste management objectives (to a greater or lesser extent).

The option of building a waste transfer station and sending residual waste to a Merchant EfW facility comes out as having the least cost to the Council, and this is the option that is adopted for the reference project. This option is selected on a 'technology neutral basis', giving a reference project that would deliver the Council objectives, but without a strong preference for a particular residual waste management technique (which would be determined by the market during a procurement exercise). This option has a fairly conservative risk profile, but lacks some of the opportunity that could be delivered by the more expensive options that involve the delivery of a dedicated residual waste solution (EfW or ATT with CHP) for Cheshire East Council.

Organic waste

From the results of the options appraisal process it is clear that for the treatment of organic waste the delivery of a Dry Anaerobic Digestion (AD) solution has the best fit with the Council's objectives. It fits with the existing waste collection systems and is the most affordable solution overall.

The treatment of organic waste in a Dry AD process is supported by the enhancement of the existing collection arrangements to collect both garden and food waste at the same time. The introduction of a co-mingled collection system for garden and food waste will ensure the most efficient use of the collection resources, collect and deliver the correct mix of materials to the treatment process, and keep kerbside collection costs to a minimum, all of which align with the Council's objectives. Furthermore, the use of Dry AD will produce renewable power and dedicated plant for Cheshire East which will open up the opportunity for income from power revenues and potential local use of heat and power via a CHO network attached to the plant.

Cheshire East Council will pursue the collection of food waste co-mingled with garden waste and the delivery of a treatment system that incorporates dry anaerobic digestion. This will be procured subject to a favourable business case.

Bring sites

The two options under consideration for the continued improvement of the Council's bring site service both align with the high level strategy objectives and are included in the reference project.

Alignment of materials collected at bring sites has been commenced by the Council. This has seen the removal of banks collecting items that can be recycled by the householder in the silver bin. This rationalisation shall continue with a further review of bring bank tonnages, and the removal of underperforming banks as well as banks for kerbside collected materials.

With the potential rationalisation/removal of banks for material that are collected through the kerbside collection system, the ongoing review of bring site provision will also examine a reduction in the overall number of bring sites in use. This will allow the optimum number and distribution of bring sites to be maintained. This approach will ensure efficient use of Council resources, contribute to achieving the high level strategy objectives, and progress an already successful Council initiative.

Bulky waste including WEEE

The two options considered for the management of bulky waste and WEEE were both assessed as having the potential to contribute to the strategy objectives. They will also contribute to other Council initiatives and are included in the reference project.

Promotion of partnership with Third Sector organisations for bulky waste collections, the certification of materials for re-use, and operation of re-use outlets, would take the form of the Council working with a local

Third Sector organisation to provide these services on behalf of the Council and Ansa. This approach could be enhanced with the adoption of two of the other options under consideration: firstly by including in the partnership the collection of materials from HWRCs; and secondly through the promotion Re-use and Recycling of Bulky Waste and WEEE through re-use credits, which could provide financial assistance to a partner organisation.

Commercial waste

Two of the options considered for the management of Commercial waste align well with the high level strategy objectives and are included in the reference project.

The expansion of waste collections to incorporate commercial co-mingled recyclable waste will increase the amount of waste managed by the Council (by up to 10% depending on the amount of commercial residual waste collected). Modelling based on a number of assumptions looking at the potential income from the sale of recovered recyclable materials derived from commercial waste indicates a potential financial benefit to the Council, averaging out at approximately £1M p.a. (2014 non adjusted prices) should this be introduced as a service enhancement that uses existing Ansa collection resources.

The expansion of waste collections to incorporate commercial residual waste will increase the amount of waste managed by the Council by up to 10%. With this increase in waste managed there will be commensurate increases in the amounts of recycling and saleable energy generated, as well as reductions in capital and operating costs achieved with economies of scale, all of which contribute towards the Council's high level waste strategy objectives. The scale of these advantages to the Council will rely on the residual waste management solution eventually procured.

Both of the above commercial waste collection options will incur additional collection costs, but these costs will be off-set by charging for collections, as well as the sale of recovered materials. Additionally these options will help to ensure the most efficient use of the collection fleet.

The potential introduction of commercial waste collections will be pursued by the Council and Ansa subject to a further market assessment and a business case.

HWRCs

A reduction in the number of HWRCs provided by the Council and the provision of a dedicated Commercial Waste Recycling Centre (CWRC) both align with the CEC high level waste strategy objectives and are included in the reference project. These two options may be achieved by the conversion of an existing HWRC into CWRC. Of the two options considered to facilitate the acceptance of commercial and industrial (C&I) waste, this option is preferred as it will: provide an enhanced waste management service to the business community of Cheshire; provide an income stream to the authority; remove/ reduce the cost of providing an existing HWRC; avoid any potential conflicts that would arise from allowing C&I waste deliveries to established HWRCs; provide a use for a former HWRC capitalising on the existing

infrastructure; and allow an optimised HWRC solution through the removal of any over provision of service.

Due to the broad range of potential benefits and impacts from the options, a full business case will be developed to explore any HWRC rationalisation/ CWRC provision.

The promotion of partnership with the Third Sector for re-use of HWRC materials is closely linked to the promotion of partnership with the Third Sector for bulky waste collections as noted above in reference to bulky waste including WEEE. This option is incorporated into the reference project.

The option of incentivising re-use in preference to recycling at HWRCs (option 16) ranked joint twenty first in the initial options appraisal. This option may be considered prior to any re-procurement of HWRC management services as reuse lies higher in the waste hierarchy.

Litter bin waste

Two of the strategies under consideration for the management of litter bin waste align with CEC's high level waste strategy objectives and are included in the reference project.

The provision of separate bins for recyclables & litter (otherwise known as 'recycling on the go'), will help to divert material from residual waste into the recycling streams. Adoption costs would be kept to a minimum with the lifecycle replacement of damaged or obsolete litter bins in strategic locations with new separate collection containers favoured rather than a wholesale replacement.

Integration with existing collection systems may be improved through a review of refuse/recycling collection rounds that may be used to empty litter bins in place of bespoke litter bin collection rounds.

Mechanical street sweepings

The recycling of mechanical street sweeping is an area that is currently subject to legislative uncertainty and flux. It is therefore important the Council maintains flexibility to adapt to any changes until such time as a more certain legislative framework is in place for this waste stream.

Moving forward the Council will seek to put in place arrangements for mechanical street sweepings that favour reuse and recycling over disposal. Alternative solutions coming forward will be tested to ensure they offer both value for money and legislative compliance at that time. However, the Council will ensure that should circumstances change it is not tied to a solution that is no longer viewed as reuse or recycling. This may be done through the provision of relatively short term service contracts or provisions that enable early termination of contracts without financial penalty.

The option will promote the re-use or recycling of mechanical street sweepings, thereby pushing its management up the waste hierarchy, which is in line with the high level waste strategy objectives and is the best available option for the reference project.

Table 6.1 Summary of reference project

Waste Stream	Draft Strategy
Residual waste treatment/ disposal	WTS and Merchant EfW
Organic waste (garden & food)	Dry AD Co-collection of garden and food waste
Bring sites	Align materials collected at bring banks with kerbside collections Reduce number of bring sites
Bulky waste including WEEE	Promote partnership with Third Sector Incentivise re-use in preference to recycling
Commercial waste	Start collection of co-mingled commercial recyclable waste Start collection of co-mingled commercial residual waste
HWRCs	Provide dedicated Commercial Waste Recycling Centre Reduce number of HWRCs
Litter bin waste	Provide separate bins for recyclables & litter Integrate with existing collection systems
Mechanical street sweepings	Promote re-use & recycling

7. Conclusions and Recommendations

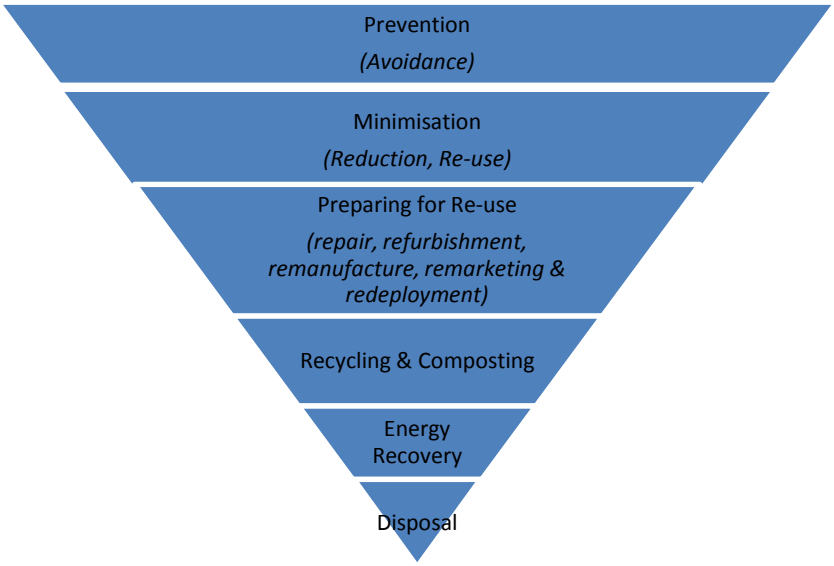
7.1 Conclusions

In developing this waste management strategy, Cheshire East Council has applied its established series of strategic waste management objectives and tested a variety of waste management options against them. In doing so it sought to identify those options that;

- Are most compatible with the objectives;
- Will deliver best value to residents of Cheshire East;
- Are compliant with legislation;
- Deliver sustainable waste management practices;
- Provide social benefit to our local community; and
- Promote movement up the waste hierarchy.

The waste management hierarchy is at the heart of the modern approach to managing waste. The hierarchy firstly focuses on waste prevention, and then examines each subsequent option before disposal is finally considered.

Figure 7.1 The waste hierarchy



The Government Review of Waste Policy in England 2011 describes each of the stages of the waste hierarchy:

- Prevention — Using less material in design and manufacture;
- Minimisation — Keeping products for longer, re-use, using less hazardous materials;
- Preparing for re-use — Checking, cleaning, repairing, refurbishing, repair, whole items or spare parts;
- Recycling — Turning waste into a new substance or product. Includes composting if it meets quality protocols;
- Energy Recovery — Energy is recovered from waste through a variety of methods such as thermal treatment and digestion; and
- Disposal — Landfill and incineration without energy recovery.

In developing this waste management strategy for Cheshire East and the objectives set out within, Cheshire East Council has carefully considered its obligation to promote the waste hierarchy. Furthermore, it has done so in a way that promotes sustainability and the use of waste as a resource for the benefit of the residents of Cheshire East.

7.2 Promoting the Waste Hierarchy in our strategic choices

Whilst recognising that Cheshire East Council has a statutory obligation to promote the waste hierarchy it also recognises that the management of waste affects the environment. It takes natural resources to produce goods that eventually become waste. Vehicles are required to collect waste for recycling and disposal; emissions from these vehicles will contribute to environmental harm. When waste is buried in landfills harmful greenhouse gases are produced when it decomposes.

By following the waste hierarchy waste can be managed in the most sustainable way. To prevent waste being produced is the best option as it avoids the need to collect and treat the waste. Also if items are re-used it prevents additional products being made and resources being consumed.

Recycling makes use of resources that have already been taken from the earth. This reduces the need to use more natural resources.

Recovery of energy from waste allows renewable electricity and heat to be generated. This lessens the amount of fossil fuels used for energy production.

The landfill disposal or combustion of waste without energy recovery are the last resort and result in the smallest, or even a negative net environmental benefit from the waste that is disposed of.

7.2.1 Waste prevention and re-use

Waste can be prevented by both business and the general public by thinking about what we need and buy. For example, residents can reduce waste by using cotton shopping bags instead of plastic shopping bags and avoiding over-packaged products where possible. Cheshire East Council is committed to deliver measures that help reduce the amount of waste produced within its administrative area and this is enshrined within its waste management objectives.

Re-using waste helps to reduce the impact that waste management has on the environment. This can be as simple as passing things we no longer need on to other people to use, for example by giving items to friends or charity shops.

Cheshire East Council has and will continue to promote a wide range of waste education and awareness initiatives, prevention measures and re-use activities. In particular the Council seeks to work closely with local third sector organisations to promote the reuse of bulky waste for the benefit the local community. Key activities also include*:*

Promotional Activity

- Residents Leaflet – reinforcing recycling and reducing contamination in Silver Recycling bin (167,000 homes);
- Radio adverts, 15 days over Christmas and New Year – reducing food waste;
- National Recycling Awards – Waste Reduction Volunteer submission;
- Agripa advertising panels on RCVs - Recycling;
- Facebook with launch competition;
- Hospital screens – Real Nappies and Love Food Hate Waste campaign; and
- Community re-use groups – Freegle.

Home Composting Campaigns

- Compost Awareness Week – Waste Reduction Volunteers, stands at several Garden Centres; and
- Green Johanna project – small number of residents (started Sept 2012).

Waste Minimisation Activity

- Large County shows, Cheshire Show, Nantwich Show (Love Food Hate Waste main emphasis, cooking with visitors to the stand and also Home Composting/ Wormeries/ Green Johannas);

- Community shows, Barnaby, Parklive, Crewe Play Day (Love Food Hate Waste, cooking with visitors to the stand);
- Manchester Metropolitan University – Crewe Campus (Love Food Hate Waste, cooking with visitors to the stand);
- Waste Reduction Volunteers – promote Love Food Hate Waste and Home Composting;
- Textile recycling – posters to schools, Town and Parish Councils;
- Real Nappies - Just So Festival, advert in Families and Cheshire Mums magazines, Trial Pack and cash back scheme;
- Junior Recycling Officers and Year 7 challenge;
- Developed new Dance Mat Challenge Love Food Hate Waste game – children and adults; and
- Furniture reuse – Cheshire Furniture Reuse Forum.

7.2.2 Recycling and Composting

Recycling and composting is one of the most visible ways in which waste can be managed more sustainably. A 50% recycling rate is required by the Waste (England and Wales) Regulations 2011 by 2020, the Council aspires to meet and preferably exceed this. Cheshire East Council will actively pursue the collection and treatment of comingled food and garden waste in order to complement the efficient collection of co-mingled dry recyclables which it has already introduced.

Through the procurement of a new dry anaerobic digestion plant Cheshire East Council will seek to significantly increase recycling and composting. The options appraisal process clearly identified dry anaerobic digestion as the preferred option for treating comingled food and garden waste as this will also produce renewable energy and divert waste form landfill. The introduction of such a plant in Cheshire East also opens up the opportunity to use some of the renewable energy locally in the form of both heat and electricity.

7.2.3 Recovery

For residual waste that is not recycled or composted the next best option is to treat the waste so that energy can be recovered from it. This is a better alternative to sending waste to landfill where it can break down and produce harmful greenhouse gases.

Cheshire East Council will procure waste recovery capacity that is sufficient to treat all suitable residual waste arising within East Cheshire so that waste sent to landfill can be minimised. The options considered in this waste management strategy and developed in the reference project show that this can be achieved but that there are a number of ways in which this can be delivered. Cheshire East will not predetermine what may be the best solution at this stage and recognises the delivery of this may take some time. As a consequence an interim measure may be

required in order to make sure that the current high dependence on unsuitable landfill ends. To provide flexibility to deliver interim arrangements, that require the use of merchant residual waste treatment facilities that lie outside of Cheshire East, waste transfer stations will be needed. Cheshire East Council will secure waste transfer capacity so that the high dependence on landfill ceases within the near future and more sustainable treatment capacity can be secured.

The options appraisal process short listed a number of options that would be suitable for the treatment of residual waste. These are briefly described below.

Energy from waste with combined heat and power (EfW CHP)

In Energy from Waste (EfW) facilities waste is combusted and the resulting energy is recovered through using the combustion gases produced to drive a steam turbine. The majority of the electricity produced is usually exported to the national grid.

Heat in the form of hot water or steam can also be used (e.g. to heat nearby buildings) and where this is done the process is called Combined Heat and Power (CHP). Infrastructure is needed to transfer the heat to users using a pipe network and new boilers for end-users. Laying a pipe network can be expensive and the overall costs depend on the number of end-users who will commit to use the heat, their annual demand and the distances the heat has to travel.

Outputs from Energy from Waste facilities include incinerator bottom ash, which can be used in aggregate manufacture, and metals that can be recycled. Air pollution control residues are also produced and these are sent to hazardous landfill and/or treatment.

The EU Industrial Emissions Directive sets tight regulatory standards that are applied to emissions from these facilities.

The footprint of an Energy from Waste facility can be relatively small when compared with other residual waste treatment facilities and the recovery of energy significantly improves the carbon impact of the waste management solution. The architectural design of Energy from Waste facilities is very varied and can range from iconic buildings, industrial buildings or designs that blend with the local landscape and environment. However the procurement planning and construction of new Energy from Waste Facilities is a process that is likely to take in excess of five years.

Advanced thermal treatment (ATT) with combined heat and power

ATT is similar to traditional EfW plants, although the various sub-processes that occur are separated, often with the intent of achieving a greater degree of overall process control. Some suppliers of ATT technologies promote the concept that gases such as hydrogen, methanol or ammonia can eventually be extracted from the process, but this is not yet proven at a commercial scale. The delivery period for new ATT facilities is likely to be comparable to that for Energy from Waste Facilities although very few have been built in the UK.

7.2.4 Disposal

Landfill

Although Cheshire East Council will use landfill as the last option for the management of municipal waste, it is acknowledged that there may be some limited requirement in future for the following reasons:

- Not all waste can be economically recycled;
- Not all waste is suitable for recovery;
- Waste treatment facilities may produce some residues that need to be disposed of; and
- There will be a need for disposal capacity should facilities be closed for maintenance.

7.3 Key Strategic Recommendations and Actions

- That Council undertake a review of bring bank usage and costs prior to renewal of service contract/s;
- The management of bulky waste (collection & re-use / recycling) should be subject to dialogue and optioneering with potential Third Sector partners prior to any agreements;
- That Council undertake an efficiency review of HWRC network;
- That a market study/potential customer survey is undertaken prior to introducing a collection service for commercial waste;
- Preparation of a business case for the treatment of organic waste using Dry AD to support a procurement;
- Recommend use of Competitive Dialogue procurement process for Dry AD, to enable detailed dialogue on risk and time for site related work;
- Undertaking an optioneering study prior to commencing replacement of existing Litter Bins with recycling bins, and integration of collection system;
- Prior to replacing the of service contract for the recycling of Mechanical Street Sweepings, to undertake an appropriate due diligence for the contract;
- That service contracts for the recycling of Mechanical Street Sweepings are relatively short term with the provision for extension (to reduce risk exposure); and
- Preparation of a business case prior to procurement of a residual waste management solution. This should include the provison of waste transfer capacity to provide flexibility to ensure service continuity over the short and medium term.